Question

A 30-year-old male presents to the emergency room with headache. He describes that for the last week he has been having shooting pains on one side of the face with associated tearing of that eye.

He reports that for the past week he has been having similar pains intermittently. He last had an attack three months ago which lasted two weeks. He is concerned he has a brain tumour.

On examination the sclera is injected and the patient appears uncomfortable. There is no neck stiffness, fundoscopy is unremarkable. Eye movements are intact, visual fields are full to direct confrontation and there is no proptosis.

What is the most likely diagnosis?

(Please select 1 option)

- Cluster headache
- Complicated migraine
- Migraine with aura
- Tension headache
- Trigeminal neuralgia

Answer Question

Incorrect

Explanation

Cluster headaches typically involve unilateral excruciating pain which occurs as the name suggest in clusters for a relatively short period of time. There is usually associated lacrimation.

Migraine with aura does not present like this.

Trigeminal neuralgia is a definite differential however it usually is associated with face pain and does not involve the eye or come in clusters.

A complicated migraine typically has long tract findings of sensorimotor involvement of the limbs.

This presentation is not typical for tension headache.

Question

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What is the most likely diagnosis?

Your Answer

- Cluster headache - This is the correct answer ✔
- Complicated migraine
- Migraine with aura

Next

Question

A mother comes to your office concerned about her 2-year-old son.
She has noticed that he typically laughs inappropriately for no particular reason. Shortly after an event he appears to be fidgeting. These events last only minutes and in between the events he acts normally. You suspect gelastic seizures.
From where do these typically arise?

(Please select 1 option)

- Brainstem
- Frontal lobes
- Hypothalamus
- Pineal gland
- Temporal lobe

Answer Question

Incorrect

Explanation

Gelastic seizures are typically the result of a hypothalamic harmatoma. Gelastic seizures should be suspected in cases of erratic laughing or crying. It can be hard to identify in young children but there is usually associated automatisms such as fidgeting or lip smacking or change in sensorium.

Automatisms can be seen in temporal lobe seizures.

Frontal lobe involvement in neurodegenerative disease can cause emotional lability.

The pineal gland is involved in melatonin release.

If this were brainstem you would expect to see cranial nerve involvement which is not mentioned in the case.

Question

A mother comes to your office concerned about her 2-year-old son.

She has noticed that he typically laughs inappropriately for no particular reason. Shortly after an event he appears to be fidgeting. These events last only minutes and in between the events he acts normally. You suspect gelastic seizures.

From where do these typically arise?

Your Answer

- Brainstem
- Frontal lobes
- Hypothalamus - This is the correct answer ✔
- Pineal gland

Next

Question

Which of the following is least likely to cause choreiform movements?

(Please select 1 option)

- Polyarteritis nodosa (PAN)
- Rheumatic fever
- Systemic lupus erythematosus
- Thyrotoxicosis
- Untreated Parkinson's disease

Answer Question

As noted above, treatment for Parkinson's disease can result in chorea but it would be unusual to get it in a patient who has not been on treatment. Bradykinesia and paucity of movement is expected in such patients.

Reference:

Patient.info. Abnormal Involuntary Movements.

Question

Which of the following is least likely to cause choreiform movements?

Your Answer

- Polyarteritis nodosa (PAN)
- Rheumatic fever
- Systemic lupus erythematosus
- Thyrotoxicosis
- ✓ Untreated Parkinson's disease - Correct ✔

Rate this question

Next

Correct

Explanation

Chorea is a form of dystonia, which results in involuntary, irregular, flowing movements ('dance-like'). It has multiple causes which can be primary or secondary. The underlying pathology is generally poorly understood but likely involves an imbalance in the basal ganglia pathways.

Causes of chorea are numerous but include inherited causes such as Huntington's chorea and Wilson's disease.

Acquired causes include:

- Drugs - antipsychotics, anticonvulsants, amphetamines, dopamine agonists in patients with Parkinson's disease
- Toxins - carbon monoxide, cyanide, opiates, mercury
- Immune - post-streptococcal (Syndenham's chorea), SLE, vasculitis (PAN, Behcet's disease)
- Infectious - meningitis, encephalitis, cerebral toxoplasmosis, new variant Creutzfeldt-Jakob disease
- Vascular - stroke, polycythaemia, moyamoya
- Hormonal - hypoparathyroidism, pregnancy, OCP, HRT, hyperthyroidism
- Metabolic - hyper/hyponatraemia, hypo/hyperglycaemia, hypomagnesaemia, hypocalcaemia, B1 and B12 deficiency
- Paraneoplastic - small cell lung carcinoma, renal cell carcinoma, ovarian carcinoma, lymphoma
- CNS - trauma, tumours, senile chorea.

As noted above, treatment for Parkinson's disease can result in chorea but it would be unusual to get it in a patient who has not been on treatment. Bradykinesia and paucity of movement is expected in such patients.

Reference:

Patient.info. Abnormal Involuntary Movements.

Question

Which of the following is least likely to cause choreiform movements?

Next

Question

Which of the following is caused by a lesion of the occipital lobe?

(Please select 1 option)

- Acalculia
- Astereognosis
- Constructional apraxia
- Cortical blindness
- Visuospatial neglect

Answer Question

- Cortical blindness (blindness due to damage to the visual cortex and may present as Anton's syndrome where there is blindness but the patient is unaware or denies blindness)
- Homonymous hemianopia
- Visual agnosia (seeing but not perceiving objects - it is different from neglect, since in agnosia the objects are seen and followed but cannot be named).

Question

Which of the following is caused by a lesion of the occipital lobe?

Your Answer

- Acalculia
- Astereognosis
- Constructional apraxia
- Cortical blindness - This is the correct answer ✔
- ✓ Visuospatial neglect - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Explanation

Lesions of the frontal lobe include difficulties with task sequencing and executive skills:

- Expressive aphasia (receptive aphasia is due to a temporal lobe lesion)
- Primitive reflexes
- Perseveration (repeatedly asking the same question or performing the same task)
- Anosmia
- Changes in personality.

Lesions of the parietal lobe include:

- Apraxias
- Neglect
- Astereognosis (unable to recognise an object by feeling it)
- Visual field defects (typically homonymous inferior quadrantanopia).

They may also cause acalculia (inability to perform mental arithmetic).
Lesions of the temporal lobe cause:

- Visual field defects (typically homonymous superior quadrantanopia)
- Wernicke's (receptive) aphasia
- Auditory agnosia
- Memory impairment.

Occipital lobe lesions include:

- Cortical blindness (blindness due to damage to the visual cortex and may present as Anton's syndrome where there is blindness but the patient is unaware or denies blindness)
- Homonymous hemianopia
- Visual agnosia (seeing but not perceiving objects - it is different from neglect, since in agnosia the objects are seen and followed but cannot be named).

Question

Next

Question

A 50-year-old man presents with tingling in the left upper limb. The pain originated in the neck and radiated down the left arm. He proceeded to have numbness and paraesthesia in the left lower limb.

On examination he had restriction of neck movements and there was a mild wasting to be noted in the left biceps. There was inversion of the supinator and biceps jerks. His knee jerk and ankle jerk were hyperreactive and he has a positive extensor plantar response.

He then developed paraesthesia and numbness of the right lower limb. A diagnosis of cord compression was made and he underwent a surgical decompression.

Post-surgery was complicated by septicaemia and urinary tract infection and he remained in bed for four days. He subsequently developed inability to dorsiflex his right foot and right big toe. There was numbness on the outside of the foot and there was decreased eversion, but inversion was normal. His reflexes remained as before.

What is the cause of the post operative weakness?

(Please select 1 option)

- Common peroneal nerve palsy
- L4 root lesion
- Recurrence of the original cord compression
- Sciatic nerve palsy
- Spinal cord infarction

Answer Question

Incorrect

Explanation

The commonest cause of acute foot drop after prolonged bed rest is entrapment common peroneal neuropathy at the neck of fibula. Whilst it is possible for this to develop at the time of surgery, the complicated postoperative course in this gentleman is likely to have contributed.

Typically there is weakness of ankle dorsiflexion, eversion, diminished sensation of the lateral aspect of leg and dorsum of foot.

The ankle reflex remains intact.

Question

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What is the cause of the post operative weakness?

Your Answer

- Common peroneal nerve palsy - This is the correct answer ✔
- L4 root lesion

Next

Question

A 48-year-old female patient develops an acute, severe, and isolated right C6 radiculopathy affecting both the motor and sensory roots.
She is examined in an EMG clinic three weeks after the onset of symptoms.
Which of the following statements is true?

(Please select 1 option)

- A repeat examination 12 months later is likely to reveal rapidly recruited low amplitude short duration motor units in the clinically involved muscle on EMG
- Absent sensory nerve potentials would be expected on examination of the thumb and index finger on the right
- Fibrillation potentials would be expected in the right extensor carpi ulnaris and extensor pollicis brevis
- Triceps tendon jerk is likely to be depressed or absent
- Voluntary motor unit activity may be absent in the right biceps

Answer Question

Incorrect

Explanation

This is a difficult question.
Thumb and index finger are within the C6 dermatome.
Extensor pollicis brevis and extensor carpi ulnaris are supplied by C7/8.
Fibres from C7 are also responsible for the triceps reflex, with some contribution from C6.
A pattern of rapidly recruited low amplitude short duration motor units on the electromyogram (EMG) would be considered to represent myopathic changes rather than de-innervation.

Question

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Next

Question

A 70-year-old man presents with difficulty speaking.

He has a history of diabetes, hypertension, hypercholesterolaemia, chronic obstructive pulmonary disease. He is currently on aspirin, simvastatin, amlodipine and hydrochlorothiazide.

On examination the patient is awake, his blood pressure is 150/70 mmHg. His pulse is irregularly irregular. He has 4/5 strength on the right arm and leg and 5/5 strength on the left.

When asked to point to the window he appears unable to do so. When told to raise his arms and place his hands out he does not. When visually shown the same action he is able to perform it. When asked to repeat 'Today is a sunny day', he is able to do so.

With what is this type of dysphasia consistent?

(Please select 1 option)

- Broca's aphasia
- Global aphasia
- Transcortical motor aphasia
- Transcortical sensory aphasia
- Wernicke's aphasia

Answer Question

A 70-year-old man presents with difficulty speaking.

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- Global aphasia
- Transcortical motor aphasia
- Transcortical sensory aphasia - This is the correct answer ✔
- ✓ Wernicke's aphasia - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

The main problem lies within the brain in a region known as the temporal-occipital-parietal junction, located behind Wernicke's area. The patient has intact repetition but is unable to follow verbal commands. He has fluent grammatical speech.

In Broca's or non-fluent or expressive aphasia the patient is unable to name objects with poor comprehension and repetition. It localises to the Broca's area in the left posterior inferior frontal gyrus.

In Wernicke's or fluent or receptive aphasia the patient is able to form correct grammatical sentences but language content is incorrect. It localises to the dominant superior temporal gyrus. There is poor comprehension and repetition but verbal output is fluent.

In transcortical motor aphasia, which localises to the anterior superior frontal lobe, the patient has good comprehension and repetition but has halting, effortful speech. Patients also have impaired writing skills.

Global aphasia results in an almost mute patient: there is poor verbal output, comprehension, repetition and understanding.

Transcortical sensory aphasia is what is described in this case. It is characterised by impaired auditory comprehension with intact repetition and fluent speech, and is caused by damage to the temporal lobes. It differs from Wernicke's aphasia in that patients still have intact repetition, and exhibit cholalia (the compulsive repetition of words). Improvement may be seen with speech therapy.

Reference:

Boatman D, et al. Transcortical sensory aphasia: revisited and revised. *Brain.* 2000;123:1634-42.

Question

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Next

Question

A 20-year-old female presents with acute onset of left foot drop.
Examination reveals weakness of ankle dorsiflexion and eversion. There is sensory loss over the dorsum of the foot. Reflexes were all present and plantars flexor.
Which of the following nerves is likely to be involved?

(Please select 1 option)

- Common peroneal nerve
- Femoral nerve
- Inferior gluteal nerve
- Sciatic nerve
- Tibial nerve

Answer Question

Incorrect

Explanation

Peroneal neuropathy usually presents with acute foot drop.

The foot and ankle weakness on neurological examination is restricted to ankle and toe dorsiflexion and ankle eversion. Ankle reflex (tibial nerve mediated) and knee reflex (femoral nerve mediated) are intact.

Sensory involvement may include the lower two thirds of the lateral leg and dorsum of foot.

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Your Answer

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- Sciatic nerve
- ✓ Tibial nerve - Incorrect answer selected ✖

Next

Question

A 70-year-old man presents with weight loss, lower limb weakness and dry mouth. He has been a heavy smoker.

On examination he looks cachectic; he has proximal lower limb weakness, areflexia (reflexes normalise with repetitive muscle contraction). There is no wasting or fasciculations. Sensory examination is normal.

Which of the following blood tests is the most likely to confirm the diagnosis?

(Please select 1 option)

- Acetylcholine receptors
- Anti GM1 antibody
- Antinuclear antibody
- Anti Ro/La antibodies
- Voltage gated calcium channels antibodies

Answer Question

Explanation

The most likely diagnosis is Lambert-Eaton syndrome. It results when IgG autoantibodies blockade the voltage-gated calcium channels of peripheral cholinergic nerve territory.

Fifty per cent of the cases are associated with small cell lung carcinoma.

Proximal lower limb weakness is the most consistent neurological feature.

Ptosis and ophthalmoplegia are rare. Autonomic dysfunction is common (for example, dry mouth).

The reflexes are depressed or absent but normalise with repetitive muscle contraction.

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Next

Question

Which of the following investigations best supports a diagnosis of new variant CJD?

(Please select 1 option)

- CSF analysis
- CT brain
- EMG
- MRI brain
- VEPs

Answer Question

Incorrect

Explanation

MRI brain typically shows bilateral posterior thalamic high signal abnormalities in a patient with new variant Creutzfeldt-Jakob disease (CJD).
Cerebrospinal fluid (CSF) analysis only shows non-specific changes.
EMG and CT brain are normal.
Sporadic CJD (and not new variant CJD) is associated with specific EEG changes.

Question

Which of the following investigations best supports a diagnosis of new variant CJD?

Your Answer

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- CT brain
- EMG
- MRI brain - This is the correct answer ✔
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Rate this question

Next

Question

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To what does this type of dysphasia localise?

(Please select 1 option)

- Aphemia
- Fluent aphasia
- Non-fluent aphasia
- Transcortical motor aphasia
- Transcortical sensory aphasia

Answer Question

In Wernicke's or fluent or receptive aphasia the patient is able to form correct grammatical sentences but language content is incorrect. It localises to the dominant superior temporal gyrus. There is poor comprehension and repetition but verbal output is fluent.

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Transcortical sensory aphasia is characterised by impaired auditory comprehension with intact repetition and fluent speech, and is caused by damage to the temporal lobes. It differs from Wernicke's aphasia in that patients still have intact repetition, and exhibit cholalia (the compulsive repetition of words). Improvement may be seen with speech therapy.

Aphemia is what is described in this case. It is a type of aphasia in which there is severe dysarthria and impairment of verbal output. There is intact comprehension. It is believed to be the result of pars opercularis, inferior pre-Rolandic gyrus or subcortical lesions.

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Aphemia - This is the correct answer ✔

Next

Question

TAR DNA-binding protein 43 (TDP-43) is associated with which neurological dysfunction?

(Please select 1 option)

- Demyelinating disease
- Myopathic disease
- Neurodegenerative disease
- Neuro-oncologic disease
- Peripheral neuropathies

Answer Question

Incorrect

Explanation

TDP43 is a protein that has recently been found to be involved in a multitude of neurodegenerative diseases including dementia and motor neuron disease.

Question

TAR DNA-binding protein 43 (TDP-43) is associated with which neurological dysfunction?

Your Answer

- Demyelinating disease
- Myopathic disease
- Neurodegenerative disease - This is the correct answer ✔
- Neuro-oncologic disease
- ✓ Peripheral neuropathies - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

A 74-year-old man comes to the clinic with his wife. He has been suffering from increasingly frequent falls and now has marked problems with his mobility.

Past history of note includes an inferior MI and TIA a few years earlier. He has also suffered from two episodes of urinary retention and now has an indwelling catheter.

On examination his BP is 142/72 mmHg, with a postural drop of 30 mmHg on standing. He has a quiet ejection systolic murmur, his chest is clear, and abdominal examination is unremarkable.

Neurological examination reveals loss of upward gaze, cogwheel rigidity and bradykinesia. He has a mild tremor only.

Investigations show

Haemoglobin	128 g/L	(135-177)
White cells	5.3 $\times 10^9$/L	(4-11)
Platelets	221 $\times 10^9$/L	(150-400)
Sodium	139 mmol/L	(135-146)
Potassium	4.7 mmol/L	(3.5-5)
Creatinine	138 µmol/L	(79-118)

Which of the following is the most likely diagnosis?

(Please select 1 option)

- Idiopathic parkinsonism
- Lewy body disease
- Multi-infarct disease
- Multi-system atrophy
- Pick's disease

Answer Question

Haemoglobin	128 g/L	(135-177)
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- Multi-infarct disease
- Multi-system atrophy - This is the correct answer ✔
- ✓ Pick's disease - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

The particular features of autonomic dysfunction seen here, with postural hypotension and urinary retention, coupled with parkinsonism point towards a diagnosis of multi-system atrophy. The loss of upward gaze is a distractor, which may lead you to consider a diagnosis of supranuclear palsy (which is not an option here).

As here, whilst the motor symptoms are parkinsonian in nature, the tremor is often less pronounced than in a patient with idiopathic Parkinson's.

The Parkinson's symptoms associated with multi-system atrophy usually respond poorly to dopamine agonists or L-dopa, in contrast to idiopathic Parkinson's.

Urinary retention can be managed with an indwelling catheter if required, and postural hypotension managed with support stockings plus mineralocorticoids if required.

Question

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Next

A 72-year-old man comes to the neurology clinic with his wife. He is driving her mad as almost every night when he tries to go to bed he feels that something is crawling over his legs and he has an irresistible urge to scratch, rub or move them, and eventually has to get up and pace around the room.

He has no significant past medical history, apart from essential hypertension for which he takes ramipril 10 mg per day.

On examination his blood pressure is 139/73 mmHg, his pulse is 70 and regular and he has no murmurs. Respiratory, abdominal and neurological examinations are entirely normal.

Investigations show:

Haemoglobin	118 g/L	(135-177)
White cells	4.9 $\times 10^9$/L	(4-11)
Platelets	230 $\times 10^9$/L	(150-400)
Sodium	138 mmol/L	(135-146)
Potassium	4.4 mmol/L	(3.5-5)
Creatinine	122 µmol/L	(79-118)
Glucose	4.9 mmol/L	(<5.5)

Which of the following is the most appropriate treatment?

(Please select 1 option)

- Baclofen
- L-dopa
- Oxycodone
- Ropinirole
- Sodium valproate

Answer Question

Haemoglobin	118 g/L	(135-177)
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Which of the following is the most appropriate treatment?

Your Answer

- Baclofen
- L-dopa
- Oxycodone
- Ropinirole - This is the correct answer ✔
- ✓ Sodium valproate - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

This patient's history is typical for restless legs syndrome.

Dopamine agonists such as ropinirole are the treatment of choice, with anti-convulsants such as sodium valproate being effective second line agents. Whilst opiates may be used, they are generally avoided due to long term tolerance.

Secondary restless legs syndrome may be seen in those with:

- diabetes mellitus
- anaemia, and
- chronic renal failure.

Symptoms can improve with correction of anaemia or control of blood sugar.

The associated sleep disturbance can have a significant negative effect on the quality of life.

Question

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Next

Question

A 30-year-old female was commenced on carbamazepine for partial complex seizures and was also advised to discontinue her moderate alcohol consumption.

Therapeutic concentrations of carbamazepine were achieved within four days with a dose of 200 mg daily but the dose needed to be increased to 400 mg daily within two weeks to achieve a therapeutic plasma concentration.

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

(Please select 1 option)

- Auto-induction of carbamazepine metabolism
- Auto-inhibition of carbamazepine metabolism
- Cessation of alcohol intake
- Concomitant prescription of the oral contraceptive pill
- Reduced bioavailablity of carbamazepine

Answer Question

Incorrect

Explanation

Alcohol is a liver enzyme inducer therefore stopping the alcohol should increase the activity of the carbamazepine not reduce its activity.

It is well recognised that carbamazepine is a P450 enzyme inducer but it is less well appreciated that it causes auto-induction and so would require increase in dose to maintain the same therapeutic concentration.

Further Reading:

Medscape. Carbamazepine Toxicity.

Question

A 30-year-old female was commenced on carbamazepine for partial complex seizures and was also advised to discontinue her moderate alcohol consumption.

Therapeutic concentrations of carbamazepine were achieved within four days with a dose of 200 mg daily but the dose needed to be increased to 400 mg daily within two weeks to achieve a therapeutic plasma concentration.

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

Your Answer

- Auto-induction of carbamazepine metabolism - This is the correct answer ✔
- Auto-inhibition of carbamazepine metabolism
- Cessation of alcohol intake
- Concomitant prescription of the oral contraceptive pill
- ✓ Reduced bioavailability of carbamazepine - Incorrect answer selected ✘

Next

Question

A 60-year-old woman presents with a 24 hours history of headache and vomiting. She has been on steroids for temporal arteritis for the last three years.

Examination demonstrates pyrexia, neck stiffness, photophobia, dysarthria, nystagmus and ataxia. CSF shows neutrophilic pleocytosis, low glucose, elevated protein.

What is the most likely diagnosis?

(Please select 1 option)

- Carcinomatosis meningitis
- Cryptococcal meningitis
- Listeria meningitis
- Meningococcal meningitis
- Tuberculus meningitis

Answer Question

Incorrect

Explanation

Risk factors for listeria meningitis include older age and immunosuppresion.
It is typically associated with brain stem signs.
Cerebrospinal fluid shows:

- Neutrophilic pleocytosis
- Low glucose, and
- High protein.

Question

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- Cryptococcal meningitis
- Listeria meningitis - This is the correct answer ✔
- Meningococcal meningitis
- ✓ Tuberculus meningitis - Incorrect answer selected ✖

Next

Question

A 4-year-old girl presents to the office with her mother. The mother reports that the child is minimally interactive with others.

On examination the child is of short stature. She sits quietly rubbing her hands together and appears disinterested in the visit.

What is the most likely diagnosis?

(Please select 1 option)

- Absence seizure
- Austism spectrum disorder
- Emery-Dreifuss muscular dystrophy
- Rett syndrome
- Turner's syndrome

Answer Question

Explanation

Rett syndrome is a neurodevelopmental disorder mostly affecting girls. There is repetitive hand movements such as hand wringing syndrome related to the MECP2 gene on the X chromosome.

Absence seizures can be associated with automatisms such as lip smacking.

Although similar to austism, Rett syndrome presents with classic hand wringing which makes this more likely here.

Emery-Dreifuss muscular dystrophy affects skeletal and cardiac muscle and presents with progressive weakness.

Turner's syndrome is an chromosomal disorder (monosomy X) with short stature associated with attention deficit hyperactivity disorder (ADHD) and learning disabilities.

Question

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On examination the child is of short stature. She sits quietly rubbing her hands together and appears disinterested in the visit.

What is the most likely diagnosis?

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- Absence seizure
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- Rett syndrome - This is the correct answer ✔
- ✓ Turner's syndrome - Incorrect answer selected ✖

Next

Question

A 40-year-old gentleman attends the Emergency department with a stroke affecting his left arm and leg.

A CT scan confirms that there is a right sided infarct. Carotid scanning shows 85% occlusion of the right carotid and 50% stenosis on the left.

What is the best course of action?

(Please select 1 option)

- Bilateral carotid endarterectomy
- Discharge and GP follow up
- Discharge and outpatient follow up
- Urgent carotid endarterectomy on the left
- Urgent carotid endarterectomy on the right

Answer Question

3. NICE. Stroke (CG68).

Question

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- Discharge and outpatient follow up
- Urgent carotid endarterectomy on the left
- ✓ Urgent carotid endarterectomy on the right - Correct ✔

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Correct

Explanation

Carotid endarterectomy has been established as an effective treatment for both symptomatic patients and asymptomatic patients who are shown to have carotid artery stenosis. It reduces the risk of disabling stroke or death by 48% in a person with severe symptomatic carotid stenosis (>70%) who has had a TIA. The peri-operative risk of disabling stroke or death is approximately 3%. Current UK guidelines recommend endarterectomy for symptomatic patients with greater than 70% stenosis, based on the North American Symptomatic Carotid Endarterectomy Trial which showed clear benefit. The endarterectomy should be performed as soon as the patient is fit for surgery, preferably within two weeks of a TIA.

The benefit is marginal for symptomatic patients with 50-69% stenosis, but may be greater in male patients. NICE recommends these patients are also considered for endarterectomy. There is significantly less benefit for asymptomatic patients, even those with greater than 60% stenosis. Patients with less than 50% stenosis should not be considered for carotid surgery

Recurrent stenosis can occur in 1-20% of patients following endarterectomy, and re-operation is needed in 1-3% of cases. Ipsilateral strokes occur in 9% of patients following endarterectomy, and 26% of those treated with medical management alone (within 2 years).

All patients with suspected non-disabling stroke or TIA who are considered as candidates for carotid endarterectomy should have carotid imaging within 1 week.

Carotid endarterectomy is also indicated following a non-disabling stroke. However, if the patient has had a disabling stroke there is no real benefit in them undergoing the procedure.

Carotid stenting is increasingly being used as an alternative to endarterectomy. This is a less invasive revascularisation strategy, and uses an embolic protection device. There seems to be a similar early risk of death or stroke, and similar long-term benefits. Risk is higher in elderly patients, possibly due to vascular tortuosity and calcification. The procedure is currently indicated in selected cases, such as restenosis.

Please note for this explanation we have used the North American Symptomatic Carotid Endarterecomy Trial (NASCET) criteria, as opposed to the European Carotid Surgery Trialists' Collaborative Group (ECST) criteria. See NICE guidelines for the difference - carotid imaging reports will state which criteria are being used.

Reference:

1. Brott TG, et al. Stenting versus Endarterectomy for Treatment of Carotid-Artery Stenosis. *N Engl J Med.* 2010;363:11-23.
2. Chambers BR, et al. Carotid endarterectomy for asymptomatic carotid stenosis. *Cochrane*

Next

Question

A 23-year-old woman presents to the clinic after waking up with difficulty seeing. She reports no past medical history and is currently on no medication.

On examination she has decreased visual acuity of the left eye and red desaturation. She is concerned that she has multiple sclerosis.

You explain that this is not by definition multiple sclerosis.

What is her chance of developing multiple sclerosis?

(Please select 1 option)

- 25%
- 33%
- 50%
- 75%
- 100%

Answer Question

Explanation

"The cumulative probability of developing MS by 15 years after onset of optic neuritis was 50% (95% confidence interval, 44%-56%) and strongly related to presence of lesions on a baseline non-contrast-enhanced magnetic resonance imaging (MRI) of the brain. Twenty-five percent of patients with no lesions on baseline brain MRI developed MS during follow-up compared with 72% of patients with 1 or more lesions. After 10 years, the risk of developing MS was very low for patients without baseline lesions but remained substantial for those with lesions. Among patients without lesions on MRI, baseline factors associated with a 5514118 4. substantially lower risk for MS included male sex, optic disc swelling, and certain atypical features of optic neuritis."

Optic Neuritis Study Group. Multiple sclerosis risk after optic neuritis: final optic neuritis treatment trial follow-up. *Arch Neurol.* 2008;65(6):727-32.

Question

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- 25%
- 33%
- 50% - This is the correct answer ✔
- 75%
- 100% - Incorrect answer selected ✖

Next

Question

A 27-year-old man presents with a two year history of intermittent tingling sensation involving his left side.

It starts in his fingers and spreads in 10-20 seconds to affect the whole arm and leg on the same side. The attacks only last for one minute.

Which of the following is the most likely diagnosis?

(Please select 1 option)

- Hyperventilation
- Migraine with aura
- Multiple sclerosis
- Somatosensory seizures
- Transient ischaemic attacks

Answer Question

Incorrect

Explanation

Positive symptoms (jerking, tingling) usually signify epilepsy.
Negative symptoms (weakness, numbness) are usually caused by transient focal ischaemia.
Spread of symptoms ('marching') indicates migraine (in 5-20 minutes) or seizures (in seconds).
The usual source of somatosensory seizures is the parietal lobe.

Question

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- Multiple sclerosis
- Somatosensory seizures - This is the correct answer ✔
- ✓ Transient ischaemic attacks - Incorrect answer selected ✖

Next

Question

Which of the following would be expected features of a left posterior cerebral artery occlusion?

(Please select 1 option)

- A right homonymous hemianopia
- Decerebrate state
- Internuclear ophthalmoplegia
- Pure aphasia (i.e. without alexia)
- Wernicke's aphasia

Answer Question

Incorrect

Explanation

Internuclear ophthalmoplegia is typical of multiple sclerosis.
Wernicke's aphasia and pure aphasia (that is, without alexia) are middle cerebral artery.
Decerebrate state is most likely a pontine lesion.
Other possible findings in posterior left cerebral artery occlusion are:

- Cortical blindness
- Visual hallucinations
- Thalamic syndrome, and
- Claude's and Weber's syndromes.

Question

Which of the following would be expected features of a left posterior cerebral artery occlusion?

Your Answer

- A right homonymous hemianopia - This is the correct answer ✔
- Decerebrate state
- Internuclear ophthalmoplegia
- Pure aphasia (i.e. without alexia)
- ✓ Wernicke's aphasia - Incorrect answer selected ✖

Next

Question

A 67-year-old woman presents with severe back pain and urinary retention with overflow. She says that her lower back has been aching for the past six weeks, but the pain has become significantly worse over the past 48 hours.

There is a medical history of hypertension, but nothing else of note. Her BP is 142/82 mmHg, pulse is 73 and regular.

She is unable to get off the couch due to distal lower limb weakness. Tone is increased bilaterally and her reflexes are increased. As you chat to her you notice fasciculation. There is perianal loss of sensation.

Which of the following is the most likely diagnosis?

(Please select 1 option)

- Anterior spinal artery aneurysm
- Anterior spinal artery thrombosis
- Cauda equina syndrome
- Conus medullaris syndrome
- Sacroiliitis

Answer Question

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- Anterior spinal artery thrombosis
- Cauda equina syndrome
- Conus medullaris syndrome - This is the correct answer ✔
- ✓ Sacroiliitis - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Explanation

Conus medularis syndrome presents with mixed upper and lower motor neurone signs. These include bilateral distal weakness with increased tone and hyper-reflexia, fasciculation. Sensory loss is most marked in the perianal region. It is much rarer that cauda equina syndrome.

Spinal cord infarction related to anterior spinal artery disease presents most frequently with sudden onset pain and loss of power and sensation beginning in the thoracic region. The symptoms seen here have slowly built up over a few weeks and affect a more distal spinal cord distribution.

Sacroiliitis would not be associated with neurological deficit.

Cauda equina syndrome is associated with flaccid paralysis.

	Conus Medullaris Syndrome	Cauda Equina Syndrome
Presentation	Sudden and bilateral	Gradual and may be unilateral leg signs initially
Reflexes	Knee jerks preserved, ankle jerks affected	Both knee and ankle jerks affected
Radicular pain	Less severe	More severe
Sensory	Numbness often localised to perianal area, dissociation can occur, usually bilateral and symmetrical	Numbness often localised to the saddle area, may be asymmetrical and unilateral, sensory loss often dermatomal
Motor	Symmetrical, hyperreflexic disal paresis, less marked than cauda equina, may be fasciculations	Areflexic paraplegic, may be asymmetric, more marked than conus medullaris, fasciculations rare, atrophy more common
Impotence	Frequent	Often less marked
Sphincter dysfunction	Urinary retention and atonic anal sphincter present early in disease (can cause overflow urinary incontinence)	Urinary retention, usually presents later in course of disease
Low back pain	More marked	Less marked

Reference:

Medscape. Cauda Equina and Conus Medullaris Syndromes Clinical Presentation.

Next

Question

A 70-year-old man has Parkinson's disease. He is started on treatment with L-dopa and dopa decarboxylase inhibitor therapy. However he continues to have troublesome tremor.
Which of the following drugs would be most likely to help?

(Please select 1 option)

- Amantadine
- Benzhexol
- Propranolol
- Ropinirole
- Selegiline

Answer Question

Incorrect

Explanation

Anticholinergic drugs such as benzhexol remain the treatment of choice in parkinsonian tremor.
L-dopa, selegiline and dopamine agonists are less effective in tremor.
Amantadine can be used as monotherapy in early disease for tremor or bradykinesia, but it has a weak and short-lived benefit. Evidence for efficacy is poor.
Propranolol is the treatment of choice in essential tremor.

Reference:

Rao SS, Hofmann LA, Shakil A. Parkinson's disease: diagnosis and treatment. *Am Fam Physician.* 2006;74:2046-54.

Question

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Next

Question

A 16-year-old girl presented with a three week history of headache and horizontal diplopia on far right lateral gaze. On two separate occasions she noted dimmed vision whilst bending forwards.

Over the last year she had gained 12 kilograms in weight. On examination, her weight was 95 kg, and height 162 cm.

Neurological examination revealed bilateral papilloedema and a partial right sixth cranial nerve palsy.

What is the most likely diagnosis?

(Please select 1 option)

- Idiopathic intracranial hypertension
- Multiple sclerosis
- Pituitary tumour
- Superior sagittal vein thrombosis
- Thyroid eye disease

Answer Question

Incorrect

Explanation

This patient is markedly obese with a body mass index (BMI) of 36 and the history suggestive of idiopathic intracranial hypertension (IIH).

Vision may be affected with enlargement of the blind spot; the visual obscuration with movements that provoke a rise in intracranial pressure (ICP), e.g. bending, is typical of IIH.

Dysthyroid eye disease would not present like this and is more commonly associated with hyperthyroidism.

The papilloedema would argue against multiple sclerosis (MS).

A bitemporal hemianopia or a visual field defect would be expected with a pituitary tumour.

Venous sinus thrombosis is a possibility but would be expected to produce deteriorating symptoms.

Question

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- Multiple sclerosis

Next

Question

A 50-year-old gentleman attends the Emergency department with weakness affecting his left arm and leg.
Carotid scanning shows 70% stenosis of the right carotid artery.
Which of the following statements is correct?

(Please select 1 option)

- Carotid endarterectomy should be performed
- Carotid endarterectomy should not be performed
- Carotid stenting is associated with lower rates of stroke than surgery
- Carotid stenting is proven to be safer than carotid endarterectomy
- Carotid stenting should be performed

Answer Question

Database Syst Rev. 2000;(2):CD001923.

3. NICE. Stroke (CG68).

Question

A 50-year-old gentleman attends the Emergency department with weakness affecting his left arm and leg.

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- ✓ Carotid stenting should be performed - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

There is an indication for intervention in this patient. Carotid artery atherosclerosis is an important cause of iscahemic stroke. The left-sided neurological signs in this patient indicate the symptomatic carotid is on the right side.

Carotid endarterectomy has been established as an effective treatment for both symptomatic patients and asymptomatic patients who are shown to have carotid artery stenosis. It reduces the risk of disabling stroke or death by 48% in a person with severe symptomatic carotid stenosis (>70%) who has had a TIA. The peri-operative risk of disabling stroke or death is approximately 3%. Current UK guidelines recommend endarterectomy for symptomatic patients with 70-99% stenosis (based on European Carotid Surgery Triallists' Collaborative Group criteria),or 50-99% stenosis (based on the North American Symptomatic Carotid Endarterectomy Trial) which showed clear benefit. The endarterectomy should be performed as soon as the patient is fit for surgery, preferably within two weeks of a TIA.

The benefit is marginal for symptomatic patients with 50-69% stenosis, but may be greater in male patients. NICE recommends these patients are also considered for endarterectomy. There is significantly less benefit for asymptomatic patients, even those with greater than 60% stenosis. Patients with less than 50% stenosis should not be considered for carotid surgery.

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Reference:

Next

Question

A 55-year-old man has progressive weakness of his hands over a period of one year.
Examination reveals wasting of the muscles of the hands and forearms and fasciculation. There is hyperreflexia of his lower limbs and upgoing plantars. Sensation is normal.
Which of the following is the most likely diagnosis?

(Please select 1 option)

- Alzheimer's disease
- Motor neurone disease
- Multiple cerebral infarcts
- Multiple sclerosis
- Syringomyelia

Answer Question

Incorrect

Explanation

There is a mixture of lower motor neurone signs in the upper arms and upper motor neurone signs in the legs. Cerebrovascular disease and Alzheimer's disease are therefore unlikely.

The history is of gradual onset over one year which makes multiple sclerosis less likely since it is usually abrupt in the onset of symptoms.

Syringomyelia is unlikely since sensation is unaffected.

This leaves motor neurone disease particularly of the amytrophic lateral sclerosis type.

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Your Answer

- Alzheimer's disease
- Motor neurone disease - This is the correct answer ✔
- Multiple cerebral infarcts
- Multiple sclerosis
- ✓ Syringomyelia - Incorrect answer selected ✖

Next

Question

A 76-year-old female presents with weakness of the left side of her body. She has no dysphasia.

Examination reveals power of 3/5 in the flexor muscles of the left upper arm and 2/5 in the extensor muscles of the left upper arm. Power in her left leg is 3/5 in the extensor muscles of the left leg and 2/5 in the flexor muscles. She has normal visual fields and sensation is intact.

An abbreviated mental test score is 10/10.

Please select the best option below to classify her stroke.

(Please select 1 option)

- Left lacunar infarct (LACI)
- Right lacunar infarct (LACI)
- Right partial anterior circulation infarct (PACI)
- Right posterior circulation infarct (POCI)
- Right total anterior circulation infarct (TACI)

Answer Question

Incorrect

Explanation

A left lacunar infarct will cause right sided motor symptoms.

This patient has a pure motor stroke; this is classified as a lacunar infarct according to the Bamford classification.

The patient's symptoms and signs are not consistent with a partial anterior, a posterior or a total anterior circulation infarct.

Reference:

1. Bamford J, et al. Classification of natural history and clinically identifiable subtypes of cerebral infarction. *Lancet.* 1991;337:1521-6.
2. NICE. Stroke (CG68).

Question

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- Right partial anterior circulation infarct (PACI)

Next

Question

A 20-year-old man presents to the Emergency department after punching a window. He has lacerated the medial aspect of his wrist, damaging the ulnar nerve. What is he at risk of developing?

(Please select 1 option)

- Claw hand
- Inability to pinch paper between his thumb and index finger
- Loss of sensation over the lateral three and a half fingers
- Wasting of the second lumbrical muscle
- Wasting of the thenar eminence

Answer Question

Incorrect

Explanation

Ulnar nerve damage at the wrist results in wasting of the intrinsic hand muscles (other than the lateral two lumbricals) and the hypothenar eminence. This produces the classic claw hand. It supplies sensation to the medial one and a half fingers.

The median nerve innervates the lateral two lumbricals and the thenar eminence (oppenens pollicis, abductor pollicis and flexor policis brevis). It supplies sensation to the lateral three and a half fingers. Damage to the motor branch, the anterior interosseous nerve results in inability to form and pinch grip, tip to tip, instead holding the paper between the pulp of the thumb and index finger.

Question

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What is he at risk of developing?

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- Claw hand - This is the correct answer ✔
- Inability to pinch paper between his thumb and index finger
- Loss of sensation over the lateral three and a half fingers
- Wasting of the second lumbrical muscle
- ✓ Wasting of the thenar eminence - Incorrect answer selected ✖

Next

Question

A 43-year-old gentleman has been brought to the Emergency department by his partner.

He was diagnosed with HIV infection 10 years ago and his CD4 count has been maintained on triple therapy.

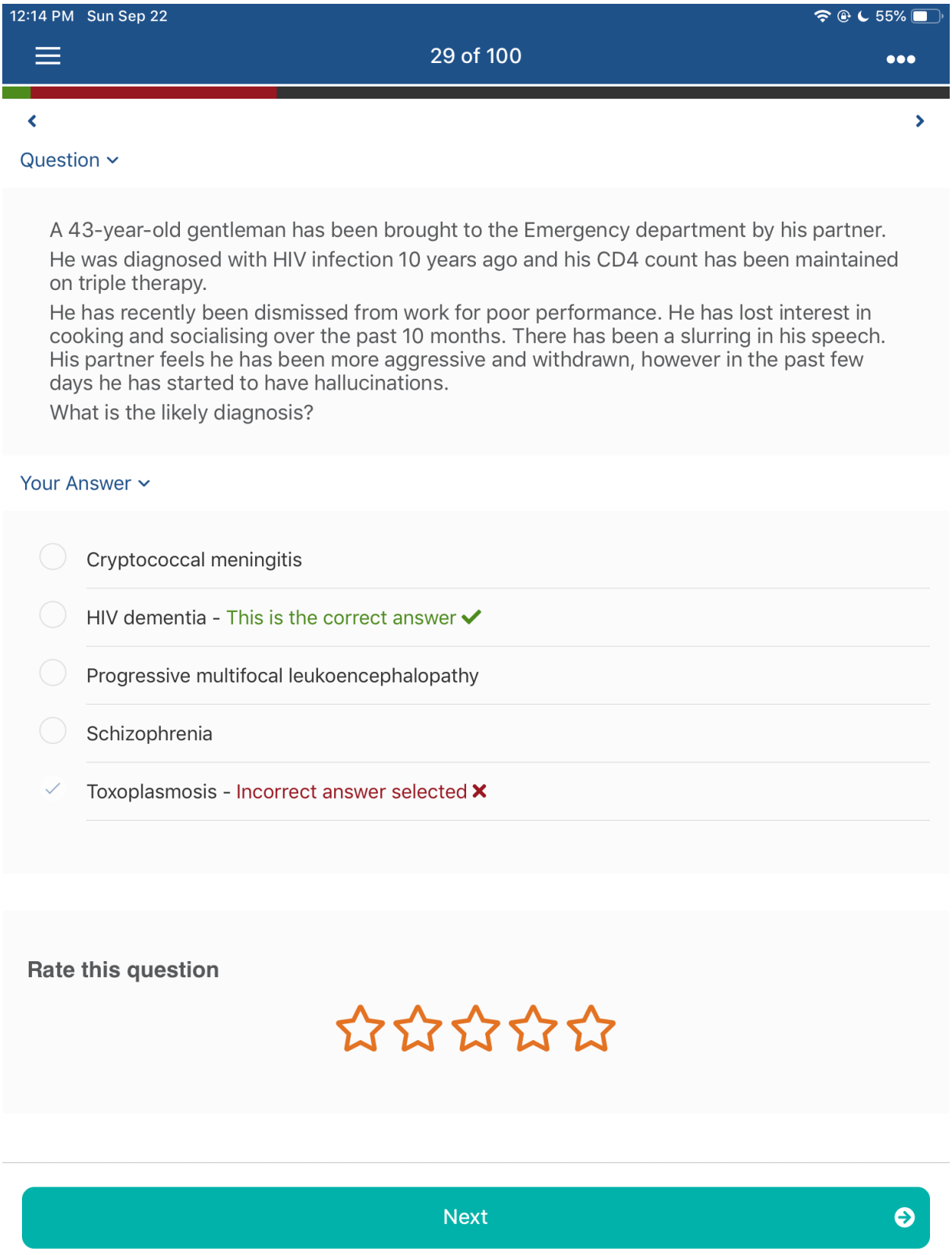
He has recently been dismissed from work for poor performance. He has lost interest in cooking and socialising over the past 10 months. There has been a slurring in his speech. His partner feels he has been more aggressive and withdrawn, however in the past few days he has started to have hallucinations.

What is the likely diagnosis?

(Please select 1 option)

- Cryptococcal meningitis
- HIV dementia
- Progressive multifocal leukoencephalopathy
- Schizophrenia
- Toxoplasmosis

Answer Question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What is the likely diagnosis?
Your Answer
Cryptococcal meningitis
HIV dementia - This is the correct answer
Progressive multifocal leukoencephalopathy
Schizophrenia
Toxoplasmosis - Incorrect answer selected
Rate this question
Next

Incorrect

Explanation

HIV infection can cause dementia that progresses over a longer time period than progressive multifocal leukoencephalopathy (PML). Symptoms include:

- Confusion
- Depression
- Reduced concentration
- Behavioural changes
- Psychosis
- Speech and balance problems, and
- Muscle weakness.

Patients with cryptococcal meningitis present with headache, fever, vomiting and few neurological signs.

PML can present at any CD4 count with ataxia, behavioural changes and focal neurological signs, often progressing over a period of months to paresis or even coma.

Toxoplasmosis presents with headache, fever and seizures. It has a typical CT head scan with ring enhancing lesions.

This patient's symptoms may be compatible with schizophrenia, however given his HIV status and neurology HIV dementia is more likely.

Question

A 43-year-old gentleman has been brought to the Emergency department by his partner.

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He has recently been dismissed from work for poor performance. He has lost interest in cooking and socialising over the past 10 months. There has been a slurring in his speech. His partner feels he has been more aggressive and withdrawn, however in the past few days he has started to have hallucinations.

What is the likely diagnosis?

Next

Question

A 60 year-old male who had been admitted a month ago with a left hemiparesis due to a right thalamic infarction re-presents with painful subluxation of his left shoulder.

Two weeks later he develops severe, constant burning left shoulder pain which radiates down his arm. He found no relief from paracetamol.

Which of the following is most likely to relieve his pain?

(Please select 1 option)

- Depo-Medrone injection into the shoulder
- Diclofenac
- Dihydrocodeine
- Gabapentin
- Tramadol

Answer Question

Incorrect

Explanation

The description of the pain (burning, radiating) supports the diagnosis of neuropathic pain.
Thalamic infarcts commonly cause late-onset of severe neuropathic pain weeks to months after the stroke. The pain is intractable to analgesics.
The treatment of choice for neuropathic pain is amitriptyline/gabapentin.
There are randomised controlled trials which support their value in neuropathic pain.

Question

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Two weeks later he develops severe, constant burning left shoulder pain which radiates down his arm. He found no relief from paracetamol.
Which of the following is most likely to relieve his pain?

Your Answer

- Depo-Medrone injection into the shoulder
- Diclofenac
- Dihydrocodeine
- Gabapentin - This is the correct answer ✔
- ✓ Tramadol - Incorrect answer selected ✖

Next

Question

A 70-year-old female who has a history of chronic anxiety presents with a three day history of severe left temporal headache radiating from the eye to the scalp. She had also experienced discomfort during eating.

Which one of the following drugs should be given to this patient while awaiting the results of diagnostic tests?

(Please select 1 option)

- Aciclovir
- Carbamazepine
- Diclofenac
- Prednisolone
- Sumatriptan

Answer Question

Hassan N, at al. Giant cell arteritis. *BMJ.* 2011;342:d3019.

Question

A 70-year-old female who has a history of chronic anxiety presents with a three day history of severe left temporal headache radiating from the eye to the scalp. She had also experienced discomfort during eating.

Which one of the following drugs should be given to this patient while awaiting the results of diagnostic tests?

Your Answer

- Aciclovir
- Carbamazepine
- Diclofenac
- Prednisolone - This is the correct answer ✔
- ✓ Sumatriptan - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

The features described here are classical for giant cell arteritis (GCA).

GCA affects large and medium sized arteries, with a predilection for the external carotid, ciliary and retinal arteries. Endovascular damage and cytokine-mediated inflammation causes local ischaemia. There is considerable overlap with polymyalgia rheumatica, and symptoms of both should be sought. Twenty per cent of patients develop loss of vision, which can be prevented with timely recognition and treatment.

The classically described jaw claudication occurs is a minority of cases, but does indicate a high risk of ischaemic complications.

The typical presentation of GCA is a temporal headache, with myalgia, malaise and fever. Erythrocyte sedimentation rate (ESR) and C reactive protein (CRP) are usually raised.

Once the diagnosis is suspected, high dose corticosteroids should be given. If visual symptoms are present, intravenous methylprednisolone should be given. Once symptoms and laboratory abnormalities resolve, the dose of corticosteroid can be reduced and usually stopped within two years.

A differential diagnosis is trigeminal neuralgia, although this tends to present with paroxysms of pain which last for thirty seconds to two minutes.

Carbamazepine is the first-line treatment. However, due to the threat to a patient's sight it is most appropriate to treat first for GCA in the above scenario.

Aciclovir could be used to treat ophthalmic shingles, however in this scenario you would expect characteristic lesions in addition to pain.

Diclofenac is a non-steroidal anti-inflammatory drug which is indicated in the management of simple headache.

Sumitriptan is a 5-HT1 agonist which is used for the treatment of migraines and cluster headaches. It would be unusual for these to present for the first time in a 70-year-old patient, and it would be unusual for the attacks to last as long as described above.

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Question

A 70-year-old female who has a history of chronic anxiety presents with a three day

Next

Question

Which of the following statements is true of acute compartment syndrome?

(Please select 1 option)

- Loss of distal pulse is an early sign
- Only occurs following fractures
- Passive stretch of affected muscles exacerbates pain
- Rarely requires surgical intervention
- The presence of pain is unhelpful in diagnosis

Answer Question

Incorrect

Explanation

Loss of peripheral pulses is a late sign indicating that the pressure within the compartment has exceeded arterial blood pressure.
Compartment syndrome can occur in the absence of a fracture, for example, crush injuries.
Passive stretch of the muscles traversing the compartment increases pain.
Treatment involves decompression of the affected compartment(s) including the skin.
Pain is the earliest and most reliable symptom of the onset of compartment syndrome.

Question

Which of the following statements is true of acute compartment syndrome?

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Next

Question

A 40-year-old man presents to the Emergency department.

His wife says he has not been himself for the past few days, becoming aggressive over trivial things and yesterday he could not work out how to use the TV remote control. When she confronted him he told her that he had a headache. Today she found him in the kitchen picking at his clothes and smacking his lips. He would not respond to her when she called him. This lasted for a few minutes. Afterwards he was confused and unable to remember this episode.

On examination his temperature is 37.9°C and he is becoming increasingly drowsy. Blood tests show a leucocytosis.

Which of the following is the most likely diagnosis?

(Please select 1 option)

- Bacterial meningitis
- Drug overdose
- HSV encephalitis
- Listerial rhombencephalitis
- Subdural haemorrhage

Answer Question

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Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

The answer is HSV encephalitis. Patients with encephalitis typically complain of headache and have impairment of consciousness. The patient's wife gives a good history of this - he has a change in personality then becomes confused. This progresses to drowsiness on admission. The episode in the kitchen fits with a complex partial seizure. HSV typically affects the temporal lobes and may cause this. The temperature and leucocytosis also fit with an infective cause. This question emphasises the importance of a collateral history in drowsy patients - the diagnosis is in the patient's wife's description of recent events.

The history is not typical for bacterial meningitis, which usually presents with obvious meningism (neck stiffness, photophobia) and signs of sepsis.

An overdose of antidepressants can cause serotonin syndrome, which is associated with drowsiness, pyrexia and seizures. These seizures are usually generalised, and the history does not fit well with this option.

Listerial rhombencephalitis is unlikely here. *Listeria* tends to affect immunocompromised patients, and causes a basal meningoencephalitis with associated symptoms of lower cranial nerve palsies and myoclonus.

Subdural haemorrhage is not the answer as there is no history of trauma and the pyrexia and leucocytosis do not fit. Subdural haemorrhages are more common in the elderly and alcoholics.

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Which of the following is the most likely diagnosis?

Next

Question

A 56-year-old female presented to her GP with pain in the left side of her neck radiating down the lateral aspect of her arm and forearm.

She had also noticed some weakness of her left shoulder and struggled to elevate her arm. She had a long-standing history of rheumatoid arthritis, treated with steroids and penicillamine. She was a non-smoker and did not drink any alcohol.

On examination there was some wasting over the left deltoid and evidence of fasciculations. Neck movements appeared full except that lateral movement exacerbated the left arm pain.

On examination of the upper limb, tone appeared reduced at the elbow and wrist and the biceps jerk was only present on re-enforcement. The left supinator jerk was inverted and the triceps jerk appeared brisk. There was some weakness of left shoulder abduction, elbow flexion and supination, but finger movements and elbow extension were intact. There was a sensory deficit over the lateral aspect of the left upper arm and forearm. The right arm appeared normal.

On examination of he lower limb, tone was increased, but power appeared normal. All reflexes were brisk and both plantar responses were extensor.

Investigations showed:

Haemoglobin	114 g/L	(130-180)
White cell count	3.4 $\times 10^9$/L	(4-11)
Platelets	245 $\times 10^9$/L	(150-400)
ESR (Westergren)	45 mm/1st hour	(0-15)
Serum sodium	145 mmol/L	(137-144)
Serum potassium	3.2 mmol/L	(3.5-4.9)
Serum urea	6.7 mmol/L	(2.5-7.5)
Serum creatinine	135 umol/L	(60-110)
Serum creatine kinase	178 U/L	(24-170)
Fasting plasma glucose	8.7 mmol/L	(3-6)

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Answer Question

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- Cervical myelopathy
- Circumflex neuropathy
- Inclusion body myositis
- Motor neurone disease
- Steroid-induced myopathy

Answer Question

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Rate this question

Next

Incorrect

Explanation

This patient has a cervical myelopathy, most likely as a result of her rheumatoid arthritis.

The likely level is C5/C6 given that there is weakness of the deltoid, biceps and supinator and the supinator jerk is inverted.

She also has long tract signs in her legs with hypertonia and hyperreflexia.

A circumflex neuropathy would account for the weakness and fasciculations of the deltoid, but would not explain the upper motor neurone signs in the legs, or weakness of the biceps and supinator.

Inclusion body myositis, an inflammatory myopathy, would present with bilateral often asymmetrical weakness, which has a tendency to affect distal musculature. The tendon reflexes would be normal and the creatine kinase would be normal or mildly elevated.

Motor neurone disease presents with upper and lower motor signs in absence of sensory disturbance.

A steroid induced myopathy would cause proximal weakness and wasting with normal reflexes and sensation.

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Next

Question

A 20-year-old female presents with seizures. She is fit and healthy but had been unwell for three days prior to admission with flu-like symptoms. The patient's friends tell you that prior to the seizure she had become confused and her behaviour had been out of character.

On examination the patient is post-ictal, with a fever of 39.1°C. She has a pulse of 100 bpm and a blood pressure of 130/71 mmHg. A CT head shows no abnormalities.

CSF examination shows no organisms, with a white cell count of 200/mm^3 (<5) mostly lymphocytes with a protein concentration of 2.3 g/L (0.29-1.98) and glucose of 3.2 mmol/L (3.0-6.0).

What is the likely diagnosis?

(Please select 1 option)

- Epilepsy
- Herpes simplex encephalitis
- Meningococcal meningitis
- Pneumococcal meningitis
- Viral meningitis

Answer Question

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Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

Herpes simplex encephalitis presents with:

- Behavioural changes or psychiatric disturbance
- Focal seizures
- Fever and
- Alteration in consciousness.

The key differentiating feature is the presence or absence of altered cognition or consciousness. Seizures can occur in both meningitis and encephalitis and a diagnosis of encephalitis should not be based on the presence of seizures alone.

It has peaks of presentation in the young and old.

A computerised tomography (CT) scan of the brain may be normal, but a magnetic resonance imaging (MRI) may reveal the diagnosis.

Cerebrospinal fluid (CSF) usually shows lymphocytosis with raised protein, sometimes elevated red cells and a normal or low glucose. In the acute setting, it may show neutrophilia but a repeat CSF stufy several hours later will show a shift towards lymphocytosis.

A high index of suspicion should give you the diagnosis, and if in doubt, intravenous aciclovir will protect the patient whilst other avenues are being explored.

Reference: Viral encephalitis in adults (UpToDate)

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Next

Question

A 39-year-old painter presents with a burning pain in both feet, which has deteriorated over the last six months.

He drinks 60 units of alcohol weekly and has a family history of pernicious anaemia.

On examination he has impairment of all modalities of sensation in both feet but particularly pain, temperature and absent ankle jerks.

What is the most likely diagnosis?

(Please select 1 option)

- Alcoholic peripheral neuropathy
- Chronic inflammatory demyelinating polyradiculopathy
- Hereditary sensory neuropathy
- Lead neuropathy
- Vitamin B_{12}deficiency

Answer Question

Incorrect

Explanation

Alcohol abuse and diabetes are the commonest causes of peripheral neuropathy in the United Kingdom.

Vitamin B12 deficiency most commonly involves the peripheral nerves, but can also result in subacute degeneration of the spinal cord. Peripheral involvement results in loss of vibration sense and proprioception. Cord involvement then affects the posterior columns and corticospinal tracts resulting in loss of reflexes, weakness, spasiticity, Babinski's responses and ataxia. The spinothalamic columns are not classically affected.

Peripheral involvement results in loss of vibration sense and proprioception. Cord involvement then affects the posterior columns and corticospinal tracts resulting in loss of reflexes, weakness, spasiticity, Babinski's responses and ataxia.

Lead neuropathy is purely motor affecting mainly the upper limbs.

Chronic inflammatory demyelinating polyradiculopathy causes mainly motor impairment (distal and proximal).

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Next

Question

A 55-year-old man presents with neck pain, associated with a five day history of neck and shoulder stiffness.

One week previously he had attended for a sigmoidoscopy and was given intravenous sedation during this procedure.

On examination, the temperature was 38.0°C, blood pressure was 100/60 mmHg and heart rate 100 bpm.

There were absent biceps jerks and weakness of deltoid and triceps bilaterally. The cranial nerves and lower limbs were normal.

There was a soft systolic murmur, and the chest was clear.

Which examination is likely to confirm the diagnosis?

(Please select 1 option)

- Cervical spine x ray
- CT head
- Echocardiography
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Rate this question

Next

Correct

Explanation

The features suggest a paraspinal abscess affecting C4-C6 given the neurological findings.

The investigation of the patient should include all of the above tests.

Paraspinal abscess is often associated with infection in an intravenous (IV) line, which may or may not be apparent as cellulitis.

Neurological signs, once apparent, should lead to rapid investigation as once they are present recovery of strength may be slow, or not at all.

A magnetic resonance imaging (MRI) of the neck should delineate the anatomy of the abscess, which will not be seen on a computerised tomography (CT) scan of the head.

However, given that these lesions are usually due to seeding of *Staphylococcus aureus*, endocarditis is a possibility.

Cerebral spinal fluid (CSF) should show an elevated protein with raised white cells, and a low/normal glucose.

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Question

A 35-year-old female presents with headaches.
Examination reveals papilloedema.
Which of the following would make the diagnosis of idiopathic intracranial hypertension (IIH) unlikely?

(Please select 1 option)

- Absence of retinal venous pulsations
- Bilateral upgoing plantar responses
- Normal ventricles on CT or MRI scan
- Reduced visual acuity
- Sixth cranial nerve palsy

Answer Question

Incorrect

Explanation

Idiopathic intracranial hypertension is typically associated with papilloedema, reduced venous pulsation and normal appearances of the magnetic resonance imaging (MRI).
A VIth nerve palsy is a recognised association.
Reflexes are preserved and plantars are flexor.
Extensor plantars suggest a alternative diagnosis.

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Next

Question

Which of the following statements about the spinal cord is true?

(Please select 1 option)

- A lesion of the left side of the spinal cord at C5 causes pyramidal weakness of the right leg
- Centrally placed spinal cord lesions affect joint position sense before other modalities of sensation
- Conus medullaris lesions cause lower motor neurone signs with absent reflexes
- The spinal cord ends at the lower border of the L3 vertebra
- The spinothalamic tracts are supplied principally by the anterior spinal artery

Answer Question

with sensory loss of buttocks and perineum.
The spinal cord terminates at lower border of L1 vertebra.
Anterior spinal arteries supply corticospinal and spinothalamic tracts, and anterior horns of the grey matter.

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Rate this question

☆ ☆ ☆ ☆ ☆

Next

Correct

Explanation

At the pyramidal decussation (lower medulla), 85% fibres cross over forming the lateral corticospinal tract, the remaining forming the ventral corticospinal tract, the fibres of which eventually cross the cord. Hence, a lesion at left side of C5 will cause weakness of the left leg.

Central spinal cord lesions destroy:

- Contiguous structures like the anterior horn cells (lower motor neurone signs)
- Decussating sensory fibres (pain and temperature) and
- The lateral corticospinal tracts (upper motor neurone signs).

Conus medullaris lesion causes:

- Wasting and weakness of leg muscles with fasiculations (lower motor neurone signs) and
- Hyper-reflexia especially distally (upper motor neurone signs) supplied by the lower sacral segments (glutei)

with sensory loss of buttocks and perineum.

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Next

Question

A 65-year-old woman with 12 hour history of unsteady gait of sudden onset associated with vomiting and headache.
Following this she had increasing drowsiness.
What is the diagnosis?

(Please select 1 option)

- Acute subdural haemorrhage
- Cerebellar haemorrhage
- Frontal subdural empyema
- Herpes simplex encephalitis
- Pituitary apoplexy

Answer Question

Incorrect

Explanation

The history is very typical of cerebellar haemorrhage.
The drowsiness suggests the presence of hydrocephalus, a common complication of cerebellar haemorrhage.

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Next

Question

A 26-year-old man presented with a 24 hour history of blurred vision in the left eye and mild left frontal headache. He had a ten year history of diabetes mellitus.

Examination of the left eye revealed a central scotoma.

What is the most likely diagnosis?

(Please select 1 option)

- Central retinal artery occlusion
- Diabetic retinopathy
- Migraine
- Optic neuritis
- Pituitary tumour

Answer Question

Incorrect

Explanation

Occlusion of the central retinal artery or one of its branches which supplies the macular region will result in almost immediate diminution or loss of visual acuity in the involved eye and is usually without pain.

In a young diabetic the aetiology is usually an embolus of the central retinal artery or one of its branches. However there is pain associated with this visual loss, namely headache.

Diabetes is a cause of optic neuritis which is usually associated with headache.

Retinopathy, per se, would not lead to an acute central scotoma unless there was acute bleeding from neovascularisation.

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Next

Question

A CT shows blood in the sylvian fissure.
In which compartment is this blood?

(Please select 1 option)

- Epidural
- Subarachnoid
- Subcortical
- Subdural
- Subgaleal

Answer Question

Incorrect

Explanation

The subarachnoid space is in between the arachnoid mater and the pia mater. Vascular malformations and aneurysms typically bleed in the subarachnoid space.
Subdural refers to the area between the dura and the arachnoid.
Epidural is between the skull and the dura.
Subgaleal is a potential space between the skull and the scalp aponeurosis.
Subcortical is in the white matter of the brain below the cortex.

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Next

Question

Which of the following is true concerning baclofen?

(Please select 1 option)

- Acts directly on skeletal muscle
- Causes hallucinations when withdrawn
- Causes rhabdomyolysis
- Reduces Ca^{2+} release from sarcoplasmic reticulum
- Reduces cerebral but not spinal spasticity

Answer Question

Incorrect

Explanation

The primary site of action is the spinal cord by depressing monosynaptic and polysynaptic transmission. It can hyperpolarise cells by increasing K^+ conductance and inhibit Ca^{2+} channels in others.

Rhabdomyolysis is caused by:

- Clofibrate
- Aminocaproic acid
- HMG-CoA reductase inhibitors
- Neuroleptics (neuroleptic malignant syndrome).

Avoid abrupt withdrawal as it can cause serious side-effects including autonomic dysreflexia.

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Next

Question

A 24-year-old female presents with vague frontal headaches and visual disturbance.
She has a past history of acne for which she is receiving treatment. Examination reveals her to be obese with a blood pressure of 110/70 mmHg. There is absence of the central retinal vein pulsation on fundoscopic examination.
Which of the following drugs account for these findings?

(Please select 1 option)

- Ampicillin
- Dianette
- Erythromycin
- Isotretinoin
- Topical tetracycline

Answer Question

Incorrect

Explanation

Dianette, like any oral contraceptive, may be associated with idiopathic intracranial hypertension (IIH).

Topical tetracycline is not associated with IIH.

Isotretinoin is very rarely (<1:10,000) associated with idiopathic intracranial hypertension. When it is seen it is usually when isotretinoin is used in combination with tetracyclines, which is why use of these drugs together is advised against.

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Next

Question

A mother comes to your office concerned about her 2-year-old son. She has noticed that he typically laughs inappropriately for no particular reason. Shortly after an event he appears to be fidgeting. These events last only minutes and in between the events he acts normally.
What is your suspected diagnosis?

(Please select 1 option)

- Gelastic seizures
- Malingering
- Pseudobulbar affect
- Substance abuse
- Tourette's

Answer Question

Incorrect

Explanation

Gelastic seizures should be suspected in cases of erratic laughing or crying. It can be hard to identify in young children but there is usually associated automatisms such as fidgeting or lip smacking or change in sensorium.

Pseudobulbar affect can also present with inappropriate affective responses but typically occurs in adult patients with brainstem or frontal disease. It can be seen in multiple sclerosis or motor neuron disease.

The vignette is not typical for a tic disorder and it is unlikely a 2-year-old is malingering or abusing substances.

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- Substance abuse
- ✓ Tourette's - Incorrect answer selected ✖

Next

Question

A 52-year-old man has a slurring of his speech.
Examination reveals bilateral partial ptosis and frontal balding, and difficulty releasing his grip after shaking hands.
What is the most likely diagnosis?

(Please select 1 option)

- Duchenne muscular dystrophy
- Eaton-Lambert syndrome
- Myasthenia gravis
- Myotonia congenita
- Myotonia dystrophica

Answer Question

Reference:

Longman C. Myotonic dystrophy. *J R Coll Physicians Edinb.* 2006;36:51-55

Question

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- Myasthenia gravis
- Myotonia congenita
- ✓ Myotonia dystrophica - Correct ✔

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Myotonia dystrophica (myotonic dystrophy) is an autosomal dominant progressive multi-system disorder that affects skeletal muscles, the heart, gastrointestinal smooth muscle, uterine smooth muscle, the eyes and the endocrine and central nervous systems. The commonest mutation is a CTG repeat in the DMPK gene on chromosome 19., the length of which determines the age of onset and severity of symptoms.

Its features include:

- Ptosis
- Frontal balding
- Cataracts
- Cardiomyopathy
- Impaired intellect
- Testicular atrophy
- Diabetes mellitus, and
- Dysarthria (from tongue and pharyngeal myotonia).

The age of onset of symptoms in myotonic dystrophy ranges from birth to old age. Patients with classical myotonic dystrophy develop symptoms such as muscle weakness and myotonia in early to mid adult life but there are a subset who present with myotonia, cataracts and diabetes in late adulthood. In addition there is a congenital form, and patients affected by this will have severe symptoms at birth.

There is no treatment for weakness which is the main cause of disability, but phenytoin, quinine or procainamide may be useful for myotonia.

Both forms of myotonia congenita present in childhood with myotonia, and you would not expect to see the other features associated with myotonic dystrophy (e.g. frontal balding).

Duchenne muscular dystrophy presents in childhood, and it is unusual for patients to survive to their 50s (death usually occurs as a teenager or in the early 20s from respiratory failure).

Eaton-Lambert syndrome is a rare form of myasthenia, often associated with lung tumours, which results in weakness which classically improves with repeated actions. Frontal balding is not a feature.

Myasthenia gravis is an autoimmune condition which results in muscle fatiguability. It is not associated with frontal balding.

Reference:

Longman C. Myotonic dystrophy. *J R Coll Physicians Edinb.* 2006;36:51-55

Next

Question

Which one of the following statements is correct?

(Please select 1 option)

- The abducens nerve supplies the lacrimal gland
- The facial nerve supplies the parotid salivary gland
- The oculomotor nerve supplies the dilator pupillae muscle
- The trochlear nerve supplies the superior rectus muscle
- The vagus nerve supplies the palatal muscles

Answer Question

Correct

Explanation

The lacrimal gland is supplied by the facial nerve.
The glossopharyngeal nerve supplies the parotid salivary gland controlling salivary secretions.
The oculomotor nerve carries parasympathetic efferents to the sphincter pupillae muscle.
The optic nerve carries sympathetic postganglionic fibres to the dilator pupillae muscle.
The trochlear nerve supplies the superior oblique muscle.
The oculomotor nerve innervates the superior rectus.

Question

Which one of the following statements is correct?

Your Answer

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Next

Question

Which of the following would be expected following distal occlusion of the posterior cerebral artery?

(Please select 1 option)

- Cerebellar ataxia
- Contralateral hemiplegia
- Dysarthria
- Homonymous hemianopia
- Palatal palsy

Answer Question

Incorrect

Explanation

The following would also be expected:

- Distal (peripheral territory) posterior cerebral artery stroke
- Homonymous hemianopia (often upper quadrantic)
- Cortical blindness
- Verbal dyslexia without agraphia
- Hemivisual neglect, and
- Visual hallucinations.

Question

Which of the following would be expected following distal occlusion of the posterior cerebral artery?

Your Answer

- Cerebellar ataxia
- Contralateral hemiplegia
- Dysarthria
- Homonymous hemianopia - This is the correct answer ✔
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Next

Question

A 45-year-old woman presents to the GP with loss of sensation over the lateral three and a half fingers of her right hand, tenderness over her right forearm and inability to make a tight fist.

She complains of pain in her right arm when twisting door handles anticlockwise. Phalen's and Tinnel's tests are negative. She is otherwise neurologically intact.

What is the most likely diagnosis?

(Please select 1 option)

- Carpal tunnel syndrome
- Diabetic polyneuropathy
- Multiple sclerosis
- Pronator teres syndrome
- Stroke

Answer Question

Explanation

Pronator teres syndrome is the correct answer as the median nerve is affected, and the pain is exacerbated by pronation. Entrapment of the median nerve by pronator teres causes a median nerve neuropathy, which is worse during pronation of the forearm.

Examination involves excluding carpal tunnel syndrome and pronation of the affected forearm against resistance, which brings on the pain. Unlike carpal tunnel syndrome, the median nerve proximal to the wrist may be tender to palpation.

Carpal tunnel syndrome is incorrect as Tinnel's and Phalen's tests are negative.

Diabetic polyneuropathy is incorrect as diabetic neuropathies tend to be bilateral and affect the feet before the hands.

Multiple sclerosis is incorrect as there is a peripheral nerve lesion.

Stroke is incorrect as there is a peripheral not central nerve lesion.

Question

A 45-year-old woman presents to the GP with loss of sensation over the lateral three and a half fingers of her right hand, tenderness over her right forearm and inability to make a tight fist.

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Next

Question

A 25-year-old female presents with a two day history of diplopia and unsteadiness.
Two weeks ago she suffered an upper respiratory tract infection.
On examination there is complete ophthalmoplegia, areflexia and gait ataxia.
Which of the following blood tests is the most likely to confirm the underlying diagnosis?

(Please select 1 option)

- Acetylcholine receptors antibodies
- Anti GM1 antibodies
- Anti GQib antibodies
- Anti-Hu antibodies
- Anti-Purkinje cell antibodies

Answer Question

cerebellar degeneration or peripheral neuropathy due to a remote (autoimmune) effect of gynecologic or breast carcinoma.

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Rate this question

Next

Incorrect

Explanation

The most likely diagnosis is Miller Fisher syndrome (variant of Guillain-Barré syndrome). It consists of complete or partial ophthalmoplegia, areflexia and ataxia. It usually follows antecedent infections. Serum IgG antibody to the ganglioside GQib is present in more than 95% of patients. It is highly specific for the syndrome.

Elevated levels of antibodies to the glycolipid ganglioside-monosialic acid (GM1 antibodies) have been shown in some instances to be associated with certain neurological disorders:

- Lower motor neuron syndromes
- Amyotrophic lateral sclerosis
- Multiple sclerosis
- Other multifocal neuropathies and
- Systemic lupus erythematosus (SLE) with central nervous system involvement.

Neuronal nuclear (Hu) antibodies (NNA) are found in a number of paraneoplastic syndromes, including

- Subacute sensory neuronopathy
- Paraneoplastic encephalomyelitis and
- Paraneoplastic cerebellar degeneration

and are associated with small cell lung carcinoma.

Purkinje cell cytoplasmic antibodies are useful for identifying individuals with subacute cerebellar degeneration or peripheral neuropathy due to a remote (autoimmune) effect of gynecologic or breast carcinoma.

Question

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Next

Question

A 45-year-old man presents with an insidious onset of binocular horizontal diplopia and left sided facial pain.

On examination he has a left abducens nerve palsy and numbness over the maxillary division of the left trigeminal nerve.

Of the following which is the most likely anatomical site of his neurological lesion?

(Please select 1 option)

- Cavernous sinus
- Cerebellopontine angle
- Midbrain
- Petrous apex
- Superior orbital fissure

Answer Question

Lesions of the midbrain cause a variety of symptoms, depending on the exact area affected.

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Rate this question

Next

Incorrect

Explanation

In the pre-antibiotic era an abducens nerve palsy with ipsilateral pain and numbness was due to petrous osteitis (Gradenigo syndrome) but is now more likely the result of a meningioma or nasopharyngeal carcinoma of the petrous apex. Facial pain or sensory disturbance in the trigeminal nerve distribution can occur with a petrous apex lesion, and occurs secondary to involvement of the trigeminal nerve at the Meckel cave.

The cavernous sinus syndrome consists of variable involvement of

- Oculomotor (III)
- Trochlear (IV)
- Abducens (VI)
- Trigeminal (ophthalmic and maxillary division) (V) and
- Oculo-sympathetic nerves.

The superior orbital fissure syndrome is similar to the cavernous sinus syndrome except for the presence of proptosis.

Lesions of the cerebellopontine angle causes compression of cranial nerves V (trigeminal), VII (facial) and VIII (vestibulocochlear).

Lesions of the midbrain cause a variety of symptoms, depending on the exact area affected.

Question

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Your Answer

Next

Question

A 62-year-old man presented with difficulty in walking. He had a past history of diabetes mellitus and cervical spondylosis, which had required surgical decompression eight years previously. He drank 40 units of alcohol weekly.

On examination there was fasciculation, wasting and weakness in the left deltoid and biceps, with weakness in the shoulder girdle muscles bilaterally.

There was fasciculation in the glutei and quadriceps bilaterally, weakness of hip flexion and foot dorsiflexion, brisk reflexes in upper and lower limbs, and extensor plantar responses. There was no sensory impairment.

What is the diagnosis?

(Please select 1 option)

- Alcoholic myopathy
- Diabetic amyotrophy
- Motor neurone disease
- Recurrent cervical cord compression
- Syringomyelia

Answer Question

Incorrect

Explanation

There are signs of lower (wasting, fasciculations) and upper (brisk reflexes, extensor plantar response) motor neuron involvement in the presence of normal sensation.

Motor neuron disease is the most common cause of such presentation.

Alcoholic myopathy and diabetic amyotrophy do not share upper motor neuron signs.

Syringomyelia presents with sensory symptoms and signs (spinothalamic).

You expect sensory involvement with cervical cord compression.

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Next

Question

A 35-year-old woman presents with pains in the right arm.
On examination she has wasting and weakness of the intrinsic muscles of the right hand, absent tendon reflexes in the right arm and impaired pinprick sensation in the right hand and forearm.
What is the most likely diagnosis?

(Please select 1 option)

- Combined median and ulnar nerve lesions
- Lower trunk brachial plexus lesion
- Neuralgic amyotrophy
- Syringomyelia
- Thoracic outlet syndrome

Answer Question

Incorrect

Explanation

Median and ulnar nerve lesions would not cause absent reflexes in the arm.
Lower trunk brachial plexus (C8/T1) would not cause absent reflexes in the arm.
Neuralgic amyotrophy affects the upper plexus (C5-6) and therefore does not cause wasting of small muscles of hand.
Thoracic outlet syndrome will not cause absent reflexes.
Syringomyelia typically causes loss of reflexes, spinothalamic sensory loss, and weakness. It can be asymmetrical initially.

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Next

Question

An 18-year-old female presents 12 weeks into an unplanned pregnancy.
She had been diagnosed with epilepsy six years ago which was well controlled on sodium valproate and had been taking the combined oral contraceptive pill for three years.
Which of the following is correct concerning this patient?

(Please select 1 option)

- Lamotrigine should be substituted for sodium valproate
- She should be advised to have a termination of her pregnancy
- Sodium valproate interaction with the oral contraceptive increased the risk of pregnancy
- The dose of sodium valproate should be increased
- There is an increased risk of a neural tube defect in her fetus

Answer Question

Correct

Explanation

This patient has become pregnant on valproate. This therapy has controlled her seizures and should not be changed now.

However, there is an increased risk of neural tube defects associated with valproate and this could have been reduced by folate therapy early in pregnancy (NTD's occur in the first month of pregnancy).

Valproate is not an enzyme inducer and unlike other anticonvulsants would not speed up metabolism of the OCP.

It is entirely up to the individual whether she wishes to pursue the pregnancy or not.

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Next

Question

A 32-year-old shop worker presents with a 24 hour history of weakness in the hands. She also complains of shortness of breath.

The oxygen saturations are 90% on air. The biceps and triceps reflexes are absent in the left arm and reduced in the right arm.

Which of the following are recognised treatments of this acute presentation?

(Please select 1 option)

- Edrophonium
- G-CSF
- Non-steroidal anti-inflammatory drugs
- Physiotherapy
- Plasmapheresis

Answer Question

Mohr, et al. Hand weakness onset Guillain-Barre syndrome. *J Neurol Neurosurg Psychiatry.* 2004;75:169-70.

Question

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Rate this question

☆ ☆ ☆ ☆ ☆

Next

Correct

Explanation

This young woman has features suggestive of Guillan-Barré syndrome. Classically muscular weakness usually begins in the leg, and ascends to involve the trunk, arms and cranial nerves. However, increasingly clinical variants are being recognised in which weakness initially begins in other areas, including the hands. Early initiation of immunosuppressive treatment has been shown to lead to a good prognosis in these cases.

One important consideration is the monitoring of vital capacity and appropriate management in an environment where intubation can be undertaken rapidly. Specific therapy which can be initiated are plasmapheresis (plasma exchange) and high-dose intravenous immunoglobulin (IVIG) therapy. In UK clinical practice, IVIG is used more frequently as it is easier to administrate. Corticosteroids have been linked with worsening of symptoms. Passive physiotherapy is critical whilst weakness persists, progressing to active exercise when the weakness begins to resolve. However, this does not have an effect on the course of disease.

There is no evidence for the use of non-steroidal anti-inflammatory drugs.

G-CSF is used in neutropenia.

Edrophonium is a reversible acetylcholinesterase inhibitor, which can be used to diagnose myasthenia gravis (although this is rarely done in clinical practice).

Reference:

Mori I, at al. Hand weakness onset Guillain-Barré syndrome. *J Neurol Neurosurg Psychiatry.* 2004;75:169-70.

Question

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Your Answer

Next

Question

A 45-year-old female primary school teacher presents with shortness of breath and weakness.

There is a diarrhoeal illness going around her school. She is normally fit and well, and takes no medication.

On examination she has marked weakness in her left and right legs, power 2/5 in ankle and knee extension, increasing to 3/5 in hip extension. There is an absence of knee and ankle reflexes, with an absent plantar reflex. Sensation is intact.

Considering the likely diagnosis, what test would you order next?

(Please select 1 option)

- Anti-GQ1b antibodies
- *Campylobacter jejuni* antibody level
- CT brain
- Nerve conduction testing
- Vital capacity

Answer Question

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Rate this question

☆ ☆ ☆ ☆ ☆

Next

Correct

Explanation

It is likely that this lady has Guillain-Barré syndrome (GBS), an immune-mediated acute inflammatory demyelinating polyneuropathy.

It often follows infection, especially viral or Campylobacter jeuni . Its most common presentation is with progressive, symmetric, ascending weakness, with hyporeflexia, with or without autonomic and sensory features. In severe cases it can affect respiratory and cardiovascular function.

Therefore, especially given that this lady feels breathless; it is of utmost importance to record her vital capacity, and to monitor it until recovery, as approximately 30% of patients require intubation.

GBS is usually a clinical diagnosis as treatment and ITU admission need to be organised urgently.

Campylobacter jejuni serology may help to find the precipitant of GBS, however only 40% of cases have positive serology, and it will not save this patient's life.

CT brain will be of little help as this patient is demonstrating lower motor neurone signs (flaccid paralysis with hyporeflexia).

Nerve conduction studies will show a slowing/delay in conduction, this will help to confirm your diagnosis, but will not save her life.

Anti-GQ1b antibodies are found in Miller Fisher syndrome, a variant of GBS, with ophthalmoplegia, areflexia and ataxia

Question

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Considering the likely diagnosis, what test would you order next?

Next

Question

A 78-year-old man presents to the Emergency Department with a right sided facial palsy affecting the whole of the right side of his face.
Of the following, which is the most likely cause?

(Please select 1 option)

- Left sided infarct affecting the frontal lobe
- Left sided infarct affecting the internal capsule
- Right sided fifth nerve palsy
- Right sided infarct affecting the internal capsule
- Right sided seventh nerve palsy

Answer Question

Correct

Explanation

Upper motor neuron lesions tend to spare the forehead as it is bilaterally innervated. Forehead involvement suggests a lower motor neuron (LMN) lesion.

Right sided seventh nerve palsy is correct as the forehead is involved. Muscles of facial expression are controlled by the seventh nerve.

Right sided fifth nerve palsy is incorrect as the fifth nerve does not innervate muscles of facial expression.

The remaining options are incorrect as forehead involvement suggests a LMN lesion.

Question

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Next

Question

A 21-year-old male is admitted with acute onset headache and is drowsy.
He is opening his eyes spontaneously, is disoriented and is localising painful stimuli. He has a normal computed tomography (CT) scan.
Which of the following is the most appropriate next investigation for this patient?

(Please select 1 option)

- Cerebral angiography
- Lumbar puncture
- Magnetic resonance angiography
- Magnetic resonance imaging
- No further investigations necessary

Answer Question

Incorrect

Explanation

Lumbar puncture (LP) is not usually required unless the history is suggestive and the CT is normal as in this case.

Blood will be present in the CSF (if a bloody tap is suspected the number of red blood cells should fall with each successive sample).

If the LP is performed six hours after onset of symptoms the supernatant fluid should be examined for xanthochromia after centrifugation.

Question

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- Lumbar puncture - This is the correct answer ✔
- Magnetic resonance angiography
- Magnetic resonance imaging
- ✓ No further investigations necessary - Incorrect answer selected ✖

Next

Question

A 67-year-old gentleman presents with purulent cough and fever. He has a right lower lobar consolidation on x ray.

This is his third hospital admission for right sided pneumonia. He is not a smoker. His wife reports that he has been choking on food for the past few months and she has noticed that he has been stumbling and dragging his left foot for about five months.

On examination he has atrophy of his quadriceps bilaterally with fasciculations. There is loss of ankle jerk on the left with power 3/5, positive Babinski sign and normal sensation. His right leg has hyperreflexic ankle jerks but absence of knee jerk. There is also marked weakness throughout and fasciculations. Sensation is intact.

What is the likely diagnosis?

(Please select 1 option)

- Amyotrophic lateral sclerosis
- Charcot-Marie-Tooth disease
- Huntington's disease
- Miller Fisher syndrome
- Multiple sclerosis

Answer Question

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- Huntington's disease
- Miller Fisher syndrome
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Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

Amyotrophic lateral sclerosis (ALS) is a form of motor neurone disease.

It causes degeneration of upper (UMN) and lower motor neurones (LMN), therefore giving a mixed picture with fasciculations and spasticity, weakness and hypo- or hyperreflexia. Sensation and autonomic function are usually unaffected.

Cognition is usually normal, although they may have emotional lability.

Patients usually notice stumbling gait or foot drop if legs affected first, they may progress to more 'bulbar' signs or arm signs.

The diagnosis of ALS requires mixed UMN and LMN signs that are unattributable to any other disease. There is no definitive test for ALS, however MRI, EMG and NCS may help.

Charcot-Marie-Tooth disease is an hereditary sensory and motor neuropathy. There are several types with different genes identified. The features are pes cavus, 'champagne bottle' legs, hyporeflexia and fasciculations with distal sensory loss. Twenty five per cent of patients have a palpable popliteal nerve.

Huntington's disease is a neurodegenerative genetic disorder that is autosomal dominant. The features are of choreiform movements, problems with coordination and walking, behavioural and psychiatric problems. The disease leads eventually to dementia and premature death.

Miller Fisher is a form of Guillain-Barré syndrome (GBS) with areflexia, ataxia and ophthalmoplegia.

Multiple sclerosis would present in this age group and sex. It is due to autoimmune mediated demyelination. To make the diagnosis there must be two separate attacks separated in time and space (that is, affecting two different nerves and on two separate occasions).

The commonest signs and symptoms are

- Optic neuritis
- Sensory loss
- Spinal cord symptoms with spasticity
- Autonomic dysfunction of bladder and bowel
- Constitutional symptoms such as fatigue and depression.

Question

Next

Question

A 65-year-old man presents with unsteadiness, rigidity of movement and tremor of the right hand.
Which of the following features most strongly suggest idiopathic Parkinson's disease?

(Please select 1 option)

- Intention tremor
- Slowness of the movement
- The asymmetry of tremor
- Titubation
- Tremor that disappears when he sleeps

Answer Question

Intention tremor is seen in cerebellar disease.
Titubation is more commonly associated with essential tremor rather than parkinsonism.
The tremor of parkinsonism only disappears during REM sleep.

Question

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Which of the following features most strongly suggest idiopathic Parkinson's disease?

Your Answer

- Intention tremor
- Slowness of the movement
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- Titubation
- ✓ Tremor that disappears when he sleeps - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Explanation

This question highlights the differentiating features between idiopathic Parkinson's disease and parkinsonism.

Parkinsonism is diagnosed when there is bradykinesia (slowness of initiation of voluntary movement with progressive reduction in the speed and amplitude of repetitive actions) AND one of:

- muscular rigidity
- 4-6 Hz resting tremor, or
- postural instability.

This can be cause by idiopathic Parkinson's disease, any of the Parkinson's plus syndromes or drug-induced parkinsonism.

In order to diagnose idiopathic Parkinson's disease you must first exclude other causes:

- Multiple strokes with stepwise progression of symptoms
- History of head injuries or encephalitis
- Oculogyric crises
- Exposure to neuroleptic agents or MPTP
- More than one affected relative
- Sustained remission
- Isolated unilateral features more than three years
- Supranucular gaze palsy, cerebellar features, early severe autonomic involvement, early severe dementia, Babinski's sign positive
- Cerebral tumour, hydrocephalus
- Negative response to large doses of L-dopa

Following this, three positive features of idiopathic Parkinson's disease must be present:

- Unilateral onset
- Progressive features
- Resting tremor present
- Persistent asymmetry affecting the side of onset most
- Excellent response to L-dopa (70-100% reduction of symptoms)

Next

- Sustained remission
- Isolated unilateral features more than three years
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- Cerebral tumour, hydrocephalus
- Negative response to large doses of L-dopa

Following this, three positive features of idiopathic Parkinson's disease must be present:

- Unilateral onset
- Progressive features
- Resting tremor present
- Persistent asymmetry affecting the side of onset most
- Excellent response to L-dopa (70-100% reduction of symptoms)
- L-dopa response for five years or more
- Clinical course of ten years or more
- Hyposmia
- Visual hallucinations

Slowness of movement is therefore seen in all causes of parkinsonism.
Intention tremor is seen in cerebellar disease.
Titubation is more commonly associated with essential tremor rather than parkinsonism.
The tremor of parkinsonism only disappears during REM sleep.

Question

A 65-year-old man presents with unsteadiness, rigidity of movement and tremor of the right hand.
Which of the following features most strongly suggest idiopathic Parkinson's disease?

Your Answer

- Intention tremor

Next

Question

A 48-year-old man presented with a two week history of recurrent severe right-sided peri-orbital headache, frequently nocturnal and occurring at least once daily, usually lasting an hour.

He had noticed lacrimation from the right eye and blockage of the right nostril during the headache. At the time of the examination he was free from headache and there were no abnormal physical signs.

Which of the following is the most likely diagnosis?

(Please select 1 option)

- Cluster headache
- Intracranial aneurysm
- Orbital pseudotumour
- Right maxillary sinusitis
- Trigeminal neuralgia

Answer Question

Incorrect

Explanation

Cluster headaches are commoner in men (M:F 10:1). They usually present nocturnally (early morning). They are paroxysmal (occur in clusters).

They are associated with autonomic symptoms

- Lacrimation
- Ptosis
- Pupil constriction
- Nasal congestion
- Redness of eye
- Swelling of eyelid.

Examination between the attacks should be normal.

Question

A 48-year-old man presented with a two week history of recurrent severe right-sided peri-orbital headache, frequently nocturnal and occurring at least once daily, usually lasting an hour.

He had noticed lacrimation from the right eye and blockage of the right nostril during the headache. At the time of the examination he was free from headache and there were no abnormal physical signs.

Which of the following is the most likely diagnosis?

Your Answer

- Cluster headache - This is the correct answer ✔
- Intracranial aneurysm

Next

Question

A 60-year-old man presents with mobility problems.

On examination he has Lhermitte's phenomenon, is Romberg's positive, and has a wide-based gait that deteriorates on eye closure, absent ankle jerks and extensor plantars. He takes thyroxine for an underactive thyroid but has no other medical problems.

He is concerned as he had an uncle who developed unsteadiness and ended up in a wheelchair.

Which of the following is the likely diagnosis?

(Please select 1 option)

- Cervical spondylosis
- Friedreich's ataxia
- Multiple sclerosis
- Subacute combined degeneration of the cord
- Under-replacement of thyroxine

Answer Question

Question

A 60-year-old man presents with mobility problems.

On examination he has Lhermitte's phenomenon, is Romberg's positive, and has a wide-based gait that deteriorates on eye closure, absent ankle jerks and extensor plantars. He takes thyroxine for an underactive thyroid but has no other medical problems.

He is concerned as he had an uncle who developed unsteadiness and ended up in a wheelchair.

Which of the following is the likely diagnosis?

Your Answer

- Cervical spondylosis
- Friedreich's ataxia
- Multiple sclerosis
- Subacute combined degeneration of the cord - This is the correct answer ✔
- ✓ Under-replacement of thyroxine - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

Subacute combined degeneration of the cord is secondary to B12 deficiency. B12 deficiency is usually caused by pernicious anaemia, this may be associated with other autoimmune conditions. Lhermitte's phenomenon is typically present in multiple sclerosis, but may also occur in sub-acute combined degeneration of the cord.

This man's gait disturbance and positive Romberg's sign point towards dorsal column damage. Causes of absent ankle jerks and extensor plantars include:

- B12 deficiency
- HIV
- Spinal AVM
- Taboparesis
- Friedreich's ataxia
- Cervical and lumbar spondylosis

The family history is a red herring. His uncle may well have had Friedreich's ataxia, however, this usually presents by the age of 30.

Cervical spondylosis can cause Lhermitte's phenomenon. However, only if both cervical and lumbar spondylosis are present can spondylosis cause absent ankle jerks and extensor plantars.

Friedreich's ataxia may be associated with absent ankle jerks and extensor plantars but, as mentioned above, this usually presents by age 30.

Multiple sclerosis can cause Lhermitte's phenomenon and extensor plantars but could not account for the lower motor neurone signs.

Under-replacement of thyroxine is incorrect; although hypothyroidism can cause ataxia this would not account for the other symptoms.

Question

A 60-year-old man presents with mobility problems.

On examination he has Lhermitte's phenomenon, is Romberg's positive, and has a wide-

Next

Question

A 25-year-old woman presents with a severe migraine.
Which of the following is not a recognised feature of migraine?

(Please select 1 option)

- Bilateral fortification spectra
- External ophthalmoplegia
- Precipitation by oral contraceptives
- Frequency reduced by tricyclic antidepressants
- Third nerve palsy

Answer Question

Incorrect

Explanation

Fortification spectra (jagged lines resembling battlements) and teichopsia (flashes) are common features of migraine.

Tricyclics can be useful in the prophylaxis of migraine, whereas oral contraceptives may worsen pre-existing migraine or change the pattern of attacks. They are generally contraindicated in those who suffer from migraine with aura.

Third nerve palsy is seen in ophthalmoplegic migraine, although this was reclassified as a cranial neuralgia in the most recent International Headache Society classification. It most commonly affects the third nerve, and the deficits can be permanent. A subset of these patients will have gadolinium enhancement of the cisternal segment of the cranial nerve and it is thought some of these patients actually have a demyelinating neuropathy.

Chronic progressive external ophthalmoplegia usually develops in childhood and is associated with ptosis, fatigue and limitation to eye- movements in all directions. It is associated with cytochrome deficiency.

Question

A 25-year-old woman presents with a severe migraine.
Which of the following is not a recognised feature of migraine?

Your Answer

- Bilateral fortification spectra
- External ophthalmoplegia - This is the correct answer ✔
- Precipitation by oral contraceptives
- Frequency reduced by tricyclic antidepressants

Next

Question

A 16-year-old boy presents with rapidly progressive weakness over three days, which is attributed to Guillain-Barré syndrome.
Which one of the following is the most appropriate treatment?

(Please select 1 option)

- Azathioprine
- Cyclosporin
- Immunoglobulin
- Methotrexate
- Methylprednisolone

Answer Question

Incorrect

Explanation

Randomised controlled trials have shown that human immunoglobulins and plasma exchange improve outcome in Guillain-Barré Syndrome (GBS).
Other immunosuppressive treatment does not have a role in the treatment of GBS.

Question

A 16-year-old boy presents with rapidly progressive weakness over three days, which is attributed to Guillain-Barré syndrome.
Which one of the following is the most appropriate treatment?

Your Answer

- Azathioprine
- Cyclosporin
- Immunoglobulin - This is the correct answer ✔
- Methotrexate
- ✓ Methylprednisolone - Incorrect answer selected ✖

Rate this question

Next

Question

An 80-year-old man attends the Emergency department with falls. On history taking you find that he had a stroke affecting his left arm and leg a year ago.

A CT scan confirms that there is an established infarct in the right parietal region. Carotid scanning shows stenosis of 80% on the right and 90% on the left.

What is the best course of action?

(Please select 1 option)

- Bilateral carotid endarterectomy
- Discharge and GP follow up
- Discharge and outpatient follow up
- Urgent carotid endarterectomy on the left
- Urgent carotid endarterectomy on the right

Answer Question

This is a difficult question. The gentleman has obviously had a stroke which could be attributed to his carotid atherosclerosis. However, it is a significant period since he had his symptoms.

The benefit of carotid endarterectomy is therefore less clear.

In general if there is >70% stenosis of the carotid artery on the relevant side it should be treated (unless the stroke has been significantly disabling). This man should have been investigated at the time of his symptoms, and it is difficult to assess what should be done now. Nothing is indicated urgently, and therefore he should be referred to a specialist as an outpatient where the the risks and benefits can be weighed up.

Ultimately, the point the question makes is that the management of carotid stenosis outside of the acute stroke setting is difficult and needs to be managed by a specialist, and does not have the same urgency associated with it.

Reference:

1. Brott TG, et al. Stenting versus Endarterectomy for Treatment of Carotid-Artery Stenosis. *N Engl J Med.* 2010;363:11-23.
2. Chambers BR, et al. Carotid endarterectomy for asymptomatic carotid stenosis. *Cochrane Database Syst Rev.* 2000;(2):CD001923.
3. NICE. Stroke (CG68).

Question

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What is the best course of action?

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- Bilateral carotid endarterectomy
- Discharge and GP follow up
- Discharge and outpatient follow up - This is the correct answer ✔

Next

Question

A 69-year-old male presents with cognitive impairment and a diagnosis of Alzheimer's disease is suspected.
What is the most appropriate test of short term memory?

(Please select 1 option)

- Assessing orientation in time
- Assessing serial 7s
- Knowledge of the capital of the UK
- Providing their home address
- Recall of the doctor's name at the end of the consultation

Answer Question

Correct

Explanation

Short term memory impairment is the commonest clinical presentation of Alzheimer's disease.
Usually patients are fully orientated in time, person and place. Long term memory is usually intact.
The best way to test short term memory is to ask the patient to recall new information in the next few minutes.

Question

A 69-year-old male presents with cognitive impairment and a diagnosis of Alzheimer's disease is suspected.
What is the most appropriate test of short term memory?

Your Answer

- Assessing orientation in time
- Assessing serial 7s
- Knowledge of the capital of the UK
- Providing their home address
- ✓ Recall of the doctor's name at the end of the consultation - Correct ✔

Next

Question

A 75-year-old lady attends the Emergency department with a stroke affecting her left arm and leg.
A CT scan confirms that there is a right CVA. Carotid scanning shows stenosis of 80% on the right and 90% on the left.
What is the best course of action?

(Please select 1 option)

- Bilateral carotid endarterectomy
- Discharge and GP follow up
- Discharge and outpatient follow up
- Urgent carotid endarterectomy on the left
- Urgent carotid endarterectomy on the right

Answer Question

3. National Institute for Health and Care Excellence (NICE). Stroke (CG68).

Question

A 75-year-old lady attends the Emergency department with a stroke affecting her left arm and leg.

A CT scan confirms that there is a right CVA. Carotid scanning shows stenosis of 80% on the right and 90% on the left.

What is the best course of action?

Your Answer

- Bilateral carotid endarterectomy
- Discharge and GP follow up
- Discharge and outpatient follow up
- Urgent carotid endarterectomy on the left
- ✓ Urgent carotid endarterectomy on the right - Correct ✔

Rate this question

Next

Correct

Explanation

Although there is limited information available in this case, there is probably an indication for intervention in this patient. Carotid artery atherosclerosis is an important cause of iscahemic stroke. The left-sided neurological signs in this patient indicate the symptomatic carotid is on the right side.

Carotid endarterectomy has been established as an effective treatment for both symptomatic patients and asymptomatic patients who are shown to have carotid artery stenosis. It reduces the risk of disabling stroke or death by 48% in a person with severe symptomatic carotid stenosis (>70%) who has had a TIA. The peri-operative risk of disabling stroke or death is approximately 3%. Current UK guidelines recommend endarterectomy for symptomatic patients with greater than 70% stenosis, based on the North American Symptomatic Carotid Endarterectomy Trial which showed clear benefit. The endarterectomy should be performed as soon as the patient is fit for surgery, preferably within two weeks of a TIA.

The benefit is marginal for symptomatic patients with 50-69% stenosis, but may be greater in male patients. NICE recommends these patients are also considered for endarterectomy. There is significantly less benefit for asymptomatic patients, even those with greater than 60% stenosis. Patients with less than 50% stenosis should not be considered for carotid surgery.

Recurrent stenosis can occur in 1-20% of patients following endarterectomy, and re-operation is needed in 1-3% of cases. Ipsilateral strokes occur in 9% of patients following endarterectomy, and 26% of those treated with medical management alone (within 2 years).

All patients with suspected non-disabling stroke or TIA who are considered as candidates for carotid endarterectomy should have carotid imaging within one week.

Carotid endarterectomy is also indicated following a non-disabling stroke. However, if the patient has had a disabling stroke there is no real benefit in them undergoing the procedure.

Carotid stenting is increasingly being used as an alternative to endarterectomy. This is a less invasive revascularisation strategy, and uses an embolic protection device. There seems to be a similar early risk of death or stroke, and similar long-term benefits. Risk is higher in elderly patients, possibly due to vascular tortuosity and calcification. The procedure is currently indicated in selected cases, such as restenosis.

*Please note for this explanation we have used the North American Symptomatic Carotid Endarterecomy Trial (NASCET) criteria, as opposed to the European Carotid Surgery Trialists' Collaborative Group (ECST) criteria. See NICE guidelines for the difference - carotid imaging reports will state which criteria are being used.

Reference:

Next

Question

A 30-year-old lady who suffers from migraine complains that taking the recommended dose of paracetamol during an attack fails to relieve her headache.

She has no other significant past medical history. She is a smoker of 15 cigarettes per day and also drinks alcohol 16 units per week.

Which of the following factors most likely explains the lack of efficacy of paracetamol in this lady?

(Please select 1 option)

- Bacterial overgrowth
- Delayed gastric emptying
- First pass metabolism
- p450 enzyme induction
- p450 enzyme inhibition

Answer Question

Incorrect

Explanation

"When salicylate absorption from effervescent aspirin tablets was studied during migraine, the rate of absorption was found to be reduced relative to that found in non-migrainous volunteers and in the same patients when headache-free. There is evidence that this reduced rate of absorption is caused by gastrointestinal stasis and reduced rate of gastric emptying. Patients in whom aspirin absorption was delayed were more likely to take longer to respond and to require additional treatment."[1]

Metoclopramide may be useful in accelerating gastric emptying.

The same has also been shown with paracetamol absorption.[2]

Reference:

1. Volans GN. Migraine and drug absorption. *Clin Pharmacokinet.* 1978;3:313-8.
2. Tokola RA, Neuvonen PJ. Effect of migraine attacks on paracetamol absorption. *Br J Clin Pharmacol.* 1984;18:867-71.

Question

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Which of the following factors most likely explains the lack of efficacy of paracetamol in this lady?

Your Answer

- Bacterial overgrowth
- Delayed gastric emptying - This is the correct answer ✔

Next

Question

A 25-year-old old woman presents with two hours of a unilateral temporal headache increasing in severity. The pain is of a throbbing character and is exacerbated by light.
There are no abnormal signs on examination.
What is the diagnosis?

(Please select 1 option)

- Acute subarachnoid haemorrhage
- Cluster headache
- Intracranial tumour
- Migraine
- Tension headaches

Answer Question

Incorrect

Explanation

Migraine is the commonest cause of headache in young patients.
Photophobia, unilateral presentation and normal examination will be consistent with migraine.

Question

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What is the diagnosis?

Your Answer

- Acute subarachnoid haemorrhage
- Cluster headache
- Intracranial tumour
- Migraine - This is the correct answer ✔
- ✓ Tension headaches - Incorrect answer selected ✖

Rate this question

Next

A 49-year-old owner of a pub is admitted in a confused and agitated state. He has recently tried to stop drinking and according to his wife it is 24 hours since his last drink.

When you see him his BP is elevated at 155/90 mmHg, pulse at 90, and he looks agitated. There are signs of chronic liver disease on physical examination. He is trying to pull the sheets over his head as he tells you he can see a large dog in the next bed.

Investigations show:

Haemoglobin	109 g/L	(135-180)
White cell count	8.2 $\times 10^9$/L	(4-10)
Platelets	190 $\times 10^9$/L	(150-400)
Sodium	139 mmol/L	(134-143)
Potassium	4.3 mmol/L	(3.5-5)
Creatinine	110 µmol/L	(60-120)
Glucose	4.5 mmol/L	(3.6-5.8)
ALT	190 IU/L	(5-60)

Which of the following is the most likely diagnosis?

(Please select 1 option)

- Alcoholic hallucinosis
- Delirium tremens
- Hypomania
- Schizophrenia
- Wernicke's encephalopathy

Answer Question

As many as 25% of habitual alcohol drinkers may suffer from alcoholic hallucinosis when they withdraw from alcohol for 24 hours or longer. Hallucinations are usually visual or tactile, but may be auditory and persecutory.

Delirium tremens is associated with a much more profound disorientation and agitation, with severe autonomic dysfunction and cardiovascular collapse. It may well be preceded by alcohol withdrawal seizures. Delerium tremens starts 48-96 hours after the last drink. Anything more rapid is unlikely to be DT, however severe.

Management of this patient involves B vitamin replacement with a preparation such as Pabrinex, and the use of appropriate withdrawal medication.

Question

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ALT	190 IU/L	(5-60)

Which of the following is the most likely diagnosis?

Your Answer

Alcoholic hallucinosis - This is the correct answer ✔

Next

Question

A 15-year-old girl presents with a two week history of headaches and double vision. She had also noticed an episode where her vision dimmed after sneezing.

On examination her BMI was 32.4 kg/m^2, she had bilateral optic disc swelling and a partial left sixth cranial nerve palsy was present.

What is the most likely diagnosis?

(Please select 1 option)

- Graves' ophthalmopathy
- Idiopathic intracranial hypertension
- Multiple sclerosis
- Pituitary tumour
- Sagittal vein thrombosis

Answer Question

Incorrect

Explanation

This patient has the features of idiopathic intracranial hypertension (IIH) which maybe associated with reduction of vision with manoeuvres that raise intracranial pressure and is associated with sixth nerve palsies.

There are no features to suggest Graves' ophthalmopathy nor multiple sclerosis.

A pituitary tumour would be likely to produce visual field constriction - not mentioned in this history.

A sagittal vein thrombosis is a potential differential diagnosis here but is less likely than IIH.

Question

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- Pituitary tumour
- ✓ Sagittal vein thrombosis - Incorrect answer selected ✖

Next

Question

You are asked to review a 25-year-old motorcyclist who was involved in a serious road traffic accident six weeks prior. He has had a cast removed from his left lower leg, and the orthopaedic nurses are concerned that he might have a common peroneal nerve palsy.

Where are you most likely to find evidence of sensory loss?

(Please select 1 option)

- Dorsum of the foot, sparing the 5th toe
- Dorsum of the foot, particularly the 5th toe
- Medial aspect of the leg
- Medial plantar surface of the foot
- Lateral plantar surface of foot

Answer Question

Incorrect

Explanation

The answer is Dorsum of the foot, sparing the 5th toe. With common peroneal nerve lesions, sensory loss is noted over the lateral calf and dorsum of the foot but the 5th toe is spared. Involvement of the leg only suggests only the superficial nerve fibres have been affected, whereas involvement of the foot only suggests isolated deep fibre involvement. In common peroneal lesions both the foot and lateral calf are involved. The motor involvement results in foot drop with sparing of plantar flexion and foot inversion. The nerve is classically compressed where it winds around the head of the fibula, which can occur when a below knee cast has been used.

The medial aspect of the calf receives its sensory supply from the saphenous nerve, the plantar surface of the foot is supplied by the medial and lateral plantar nerves and branches of the tibial nerve.

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- Medial aspect of the leg
- Medial plantar surface of the foot

Next

Question

A 50-year-old man presented with paraesthesia in the ring and little fingers of his right hand. On examination there was wasting of the hypothenar eminence of his right hand.
Which one of the following movements would you expect to be weak in this patient?

(Please select 1 option)

- Abduction of the thumb
- Adduction of the thumb
- Extension of the little finger
- Flexion of the index finger
- Opposition of the thumb

Answer Question

Incorrect

Explanation

The clinical features suggest an ulnar neuropathy. The ulnar nerve supplies the hypothenar muscles (opponens digiti minimi, abductor digiti minimi, flexor digiti minimi), the third and fourth lumbricals, dorsal and palmar interossei and adductor pollicis. It also provides sensory innervation to the fifth digit and medial half of the fourth digit.

Abduction and opposition of the thumb and flexion of the index finger are via the median nerve.

Extension of the little finger is via the radial nerve.

Question

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- Adduction of the thumb - This is the correct answer ✔
- Extension of the little finger
- Flexion of the index finger
- ✓ Opposition of the thumb - Incorrect answer selected ✖

Next

Question

A 70-year-old woman presented with a relatively short history of headaches and episodic impairment of consciousness.
What is the most likely cause?

(Please select 1 option)

- Alzheimer-type dementia
- Chronic subdural haematoma
- Creutzfeldt-Jakob disease
- Depressive stupor
- Normal pressure hydocephalus

Answer Question

Incorrect

Explanation

This is the classical presentation of subdural haematoma.
Headache, drowsiness and confusion are common and often fluctuate.
Both dementia and depressive stupor (immobile, mute, unresponsive but fully conscious) are not associated with impaired consciousness.
Normal pressure hydocephalus is characterised by dementia, apraxia and urinary incontinence.

Question

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Your Answer

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Next

Question

A 47-year-old patient with diabetes is referred from the Emergency department complaining of dizziness and vomiting.

On examination he is alert and orientated, his pulse is 80 irregularly irregular and BP 160/90 mmHg. There is nystagmus on left lateral gaze and his speech is slurred. On examination of the limbs you note intention tremor and past pointing. He is ataxic when mobilised.

What is the likely diagnosis?

(Please select 1 option)

- Brainstem infarction
- Cerebellar CVA
- Sub-acute combined degeneration of the cord
- Viral labyrinthitis
- Wernicke's encephalopathy

Answer Question

Incorrect

Explanation

This man has a history of vertigo and the clinical signs of nystagmus. Slurred speech, intention tremor and past pointing, as well as ataxia, suggest the cerebellum as the site of injury.

This man also has risk factors for cerebrovascular disease including atrial fibrillation and hypertension.

Labyrinthitis would not produce cerebellar signs despite being associated with nystagmus.

In Wernicke's encephalopathy, you would expect confusion with ophthalmoplegia and ataxia.

Sub-acute combined degeneration of the cord is associated with posterior column signs, loss of vibration sensation and a positive Romberg's test.

Brainstem signs would be expected with a brainstem CVA and impaired conscious level.

Question

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What is the likely diagnosis?

Your Answer

- Brainstem infarction
- Cerebellar CVA - This is the correct answer ✔
- Sub-acute combined degeneration of the cord

Next

Question

A 70-year-old man presents with difficulty speaking.

He has a history of diabetes, hypertension, hypercholesterolaemia, chronic obstructive pulmonary disease. He is currently on aspirin, simvastatin, amlodipine and hydrochlorothiazide.

On examination the patient is awake, his blood pressure is 150/70 mmHg. His pulse is irregularly irregular. He has 4/5 strength in the right arm and leg and 5/5 strength on the left. When asked to point to the window he does this correctly.

When told to raise his arms and place his hands out he is seen to have a pronator drift on the right. He is shown a pen and asked what it is. He is unable to identify it by name and appears frustrated: applying much effort to speak a sentence. He is asked to use it appropriately and begins to write on a piece of paper but no makes no legible words despite being a retired journalist. When asked to repeat 'Today is a sunny day', he is unable to do so.

With which of the following is this type of dysphasia consistent?

(Please select 1 option)

- Broca's aphasia
- Global aphasia
- Transcortical motor aphasia
- Transcortical sensory aphasia
- Wernicke's aphasia

Answer Question

In Broca's or non-fluent or expressive aphasia the patient is unable to name objects with poor comprehension and repetition. It localises to the Broca's area in the left posterior inferior frontal gyrus.

In Wernicke's or fluent or receptive aphasia the patient is able to form correct grammatical sentences but language content is incorrect. It localises to the dominant superior temporal gyrus. There is poor comprehension and repetition but verbal output is fluent.

In transcortical motor aphasia which localises to the anterior superior frontal lobe, the patient is able to repeat and have good comprehension but is unable to express themselves and have halting, effortful speech with intact repetition.

Transcortical sensory aphasia has intact repetition but the patient is unable to follow verbal commands with fluent grammatical speech.

Global aphasia results in an almost mute patient: there is poor verbal output, comprehension, repetition and understanding.

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Your Answer

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Next

Question

Which vertebral level and corresponding structure is correct?

(Please select 1 option)

- C4 and bifurcation of the carotid artery
- T2 and manubriosternal joint
- T8 and aortic opening in the diaphragm
- T10 and opening for vena cava in diaphragm
- T12 and oesophageal opening in the diaphragm

Answer Question

Incorrect

Explanation

The carotid artery bifurcates at C4.
The manubriosternsal joint (angle of Louis) lies at the level of the T4/5 intervertebral disk.
The aortic opening is at T12.
The caval opening in the diaphragm lies at T8.
The oesoghageal opening of the diaphragm lies at T10.

Question

Which vertebral level and corresponding structure is correct?

Your Answer

- C4 and bifurcation of the carotid artery - This is the correct answer ✔
- T2 and manubriosternal joint
- T8 and aortic opening in the diaphragm
- T10 and opening for vena cava in diaphragm
- ✓ T12 and oesophageal opening in the diaphragm - Incorrect answer selected ✖

Rate this question

Next

Question

A 24-year-old man presents with a five month history of low back pain, radiating to his buttocks, and back stiffness worse in the morning and worse after periods of inactivity. Which of the following signs is the most likely to be present?

(Please select 1 option)

- Exaggerated lumbar lordosis
- Positive femoral stretch test
- Positive Trendelenburg test
- Restricted straight leg raising
- Sacroiliac joint tenderness

Answer Question

Correct

Explanation

This is a common presentation of ankylosing spondylitis.
The typical features are stiffness, first thing in the morning and after inactivity, and lower back pain radiating into the buttocks.

Question

A 24-year-old man presents with a five month history of low back pain, radiating to his buttocks, and back stiffness worse in the morning and worse after periods of inactivity.
Which of the following signs is the most likely to be present?

Your Answer

- Exaggerated lumbar lordosis
- Positive femoral stretch test
- Positive Trendelenburg test
- Restricted straight leg raising
- ✓ Sacroiliac joint tenderness - Correct ✔

Rate this question

Next

Question

A 50-year-old male presents with a 12 month history of deteriorating memory. He has otherwise been well and takes no medication.
Which one of the following is most typical of frontal lobe dysfunction?

(Please select 1 option)

- Inability to draw a clock face
- Inability to generate a list rapidly
- Inability to perform serial 7s
- Sensory inattention
- Visual field defects

Answer Question

Incorrect

Explanation

Frontal lobe dementia is a common neurodegenerative condition. It usually affects patients of 45-65 years old.

A failure to generate a list rapidly is a test of frontal lobe (for example, name animals in 60 seconds or words beginning with the letter F, etc).

Dyscalculia is a manifestation of the dominant parietal lobe.

Sensory inattention is a manifestation of parietal lobe dysfunction.

Visual field defect is a manifestation of the following pathology:

- Occipital lobe (homonymous hemianopia)
- Temporal lobe (superior quadrantanopia) or
- Parietal lobe (inferior quadrantanopia).

Question

A 50-year-old male presents with a 12 month history of deteriorating memory. He has otherwise been well and takes no medication.

Which one of the following is most typical of frontal lobe dysfunction?

Your Answer

- Inability to draw a clock face
- Inability to generate a list rapidly - This is the correct answer ✔
- Inability to perform serial 7s
- Sensory inattention

Next

Question

A 54-year-old Somali lady presents with weakness of her lower limbs.

Four months ago she had noticed weakness of her left leg and this has steadily progressed to affect both legs.

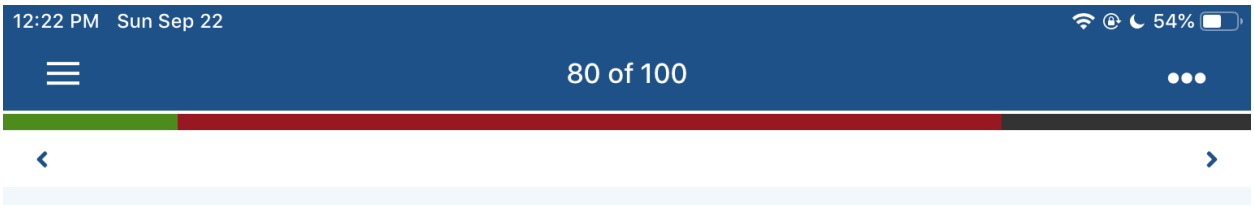
On examination she has multiple bruises of different ages on her legs and body. She has reduced power bilaterally with hyperreflexia, an ataxic gait and head tremor. Her family have noticed her behaving abnormally recently, disinhibited with poor short term memory.

What is the most likely causative agent?

(Please select 1 option)

- *Cryptococcus neoformans*
- Human immunodeficiency virus 1
- Human immunodeficiency virus 2
- JC virus
- *Toxoplasma gondii*

Answer Question



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- JC virus - This is the correct answer ✔
- *Toxoplasma gondii*- Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

This lady has progressive multifocal leukoencephalopathy (PML).
The features are:

- Behavioural changes
- Ataxia
- Head tremor, and
- Focal neurology progressing over a period of months to paresis and even coma.

It can be diagnosed via CSF PCR for the JC virus.

Cryptococcus neoformans causes meningitis in HIV positive patients. Patients present with headache, fever, vomiting and few neurological signs.

Toxoplasmosis presents with headache, fever and seizures. They have a typical CT head scan with ring enhancing lesions.

HIV 1 or 2 are the underlying infections making this lady susceptible to other organisms; however it is the JC virus that is making her unwell at this presentation.

PML can present at any CD4 count.

HIV infection can cause dementia, however this progresses over a longer time period. Symptoms are of confusion, depression, reduced concentration, behavioural changes, speech and balance problems as well as muscle weakness.

Question

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Four months ago she had noticed weakness of her left leg and this has steadily progressed to affect both legs.

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What is the most likely causative agent?

Next

Question

A 45-year-old woman noticed tinnitus in her left ear which progressed over some weeks to hearing loss in that ear.

On physical examination she is found to have a marked decrease in hearing on the left, with Rinne test indicating air conduction better than bone conduction. The other cranial nerves I - VII and IX - XII are intact.

A brain MRI scan revealed a solitary, fairly discrete 3 cm mass located in the region of the left cerebellopontine angle.

Which of the following statements is most appropriate to tell the patient regarding these findings?

(Please select 1 option)

- A test for HIV-1 is likely to be positive
- Other family members should undergo MR imaging of the brain
- Remissions and exacerbations are likely to occur in coming years
- The lesion can be resected with a good prognosis
- You are unlikely to survive for more than a year

Answer Question

Incorrect

Explanation

These acoustic neuromas are benign neoplasms.
A solitary mass is unlikely to be part of neurofibromatosis (which could be familial).

Question

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Next

Question

A 47-year-old man presents with memory impairment worsening over nine months.
He has jerking movements of his limbs and biphasic high-amplitude sharp waves on EEG.
Which diagnosis is most likely?

(Please select 1 option)

- Alzheimer's disease
- Creutzfeld-Jakob disease
- Multi-infarct dementia
- Normal pressure hydrocephalus
- Pick's disease

Answer Question

Incorrect

Explanation

Biphasic high-amplitude sharp waves are characteristic of Creutzfeld-Jacob disease. However the young age, rapid onset and myoclonus make this diagnosis the most likely.

Question

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Your Answer

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- Normal pressure hydrocephalus
- ✓ Pick's disease - Incorrect answer selected ✖

Rate this question

Next

Question

A 60-year-old man with type 2 diabetes is admitted from the casualty department with vertigo.

On examination, he has a right sided Horner's, and cerebellar signs. His speech is slurred and he has difficulty swallowing fluids.

On examination of his limbs he has normal tone in all limbs and no deficits of power. Reflexes are normal, however there is sensory loss with diminished pain and temperature down the left side.

Which artery has infarcted?

(Please select 1 option)

- Left posterior cerebral
- Left posterior inferior cerebellar
- Right basilar
- Right posterior cerebral
- Right posterior inferior cerebellar

Answer Question

Explanation

This is lateral medullary syndrome, accounted for by infarction of the ipsilateral posterior inferior cerebellar artery.

The cerebellum, IX and X nuclei, and descending sympathetic tracts (giving a Horner's) are affected on the same side.

The spinothalamic tract is also affected, this decussates, therefore giving contralateral long tract loss of pain and temperature. The dorsal columns are relatively spared.

The trigeminal nerve may also be affected, producing ipsilateral facial sensory abnormalities.

Question

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- Left posterior cerebral
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- Right basilar
- Right posterior cerebral
- ✓ Right posterior inferior cerebellar - Correct ✔

Next

Question

Which of the following features are not compatible with the diagnosis of motor neurone disease (MND)?

(Please select 1 option)

- Dementia
- Dysphagia
- Muscle cramps
- Neck weakness
- Optic atrophy

Answer Question

Correct

Explanation

Ten per cent of patients with MND have dementia (frontotemporal).
Optic atrophy is not a feature of MND.
Other features not compatible with the diagnosis are sensory impairment and bladder dysfunction.

Question

Which of the following features are not compatible with the diagnosis of motor neurone disease (MND)?

Your Answer

- Dementia
- Dysphagia
- Muscle cramps
- Neck weakness
- ✓ Optic atrophy - Correct ✔

Rate this question

Next

Question

A 15-year-old boy presents with tremor of both hands. Over the previous months he has developed a mild dysarthria.

He has a history of behavioural problems of a depressive/psychotic nature.

What is the most likely diagnosis?

(Please select 1 option)

- Alzheimer's disease
- Huntington's disease
- Neuroacanthocytosis
- Variant Creutzfeldt-Jakob disease
- Wilson's disease

Answer Question

Explanation

Wilson's disease is a rare disorder of copper metabolism which is inherited as an autosomal recessive disease.
It is associated with:

- extrapyramidal features (tremor, parkinsonism, dystonia)
- dysarthria
- psychiatric features
- cirrhosis, and
- a deposit of brownish-green pigment around the margin of the cornea (Kayser-Fleischer ring).

Variant Creutzfeldt-Jakob disease is characterised by myoclonus and rapid onset dementia.

Question

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He has a history of behavioural problems of a depressive/psychotic nature.
What is the most likely diagnosis?

Your Answer

- Alzheimer's disease
- Huntington's disease
- Neuroacanthocytosis
- Variant Creutzfeldt-Jakob disease
- ✓ Wilson's disease - Correct ✔

Next

Question

A 43-year-old man presented with diplopia of six weeks duration.
On examination he had normal corrected visual acuity in each eye, restriction of adduction of the right eye and nystagmus in the left eye on left lateral gaze.
What is the most likely diagnosis?

(Please select 1 option)

- Brainstem demyelination
- Graves' ophthalmopathy
- Internal carotid artery aneurysm
- Lateral medullary syndrome
- Steele-Richardson syndrome

Answer Question

Incorrect

Explanation

The features are suggestive of internuclear ophthalmoplegia which is due to a lesion at the medial longitudinal fasciculus and in this male the most likely explanation is multiple sclerosis (MS).

Other causes include brainstem infarction, syphilis and Lyme disease.

Question

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Next

Question

A 21-year-old female with epilepsy is well controlled on sodium valproate 600 mg twice daily and had been taking oral contraceptives for three years. She presented to her general practitioner 12 weeks pregnant.

Which of the following is correct?

(Please select 1 option)

- An alternative anticonvulsant should be used in place of sodium valproate
- Interaction of sodium valproate with the oral contraceptive increases the risk of pregnancy
- She is at increased risk of anaemia in pregnancy
- The dose of sodium valproate should be increased
- There is an increased risk of a neural tube defect in her fetus

Answer Question

Correct

Explanation

There is an increased risk of neural tube defects associated with anti-convulsants during pregnancy.
However, the risks associated with treatment are outweighed by the benefits in preventing seizures, so the drug should be continued.
The risks may be minimised through use of folate supplements.
Sodium valproate is not an enzyme inducer and would not speed up metabolism of the pill.

Question

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Next

Question

What is the agent responsible for variant Creutzfeldt-Jakob disease (CJD)?

(Please select 1 option)

- Mutant mitochondrial DNA
- Non-protein transmissible pathogen
- Proteinaceous infectious particle
- Retrovirus
- Slow virus

Answer Question

Incorrect

Explanation

Variant CJD is a transmissible spongiform encephalopathy. It is associated with the accumulation of an abnormal isoform of a normal host protein (prion protein) in the central nervous system.

This prion protein has no sequence differences from the normal protein, being encoded by the same normal host gene, but there is a major difference in the conformation of the two forms with the prion protein containing less helix structure.

The predominance of this structure confers a remarkable resistance to degradation and allows the protein to accumulate within the central nervous system.

Question

What is the agent responsible for variant Creutzfeldt-Jakob disease (CJD)?

Your Answer

- Mutant mitochondrial DNA
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- ✓ Slow virus - Incorrect answer selected ✖

Next

Question

A 92-year-old man was admitted in a confused state.

He has a history of immobility due to severe lower back pain. He had been losing weight for three months and had complaints of weakness, urinary frequency, thirst, poor urinary stream and constipation.

Lumbar spine x rays show severe osteopenia and collapse of the body of the vertebra at L3.

Investigations show:

Haemoglobin	96 g/L	(130-180)
Sodium	144 mmol/L	(137-144)
Potassium	3.9 mmol/L	(3.5-4.9)
Urea	10.4 mmol/L	(2.5-7.5)
Creatinine	120 µmol/L	(60-110)
Glucose	8 mmol/L	(3.0-6.0)
Dipstick urine	Blood ++	
	Protein +	

What is the most important immediate investigation?

(Please select 1 option)

- Chest x ray
- MRI whole spine
- Prostate specific antigen
- Serum calcium
- Serum protein electrophoresis

Answer Question

Sodium	144 mmol/L	(137-144)
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Your Answer

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- MRI whole spine
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Rate this question

Next

Incorrect

Explanation

The likely underlying diagnosis is myeloma. The symptoms of constipation, weakness and thirst indicate hypercalcemia. Together with the osteopenia (suggesting lytic lesions) and haematuria and proteinuria (suggesting renal involvement, usually cast nephropathy), this makes myeloma the most likely diagnosis.

Serum calcium should be the immediate investigation as treatment to reduce the level is required urgently. This is initially with fluids followed by bisphosphonates, most effectively zoledronic acid. Serum protein electrophoresis will help with making the underlying diagnosis but it is important to treat hypercalcaemia as the most important immediate investigation.

Prostate cancer bone metastases are usually sclerotic, making this diagnosis less likely. Haematuria and proteinuria is possible due to inflammation of the prostatic urethra, or invasion of the bladder.

MRI whole spine would be beneficial in ensuring that the patient does not have any cord or cauda equina involvement from his spinal lesions, but identification of hypercalcaemia should be done more immediately.

Chest x ray is not going to be helpful in the initial management of this patient.

Question

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Next

Question

In which of the following is learning disability an expected finding?

(Please select 1 option)

- Alkaptonuria
- Cystinuria
- Lactose intolerance
- Maple syrup urine disease
- Spinal muscular atrophy

Answer Question

- galactosaemia.

Investigations should be directed to the individual child based on history and clinical findings.

Reference:

McDonald L, Rennie A. Investigating developmental delay / impairment. *Arch Dis Child.* 2006;91:701-705.

Question

In which of the following is learning disability an expected finding?

Your Answer

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- Cystinuria
- Lactose intolerance
- Maple syrup urine disease - This is the correct answer ✔
- ✓ Spinal muscular atrophy - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

Chromosomal abnormalities and fragile X syndrome are among the commonest causes of early developmental delay and learning difficulties.

Other potential causes of intellectual impairment include:

- birth asphyxia
- intraventricular haemorrhage
- rhesus disease
- congenital infections (toxoplasmosis, CMV, rubella, herpes)
- hypoglycaemia
- meningitis
- congenital hypothyroidism
- tuberous sclerosis
- trisomy 21
- Tay-Sachs
- Cornelia De Lange
- homocystinuria
- phenylketonuria
- tryptophanuria, and
- galactosaemia.

Investigations should be directed to the individual child based on history and clinical findings.

Reference:

McDonald L, Rennie A. Investigating developmental delay / impairment. *Arch Dis Child.* 2006;91:701-705.

Question

Next

Question

A 65-year-old woman has a one month history of malaise, weight loss, right sided pain around the eye and headaches. She has also noticed intermittent diplopia.

Five years previously she had a mastectomy for carcinoma of the breast.

On examination, temperature was 37.5°C, there was tenderness of the scalp on the right forehead and temple, and some minor weakness of abduction of the right eye. ESR 55 mm/hour.

What is the most likely diagnosis?

(Please select 1 option)

- Frontal sinusitis
- Giant cell arteritis
- Meningeal metastastatic disease
- Posterior communicating artery aneurysm
- Thyroid eye disease

Answer Question

Incorrect

Explanation

The clinical description is classic for giant cell arteritis.
It should always be considered in elderly patients with headaches, ocular symptoms, systemic symptoms and high erythrocyte sedimentation rate.

Question

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Next

Question

A 35-year-old woman was admitted to the Emergency department six months ago with urinary retention. She was catheterised and discharged the same day having recovered function.

She now is suffering with sudden onset blurred vision and pain on looking upwards. She works in an agrochemical laboratory. She takes no medication. There is a family history of breast cancer.

What test is most likely to confirm diagnosis?

(Please select 1 option)

- Ceruloplasmin level
- CT brain
- Lumbar puncture
- MRI brain
- Organophosphate level

Answer Question

This woman is likely to have multiple sclerosis (MS) given that she has had two neuropathies separated in time and space.

The gold standard for diagnosis of MS remains clinical assessment, with evidence of white matter symptoms and signs disseminated in time and space. MRI is the investigation which will show periventricular white matter plaques of different ages and in different locations, to add weight to the clinical assessment.

CT brain will not show these changes.

LP should show oligoclonal bands (immunoglobulins within CSF). These can be seen in MS as well as systemic lupus erythematosus (SLE), Lyme disease, neurosarcoidosis, Guillain-Barré syndrome and others.

Ceruloplasmin levels are used to diagnose Wilson's disease.

Organophosphate levels could be used if poisoning is suspected, but her symptoms would be very different with salivation, bradycardia, bronchospasm and urination, diarrhoea and miosis.

Question

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Next

Question

By which of the following is a demyelinating polyneuropathy typically caused?

(Please select 1 option)

- Diabetes
- Excessive alcohol
- Hereditary motor sensory neuropathy
- Renal failure
- Vitamin B_{12}deficiency

Answer Question

The differential diagnosis of demyelinating neuropathy includes:

- Hereditary motor sensory neuropathy (Charcot-Marie-Tooth disease)
- Refsum's disease
- Guillain-Barré syndrome
- Chronic inflammatory demyelinating polyneuropathy (CIDP)
- Paraprotein-related disorder, and
- Leukodystrophies.

An axonal polyneuropathy may be caused by:

- Diabetes
- Alcohol
- Vitamin deficiencies, and
- Renal failure.

Some drugs, such as amiodarone, can cause a mixed demyelinating and axonal picture.

Question

By which of the following is a demyelinating polyneuropathy typically caused?

Your Answer

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- Excessive alcohol
- Hereditary motor sensory neuropathy - This is the correct answer ✔
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Next

Question

A 60-year-old man awakens with painless loss of vision of his left eye.
Three years earlier he had suffered a similar episode involving the right eye. Visual loss in that eye has been stationary. He does not complain of any systemic symptoms.
What is the most likely diagnosis?

(Please select 1 option)

- Acute angle-closure glaucoma
- Arteritic ischaemic optic neuropathy
- Compressive optic neuropathy
- Nonarteritic ischaemic optic neuropathy
- Optic neuritis

Answer Question

Explanation

Sudden onset of painless monocular visual loss in patients aged 50 or more is commonly due to ischaemic optic neuropathy.

Commonly the symptoms are first noticed upon awakening in the morning. The other eye may suffer a similar event within five years.

There are no systemic features (weight loss, lethargy, malaise, jaw claudication, scalp tenderness) to suggest arteritic ischaemic optic neuropathy (giant cell arteritis). In giant cell arteritis, the other eye is usually affected within four weeks.

Optic neuritis is unlikely in a man of this age who had painless loss of vision.

In older persons it is due to ischemia, which can be arteritic or non-arteritic. Non-arteritic anterior ischemic optic neuropathy based on cardiovascular risk factors essentially. Arteritic AION is concern with temporal arteritis which has a typical prodrome of jaw claudication, scalp tenderness and headaches

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- Compressive optic neuropathy
- Nonarteritic ischaemic optic neuropathy - This is the correct answer ✔
- ✓ Optic neuritis - Incorrect answer selected ✖

Next

Question

What is the likelihood of controlling seizures in a patient never previously on anti-epileptic medication with a single first-line anti-convulsant agent?

(Please select 1 option)

- 12%
- 32%
- 47%
- 64%
- 82%

Answer Question

Incorrect

Explanation

A study of patients with previously untreated epilepsy demonstrated that 47% achieved control of seizures with the use of their first single drug.

Fourteen per cent became seizure-free during treatment with a second or third drug.

An additional 3% became seizure-free with the use of two drugs simultaneously.

Reference:

Kwan P, Brodie MJ. Early identification of refractory epilepsy. *N Engl J Med.* 2000;342:314-9.

Question

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Your Answer

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- 64%
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Next

Question

A 79-year-old man presents with an ischaemic stroke and a left hemiparesis.
How would the left hemiparesis with which he presents be classified according to the WHO International Classification of Functioning, Disability and Health (ICF)?

(Please select 1 option)

- Activity limitation
- Impairment of body function
- Participation restriction
- Pathology
- Right total anterior circulation infarct

Answer Question

Explanation

The NICE guidelines on stroke suggest that we use terminology to describe the type of impairment in accordance with the WHO International Classification of Functioning, Disability and Health. Symptoms and signs are classified as 'impairment of body function'.

The type of impairment classified as 'activity limitation' are difficulties that a patient may have in executing certain activities, for example, communication impairment in patients with aphasia following a stroke or the inability to pick up a cup in the affected hand.

The type of impairment classified as 'participation restriction' are problems a patient may have in social roles - for example as a spouse or parent.

The type of impairment classified as 'pathology' would be the diagnosis/disease.

Right total anterior circulation infarct relates to the Oxford Bamford classification for stroke.

Reference:

1. Bamford J, et al. Classification of natural history and clinically identifiable subtypes of cerebral infarction. *Lancet.* 1991;337:1521-6.
2. NICE. Stroke (CG68).
3. World Health Organisation. International Classification of Functioning, Disability and Health (ICF).

Question

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Your Answer

- Activity limitation
- Impairment of body function - This is the correct answer ✔
- Participation restriction

Next

Question

A 30-year-old woman complains of daily frontal headaches for the preceding year. They occur at various times of the day and are worse with stress.

On examination, the left pupil is 2 mm larger than the right. It is reactive to accommodation but not to light.

Which of the following features would be inconsistent with the diagnosis?

(Please select 1 option)

- Absent biceps jerk
- Exaggerated response to dilute pilocarpine drops instilled in the left eye
- Fine hand tremor
- Ptosis
- Resolution of anisocoria with time

Answer Question

Explanation

This patient has an Adie pupil which happens to coexist with tension headache.

An absent biceps jerk would be consistent with Holmes-Adie syndrome.

The characteristic abnormality in this condition is degeneration of parasympathetic nerves in the cilliary ganglion which leads to denervation of the pupil and hence hypersensitvity to dilute pilocarpine drops. The affected pupil is usually larger than the other but may constrict with time.

The cause of the associated arreflexia is unknown.

A fine hand tremor may accompany anxiety states associated with tension headache but ptosis requires an organic explanation.

Question

A 30-year-old woman complains of daily frontal headaches for the preceding year. They occur at various times of the day and are worse with stress.

On examination, the left pupil is 2 mm larger than the right. It is reactive to accommodation but not to light.

Which of the following features would be inconsistent with the diagnosis?

Your Answer

- Absent biceps jerk
- Exaggerated response to dilute pilocarpine drops instilled in the left eye
- Fine hand tremor
- Ptosis - This is the correct answer ✔
- ✓ Resolution of anisocoria with time - Incorrect answer selected ✖

Next

Question

Which of the following associations of muscles and nerve supply are not true?

(Please select 1 option)

- Deltoid and C5
- Gastrocnemius and S1
- Long flexors of fingers and C6
- Quadriceps and L3
- Triceps and C7

Answer Question

Incorrect

Explanation

Finger flexors and extensors are supplied by C8.

Question

Which of the following associations of muscles and nerve supply are not true?

Your Answer

- Deltoid and C5
- Gastrocnemius and S1
- Long flexors of fingers and C6 - This is the correct answer ✔
- Quadriceps and L3
- ✓ Triceps and C7 - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Question

A 34-year-old male presents with weakness of the right hand. You note global wasting of the small hand muscles, there is also sensory loss over the medial border of the forearm and hand.

He says he was climbing a tree to rescue a kite and fell. Whilst falling he grabbed a branch and this pulled on his arm.

Injury to which of the following structures is the most likely explanation of this clinical presentation?

(Please select 1 option)

- Cervical spine
- Lower brachial plexus
- Median nerve in the forearm
- Radial nerve in the upper arm
- Ulnar nerve at the elbow

Answer Question

Incorrect

Explanation

This is a classic story of a lower brachial plexus injury; sudden upward movement of the abducted arm. This causes features of an ulnar nerve palsy which is supplied by the lower brachial plexus roots C8 and T1 (Klumpke's paralysis).

The median and radial nerves can be excluded because of the typical ulnar nerve findings.

The ulnar nerve can be damaged at the elbow from chronic pressure, leaning on the elbows, and direct trauma. However, this injury is a stretching injury of the arm.

A cervical spine injury would be expected to have other associated neurological signs.

Question

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Your Answer

- Cervical spine
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- Radial nerve in the upper arm

Next

Question

A 67-year-old woman is referred to a neurologist complaining of difficulty getting out of her chair.

She is noted to have discrete erythematous papules over her metacarpophalangeal joints. Her creatine kinase (CK) is 4000.

What is your diagnosis?

(Please select 1 option)

- Dermatomyositis
- Myasthenia gravis
- Myotonic dystrophy
- Polymyositis
- Polyneuropathy

Answer Question

Incorrect

Explanation

Dermatomyositis is correct as the high CK, proximal muscle weakness and skin changes suggest dermatomyositis.

Dermatomyositis and polymyositis are related conditions that present with proximal muscle weakness. Dermatomyositis has cutaneous signs such as Gottron's papules, discrete erythematous papules over metacarpophalangeal joints, and a heliotrope rash.

Myasthenia gravis and myotonic dystrophy are incorrect as they would not produce a pattern of either distal or proximal myopathy.

Polymyositis is incorrect as it is not associated with skin changes.

Polyneuropathy is incorrect as it produces a distal rather than proximal neuropathy.

Question

A 67-year-old woman is referred to a neurologist complaining of difficulty getting out of her chair.

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What is your diagnosis?

Your Answer

- Dermatomyositis - This is the correct answer ✔
- Myasthenia gravis
- Myotonic dystrophy
- Polymyositis

Finish

Question

A 68-year-old female presents with a four month history of weight loss, headaches and had recently developed double vision.

Six years previously she underwent a right mastectomy for breast carcinoma and remains on treatment with tamoxifen.

Examination revealed tenderness over the temporal region and a left sixth nerve palsy.

Her chest x ray was reported as normal, but she had an ESR of 100 mm/hr (0-30) and her Hb was 108 g/L (115-165).

Which of the following statements is correct?

(Please select 1 option)

- An isotope bone scan should be performed
- An urgent CT brain scan is required
- She should be given diamorphine
- She should be treated with prednisolone immediately
- She should have a lumbar puncture

Answer Question

Question

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- She should be treated with prednisolone immediately - This is the correct answer ✔
- ✓ She should have a lumbar puncture - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

Giant cell arteritis is a clinical emergency.

High doses of steroids (1 mg/kg) should be initiated as soon as possible to prevent visual loss, which is usually irreversible.

Typical clinical features include:

- Headache
- Tender non-pulsatile temporal artery
- Systemic symptoms of lethargy, weight loss, pyrexia, jaw claudication, visual loss and diplopia (various ophthalmoplegiasare recognised in association with GCA[1]).

It is also associated with polymyalgia rheumatica.

Sometimes the vignette will give you too many details. Your task is to decide what is important. For example breast ca. could raise the ESR and therefore put you off the idea that this is TA. The point is to realise that this is an important consideration not to miss as otherwise the patient could go blind and should be given steroids, followed by biopsy.

Reference:

Goadsby PJ, Mossman S. Giant cell arteritis and ophthalmoplegia. *Aust N Z J Med.* 1991;21:930.

Question

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Which of the following statements is correct?

Next

Question

An 80-year-old gentleman attends the Emergency department with a stroke affecting his left arm and leg.

He has had radiotherapy to the neck and there is a lot of scarring present. Carotid scanning shows 70% stenosis on the right side.

Which statement is correct?

(Please select 1 option)

- Carotid endarterectomy is contraindicated
- Carotid stenting is contraindicated
- Carotid stenting is associated with lower rates of stroke than surgery
- Carotid stenting is proven to be safer than carotid endarterectomy
- Carotid stenting should be performed

Answer Question

3. NICE. Stroke (CG68).

Question

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- Carotid stenting is associated with lower rates of stroke than surgery
- Carotid stenting is proven to be safer than carotid endarterectomy
- ✓ Carotid stenting should be performed - Correct ✔

Rate this question

Next

Correct

Explanation

There is an indication for intervention in this patient.

Carotid endarterectomy has been established as an effective treatment for both symptomatic patients and asymptomatic patients who are shown to have carotid artery stenosis. It reduces the risk of disabling stroke or death by 48% in a person with severe symptomatic carotid stenosis (>70%) who has had a TIA. The peri-operative risk of disabling stroke or death is approximately 3%. Current UK guidelines recommend endarterectomy for symptomatic patients with greater than 70% stenosis, based on the North American Symptomatic Carotid Endarterectomy Trial which showed clear benefit. The endarterectomy should be performed as soon as the patient is fit for surgery, preferably within two weeks of a TIA.

The benefit is marginal for symptomatic patients with 50-69% stenosis, but may be greater in male patients. NICE recommends these patients are also considered for endarterectomy. There is significantly less benefit for asymptomatic patients, even those with greater than 60% stenosis. Patients with less than 50% stenosis should not be considered for carotid surgery.

Recurrent stenosis can occur in 1-20% of patients following endarterectomy, and re-operation is needed in 1-3% of cases. Ipsilateral strokes occur in 9% of patients following endarterectomy, and 26% of those treated with medical management alone (within 2 years).

All patients with suspected non-disabling stroke or TIA who are considered as candidates for carotid endarterectomy should have carotid imaging within 1 week.

Carotid endarterectomy is also indicated following a non-disabling stroke. However, if the patient has had a disabling stroke there is no real benefit in them undergoing the procedure.

Carotid stenting is increasingly being used as an alternative to endarterectomy. This is a less invasive revascularisation strategy, and uses an embolic protection device. There seems to be a similar early risk of death or stroke, and similar long-term benefits. Risk is higher in elderly patients, possibly due to vascular tortuosity and calcification. The procedure is currently indicated in selected cases, such as restenosis. In this situation previous radiotherapy may make endarterectomy difficult, and stenting may be preferred.

Please note for this explanation we have used the North American Symptomatic Carotid Endarterecomy Trial (NASCET) criteria, as opposed to the European Carotid Surgery Trialists' Collaborative Group (ECST) criteria. See NICE guidelines for the difference - carotid imaging reports will state which criteria are being used.

Reference:

1. Brott TG, et al. Stenting versus Endarterectomy for Treatment of Carotid-Artery Stenosis. *N*

Next

Question

A 71-year-old woman consults you.
She has recently been started on an antihypertensive but she has noticed a dry mouth and dizziness on standing.
Which medication is it likely to be?

(Please select 1 option)

- Doxazosin
- Enalapril
- Isosorbide mononitrate
- Nicardipine
- Olmesartan medoxomil

Answer Question

Incorrect

Explanation

Doxazosin is an alpha-adrenoceptor blocker. It can cause rapid reduction in BP and therefore requires gradual introduction and up-titration. Its side effects include dry mouth, syncope, drowsiness, oedema, and gastrointestinal (GI) disturbances.

Enalapril and other angiotensin-converting enzyme (ACE) inhibitors most commonly cause a dry cough and postural hypotension. They can also cause angioedema and hyperkalaemia.

The nitrate class of drugs commonly causes headache and dizziness.

Nicardipine and other calcium channel blockers may cause peripheral oedema, headache, flushing, and palpitations.

Olmesartan, an angiotensin 2 blocker, has a similar side effect profile to ACEi except usually milder and does not cause a dry cough, as it does not affect bradykinin synthesis.

Question

A 71-year-old woman consults you.

She has recently been started on an antihypertensive but she has noticed a dry mouth and dizziness on standing.

Which medication is it likely to be?

Your Answer

- Doxazosin - This is the correct answer ✔
- Enalapril
- Isosorbide mononitrate
- Nicardipine

Next

Question

A 72-year-old lady has four months of memory loss, urinary incontinence and falls.
On examination she has mild memory loss and a broad-based, slow gait. Muscle tone is normal and both plantar reflexes are downgoing.
What is the likely diagnosis?

(Please select 1 option)

- Alzheimer's disease
- Frontal lobe dementia
- Multi-infarct dementia
- Normal-pressure hydrocephalus
- Parkinson's disease

Answer Question

Incorrect

Explanation

Normal pressure hydrocephalus characterised by abnormal gait, urinary incontinence and dementia. It is an important clinical diagnosis, because it is a potentially reversible cause of dementia.

It is important to distinguish it from Parkinson's disease.

The onset of gait disturbance and urinary symptoms is unusual so early in dementia. Frontal lobe dementia is characterised by loss of 'executive' functions and multi-infarct state usually has a step-wise history.

Question

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On examination she has mild memory loss and a broad-based, slow gait. Muscle tone is normal and both plantar reflexes are downgoing.

What is the likely diagnosis?

Your Answer

- Alzheimer's disease
- Frontal lobe dementia
- Multi-infarct dementia
- Normal-pressure hydrocephalus - This is the correct answer ✔
- ✓ Parkinson's disease - Incorrect answer selected ✖

Next

Question

What is the mechanism of action of fingolimod?

(Please select 1 option)

- Inhibits IL-2 transcription
- Ceramide synthase inhibitor
- Interferon agonist
- Monoclonal antibody to anti-alpha 4 integrin
- Shifts Th1 cell to Th2 cell populations

Answer Question

Incorrect

Explanation

Fingolimod is a new agent for multiple sclerosis. Its primary mode of action is its activity at the sphingosine-1-phosphate receptor 1, but it has also been reported to be a cannabinoid receptor antagonist as well as a ceramide synthase inhibitor. It is an immunomodulator, which sequesters lymphocytes in lymph nodes. It has been shown to reduce the rate of relapses in relapsing-remitting MS by over half.

IFN beta-1 is used in multiple sclerosis.

Glatiramer acts to shift the T cell population from a pro-inflammatory to a regulatory state, and is also used in MS.

Cyclosporin inhibits IL-2 transcription, and is an immunomodulator used in a number of conditions (including transplants).

Natalizumab is a monoclonal antibody to alpha-4 integrin. It can be used in the treatment of multiple sclerosis.

Question

What is the mechanism of action of fingolimod?

Your Answer

- Inhibits IL-2 transcription
- Ceramide synthase inhibitor - This is the correct answer ✔
- Interferon agonist
- Monoclonal antibody to anti-alpha 4 integrin
- ✓ Shifts Th1 cell to Th2 cell populations - Incorrect answer selected ✖

Next

Question

Which of the following relate to dopa-decarboxylase inhibitors?

(Please select 1 option)

- Enhance the effect of levodopa on the substantia nigra
- Have anticholinergic activity
- Prevent L-dopa associated dyskinesias
- Reduce the extracerebral complications of L-dopa therapy
- Should not be given in combination with dopamine agonists

Answer Question

Incorrect

Explanation

Dopa-decarboxylase inhibitors prevent the systemic metabolism of levodopa which leads to higher central nervous system (CNS) levels. The effect itself is not enhanced, only the concentration of available levodopa.

Dyskinesias are a CNS effect of levodopa.

Dopa-decarboxylase inhibitors reduce the extracerebral complications of L-dopa therapy. These include nausea, vomiting, postural hypotension and cardiac arrhythmias.

When given in combination with dopamine agonists dyskinetic movements are more likely.

Question

Which of the following relate to dopa-decarboxylase inhibitors?

Your Answer

- Enhance the effect of levodopa on the substantia nigra
- Have anticholinergic activity
- Prevent L-dopa associated dyskinesias
- Reduce the extracerebral complications of L-dopa therapy - This is the correct answer ✔
- ✓ Should not be given in combination with dopamine agonists - Incorrect answer selected ✖

Next

Question

A young woman who has suffered from cerebral venous sinus thrombosis associated with pregnancy is most likely to have been affected during which of the following periods?

(Please select 1 option)

- During birth
- In the 1st trimester
- In the 2nd trimester
- In the 3rd trimester
- In the postpartum period

Answer Question

Correct

Explanation

Venous sinus thrombosis is associated with the oral contraceptive pill, the post partum period and other hypercoagulable states.
The clinical signs include

- Papilloedema
- Cranial nerves III, IV and VI
- Ocular chemosis and
- Proptosis.

Question

A young woman who has suffered from cerebral venous sinus thrombosis associated with pregnancy is most likely to have been affected during which of the following periods?

Your Answer

- During birth
- In the 1st trimester
- In the 2nd trimester
- In the 3rd trimester
- ✓ In the postpartum period - Correct ✔

Next

Question

Which of the following is a characteristic feature of transient global amnesia?

(Please select 1 option)

- Abnormal behaviour
- Apraxia
- Confabulation
- Loss of personal identity
- Normal perception

Answer Question

'Characteristic' means that absence of the symptom would make you doubt the diagnosis. The presence of any of the other suggested options would suggest an alternative diagnosis.

Reference:

Quinette P, et al. What does transient global amnesia really mean? Review of the literature and thorough study of 142 cases. *Brain*. 2006;129:1640-58.

Question

Which of the following is a characteristic feature of transient global amnesia?

Your Answer

- Abnormal behaviour
- Apraxia
- Confabulation
- Loss of personal identity
- ✓ Normal perception - Correct ✔

Rate this question

Next

Correct

Explanation

Transient global amnesia (TGA) is a syndrome characterised by the abrupt onset of anterograde amnesia, accompanied by repetitive questioning. Patients are usually disoriented in time and place, but not usually person. They often recognise their disorientation. By definition, there are no other neurological deficits. It usually occurs in middle-aged or elderly people, and attacks typically occur in the mornings and last minutes to hours (mean 6h). The attack is often associated with headache, nausea and dizziness. The ability to lay down new memories is gradually recovered, leaving only a dense amnesic gap for the duration of the episode (and often the hours prior to it). Recurrence is unusual.

Whilst clear-cut focal neurological signs are exclusion criteria for TGA, associated symptoms are commonly observed. The patient's behaviour during an attack may lead to them being described as confused. Other associated features are chills, fear of death, paraesthesia, emotional upset and chest pain.

Migraine may be a risk factor in younger patients (<55y). Psychological and vascular risk factors may also have a role. It has also been suggested that TGA may occur after a venous congestion in the context of insufficient jugular-vein valves.

'Characteristic' means that absence of the symptom would make you doubt the diagnosis. The presence of any of the other suggested options would suggest an alternative diagnosis.

Reference:

Quinette P, et al. What does transient global amnesia really mean? Review of the literature and thorough study of 142 cases. *Brain*. 2006;129:1640-58.

Question

Which of the following is a characteristic feature of transient global amnesia?

Your Answer

- Abnormal behaviour

Next

Question

A 65-year-old male presents with bilateral leg pain.
There is no relevant past medical history, and no excess alcohol use. Both knee reflexes are reduced.
Fasting glucose is 6.5 mmol/L.
Which is the next investigation most likely to confirm the diagnosis?

(Please select 1 option)

- B12 and folate
- Chest x ray
- CSF examination
- MRI spine
- Oral glucose tolerance test

Answer Question

Correct

Explanation

The suggestion of bilateral leg pain, weakness and reduced knee reflexes with an impaired fasting glucose concentration suggests a diagnosis of diabetic amyotrophy. This is confirmed with a formal OGTT.

Diabetic amyotrophy is not uncommonly a presenting feature of diabetes in the elderly. The features are of an asymmetrical but bilateral quadriceps wasting and weakness with diminished reflexes.

Question

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Fasting glucose is 6.5 mmol/L.

Which is the next investigation most likely to confirm the diagnosis?

Your Answer

- B12 and folate
- Chest x ray
- CSF examination
- MRI spine
- ✓ Oral glucose tolerance test - Correct ✔

Next

Question

A patient presents with a history of low back pain and sciatica. The pain radiates to the little toe, the ankle reflex is absent and the patient has difficulty in everting the foot.
Which nerve root is likely to be trapped?

(Please select 1 option)

- L3
- L4
- L5
- S1
- S2

Answer Question

Incorrect

Explanation

The root supply to the peroneal muscles (which control eversion of the foot and which also participate in the reflex arc of the ankle jerk reflex) is S1 via the tibial and superficial peroneal nerves.

The sensory dermatome of the S1 root gives innervation to the postero-lateral aspect of the leg and foot down to and including the little toe and sole of foot.

Question

A patient presents with a history of low back pain and sciatica. The pain radiates to the little toe, the ankle reflex is absent and the patient has difficulty in everting the foot.

Which nerve root is likely to be trapped?

Your Answer

- L3
- L4
- L5
- S1 - This is the correct answer ✔
- ✓ S2 - Incorrect answer selected ✖

Next

Question

You are called to see a man in the Emergency department who has been in a road traffic accident. His memory of events is poor but he thinks he banged his head. His main complaint now is of extreme pain in his right eye.

On examination he has reduced visual acuity (counting fingers only), proptosis and complete ophthalmoplegia of his right eye. You notice that the eye is injected, chemotic and on closer inspection appears to be pulsating.

Which of the following is the most likely diagnosis?

(Please select 1 option)

- Acute glaucoma
- Blow-out fracture
- Caroticocavernous fistula
- Cavernous sinus thrombosis
- Retinal haemorrhage

Answer Question

Explanation

Caroticocavernous fistula is the correct answer. It is a high pressure shunt of blood between the intracavernous carotid artery and the cavernous sinus. It is usually traumatic and may occur secondary to open or closed head trauma. Patients usually complain of pain in the eye.

The most striking sign is pulsatile proptosis. Patients also have palsies of the IIIrd, IVth and Vth nerve palsies, injection and chemosis due to raised episcleral venous pressure. Those who know to listen for it will also hear an orbital bruit.

Acute glaucoma is incorrect. It causes visual loss and a painful red eye but does not usually follow trauma. It is not associated with ophthalmoplegia, proptosis or visible pulsations.

A blow-out fracture is a fracture of the walls or floor of the orbit. It may cause diplopia in upgaze due to trapping of the eye muscles but would not typically cause the other symptoms.

Cavernous sinus thrombosis may produce ophthalmoplegia and proptosis, but does not usually follow trauma and would not cause the pulsations.

Retinal haemorrhage causes painless visual loss but would not cause the other symptoms.

Question

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Your Answer

- Acute glaucoma
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- Caroticocavernous fistula - This is the correct answer ✔
- Cavernous sinus thrombosis

Next

Question

A female patient aged 30 has a five-year history of difficulty getting upstairs and out of a low chair and mild upper limb weakness but no pain. There is no family history.
She presented with severe type 2 respiratory failure. EMG showed evidence of myopathy.
Which is the most likely diagnosis?

(Please select 1 option)

- Acid maltase deficiency
- Inclusion body myositis
- Lambert-Eaton myasthenic syndrome
- Miller-Fisher syndrome
- Polymyositis

Answer Question

Incorrect

Explanation

Acid maltase deficiency typically presents with insidious onset of proximal myopathy and early respiratory muscle weakness.

Respiratory failure in inflammatory myopathies (polymyositis, dermatomyositis, inclusion body myositis) and limb girdle muscular dystrophy are rare. Muscle biopsy shows vacuolation in muscle fibres.

Miller-Fisher syndrome, a variant of Guillain-Barré syndrome, is characterised by ophthalmoplegia, ataxia and areflexia.

Lambert-Eaton myasthenic syndrome, often a paraneoplastic phenomenon, is associated with hyporeflexia which returns after exercise, autonomic symptoms and fatiguability.

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- Inclusion body myositis
- Lambert-Eaton myasthenic syndrome
- Miller-Fisher syndrome
- ✓ Polymyositis - Incorrect answer selected ✖

Next

Question

A 30-year-old woman presents to the emergency room after an episode of transient left sided weakness lasting 30 minutes.

She reports that she was driving at the time and describes a white zigzag before developing a headache. She then describes a descending numbness and weakness on the left-side of her body. She stopped the car and called an ambulance. On arrival at the hospital her blood pressure was 130/80 mmHg, pulse was regular at 90 beats per minute. She is alert and orientated.

She follows commands, has full strength in her limbs and symmetric reflexes and normal tone. Her cranial nerves are intact and fundoscopy is unremarkable. Visual fields are full on direct confrontation and the eye movements are intact. There is a family history of stroke in her mother, and her sister has migraines. Her past medical history is notable for migraines and hyperthyroidism.

What is the most likely explanation?

(Please select 1 option)

- Cerebrovascular accident
- Complicated migraine
- Confusion migraine
- Migraine with aura
- Transient ischemic attack

Answer Question

Incorrect

Explanation

A complicated migraine is one which results in hemi sensory or hemi motor findings associated with a typical migraine presentation.

A confusional migraine involves alteration in sensorium rather than limb involvement.

A transient ischemic attack is a possibility however given the history of migraines and age the most likely diagnosis is complicated migraine.

The presentation does not fit for a stroke.

A migraine with aura does not present with unilateral weakness.

Question

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What is the most likely explanation?

Your Answer

- Cerebrovascular accident
- Complicated migraine - This is the correct answer ✔

Next

Question

A 27-year-old woman presents to the Emergency department complaining of a diffuse headache for about a week. She says that her eyes have been 'going funny' every time she bends down to put on her shoes and she has vomited every morning for the past five days.

You notice that she frequently attends the Emergency department with minor problems - pelvic pain, low mood and most recently ear ache.

Which of the following is the most important diagnosis to consider?

(Please select 1 option)

- Cerebral sinus thrombosis
- Depression
- Drug misuse
- Otitis interna
- Pregnancy

Answer Question

Explanation

The most important diagnosis to consider is cerebral sinus thrombosis.

This woman gives a history that is suspicious of raised intracranial pressure (ICP). Vomiting in the morning is characteristic of raised ICP as it follows a period of lying flat. Bending over causes a transient increase in already raised ICP. This further compresses the optic nerve and causes visual disturbance. Patients may also notice this when coughing or straining. The patient's recent ear ache could have been a localised infection predisposing her to cerebral venous sinus thrombosis.

It is important not to dismiss immediately patients who frequently present with minor ailments.

Depressed patients may present frequently with seemingly minor ailments, however in this case it would be important to rule out cerebral sinus thrombosis first.

Patients who misuse drugs may present with multiple problems such as headache and vomiting. However, this history is suspicious for cerebral sinus thrombosis so this should be ruled out as a matter of urgency .

Otitis interna can cause headaches and vomiting and the patient may well have it as she was recently complaining of ear ache. However, this history is suspicious for cerebral sinus thrombosis so this should be ruled out as a matter of urgency.

Pregnant patients may well vomit in the morning and have vague headaches. However, this history is suspicious for cerebral sinus thrombosis so this should be ruled out as a matter of urgency.

Question

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Which of the following is the most important diagnosis to consider?

Your Answer

Cerebral sinus thrombosis - This is the correct answer ✔

Next

Question

A 40-year-old male is diagnosed with dystrophia myotonica.
Which one of the following features would be expected in this patient?

(Please select 1 option)

- Autosomal recessive inheritance
- Cataracts
- Fasciculations would predominate
- Preserved tendon reflexes despite muscle wasting
- Progressive external ophthalmoplegia

Answer Question

Incorrect

Explanation

Dystrophia myotonica is an autosomal dominant condition with variable penetrance. Symptoms characteristically begin from the age of 20-30 years with weakness and myotonia. Features include:

- cataracts
- ptosis
- frontal baldness
- gynaecomastia
- diabetes, and
- reduced reflexes with myotonia.

Question

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Which one of the following features would be expected in this patient?

Your Answer

- Autosomal recessive inheritance
- Cataracts - This is the correct answer ✔
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Next

Question

A 50-year-old man presented with 18 months history of parasthesia of his feet and hands. On examination there is numbness of glove and stocking distribution with generalised hyporeflexia. Nerve conduction studies revealed demyelinative sensory polyneuropathy. Which of the following conditions is the most likely diagnosis?

(Please select 1 option)

- Alcohol abuse
- Chronic inflammatory demyelinating polyneuropathy
- Diabetes
- Vasculitis
- Vitamin B_{12}deficiency

Answer Question

Poncelet AN. An algorithm for the evaluation of peripheral neuropathy. *Am Fam Physician.* 1998;57:755-64.

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Your Answer

- Alcohol abuse
- Chronic inflammatory demyelinating polyneuropathy - This is the correct answer ✔
- Diabetes
- Vasculitis
- ✓ Vitamin B_{12}deficiency - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

Causes of demyelinating polyneuropathy include:

- Guillain-Barré syndrome
- Chronic inflammatory demyelinating polyneuropathy (CIDP)
- Paraproteinaemia
- Hereditary motor sensory neuropathy
- Refsum's disease
- HIV infection, and
- Amiodarone.

Causes of axonal polyneuropathy are:

- Alcohol abuse
- Diabetes
- Vasculitis, and
- Vitamin deficiencies.

The difference here is between demyelinating and axonal neuropathies.

Further Reading:

Poncelet AN. An algorithm for the evaluation of peripheral neuropathy. *Am Fam Physician*. 1998;57:755-64.

Question

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Next

Question

A 35-year-old man has wrist drop of his right hand.
Examination reveals a small area of sensory loss on the dorsum of the hand.
Which of the following nerves is likely to be involved?

(Please select 1 option)

- Long thoracic nerve
- Median nerve
- Radial nerve
- T1 nerve root
- Ulnar nerve

Answer Question

The radial nerve supplies brachioradialis, extensor carpi radialis longus and the extensor muscles of the forearm (the latter is via the posteior interosseus nerve). The sensory branches supply the dorsum of the thumb, and the dorsum of the fingers up to the proximal interphalangeal joint (PIPJ) and the middle of the ring finger.

The extent of loss of muscle power depends on the level of the nerve damage, but the typical posture is a wrist drop with hand pronation and thumb adduction. Sensation is impaired in the area described above.

The long thoracic nerve supplies serratus anterior, and damage results in winging of the scapula.

A median nerve palsy results in a lack of ability to abduct and oppose the thumb, weakness in forearm pronation and finger flexion and sensory loss in the thumb, index finder and radial aspect of the ring finger.

A T1 nerve root lesion results in Klumpke's palsy - loss of finger flexion and abduction and adduction with reduced sensation over the medial upper limb.

The ulnar nerve is most often compressed at the elbow, which results in numbness in the 5th finger, the medial aspect of the ring finger and the dorsum of the hand over the 5th finger. There is weakness of the small muscles of the hand and, if allowed to progress, a claw hand develops where the little and ring fingers curl into the palm.

Reference:

Patient.info. Radial Nerve Lesion (C5-C8).

Question

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Next

Question

A 36-year-old man has a three month history of pain in his feet and lower legs. He was diagnosed as having diabetes at age 14 and treated with insulin. He is a cannabis smoker and drinks 30 units of alcohol per week.

On examination he has impaired pain and temperature sensation in feet and lower legs, normal joint position and vibration sense. His reflexes are normal.

What is the diagnosis?

(Please select 1 option)

- Alcoholic polyneuropathy
- Chronic inflammatory demyelinating polyneuropathy (CIDP)
- Diabetic polyneuropathy
- Syringomyelia
- Vitamin B12 deficiency

Answer Question

Incorrect

Explanation

The history suggests small fibre painful peripheral sensory neuropathy. The comonest cause is diabetes. Joint position sense and vibration are carried through large fibres, and are therefore affected later. Sensory nerves are affected more than motor so often reflexes remain intact.

Vitamin B12 deficiency causes impairment of joint position and vibration. Chronic inflammatory demyelinating polyneuropathy (CIDP) causes a large fibre peripheral neuropathy with areflexia.

In syringomyelia you have impaired pain and temperature in the upper limbs.

Typically with alcoholic polyneuropathy all fibre types are affected and it is seen with a higher alcohol consumption than 30 units. Pain is usually a more dominant feature. It should definitely feature as part of the differential diagnosis.

Question

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On examination he has impaired pain and temperature sensation in feet and lower legs, normal joint position and vibration sense. His reflexes are normal.

What is the diagnosis?

Your Answer

- Alcoholic polyneuropathy
- Chronic inflammatory demyelinating polyneuropathy (CIDP)
- Diabetic polyneuropathy - This is the correct answer ✔
- Syringomyelia

Next

Question

A 70-year-old man is admitted with an acute stroke.

Examination revealed a left Horner's syndrome, loss of corneal reflex on the left together with loss of pinprick sensation on the left face.

His left gag reflex was also decreased. He had left limb ataxia with right hemi-sensory loss of pain and temperature sensation.

Which one of the following arterial territories has been affected?

(Please select 1 option)

- Basilar
- Left posterior communicating
- Left posterior inferior cerebellar
- Right posterior inferior cerebellar
- Right superior cerebellar

Answer Question

Incorrect

Explanation

The clinical features are typical of lateral medullary syndrome.
They consist of:

- Ipsilateral signs of Horner's syndrome
- Pharyngeal weakness and ataxia and
- Contralateral signs of spinothalamic sensory loss of the limbs.

The posterior inferior cerebellar artery is affected.

Question

A 70-year-old man is admitted with an acute stroke.
Examination revealed a left Horner's syndrome, loss of corneal reflex on the left together with loss of pinprick sensation on the left face.
His left gag reflex was also decreased. He had left limb ataxia with right hemi-sensory loss of pain and temperature sensation.
Which one of the following arterial territories has been affected?

Your Answer

- Basilar
- Left posterior communicating
- Left posterior inferior cerebellar - This is the correct answer ✔
- Right posterior inferior cerebellar

Next

Question

An 18-year-old woman sustains severe head injuries in a road traffic accident. The following day her investigations show:

Sodium	160 mmol/L	(137-144)
Potassium	3.7 mmol/L	(3.5-4.9)
Chloride	120 mmol/L	(95-107)
Urea	3.0 mmol/L	(2.5-7.5)
Creatinine	90 µmol/L	(60- 110)

Which one of the following statements is correct?

(Please select 1 option)

- Rapid rehydration with 5% dextrose is indicated
- She has the syndrome of inappropriate antidiuretic hormone secretion (SIADH)
- She should be treated with sodium restriction
- She will have a hypercholraemic acidosis
- Urine osmolality will be low

Answer Question

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- She will have a hypercholraemic acidosis
- ✓ Urine osmolality will be low - Correct ✔

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Correct

Explanation

There is a marked hypernatraemia with elevated chloride but normal potassium and urea in a patient with severe head injuries.

The likely cause of this presentation is diabetes insipidus. Urine osmolality is therefore likely to be low.

You cannot say that she has a hyperchloraemic acidosis as you do not have her bicarbonate concentration but if you assume that the anion gap would be normal, that is 10-12, then this would suggest that the bicarbonate is elevated, suggesting either a metabolic alkalosis or respiratory acidosis with compensation.

Although restoration of normal volaemia and osmolality is required, giving 5% dextrose may exacerbate any cerebral oedema and so correction should be gradual.

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Next

Question

A 23-year-old male is admitted following an altercation in which he is stabbed in the thigh with a bottle.
Which of the following features suggests injury to the femoral nerve?

(Please select 1 option)

- Loss of knee reflex
- Loss of sensation over lateral aspect of thigh
- Weakness of abduction of the hip
- Weakness of adduction at the hip
- Weakness of knee flexion

Answer Question

Incorrect

Explanation

A lesion of the femoral nerve (L234) is characterised by weakness of the quadriceps femoris muscle and hence weakness of extension of the knee, loss of sensation over the front of the thigh and loss of the knee jerk.

The lateral cutaneous nerve of the thigh (L1,2) supplies the skin on the lateral aspect of the thigh and knee (plus the lower lateral quadrant of the buttock).

The obturator nerve (L2-4), which supplies adductors of the hip and, supplies sensation to the inner part of the thigh.

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Your Answer

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Next

Question

An 80-year-old male presented with acute right-sided weakness.

Examination revealed minimal right facial weakness, impaired elevation of the right shoulder, with relatively preserved right hand strength. There was global weakness in the right leg which appeared to be maximal in the foot.

Which of the following arteries is most likely to have been affected?

(Please select 1 option)

- Anterior cerebral artery
- Lenticulostriate artery
- Middle cerebral artery
- Posterior cerebral artery
- Posterior communicating artery

Answer Question

1. Critchley M. Syndromes of the Anterior Cerebral Artery. *Proc R Soc Med.* 1930;23:630-2.

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Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

This is a tricky question, and purposely so.

The wording of the description could be due to middle or anterior artery circulation stroke but the challenge is to choose which is the more likely.

The case as described is the classic presentation of an anterior cerebral artery stroke as originally described in the literature[1].

Unilateral occlusion (distal to ant. comm. origin) of anterior cerebral artery produces contralateral sensorimotor deficits mainly involving the lower extremity with relative sparing of face and hands (think of the homunculus).

The lateral lenticulostriate artery is a branch of the middle cerebral artery. Occlusion causes damage to the internal capsule resulting in contralateral hemiparesis and sensory deficit. Speech may be affected (medial temporal lobe) as well as visual function (Meyer's loop: optic radiations affected).

Middle cerebral artery - Occlusion at the stem (proximal segment) results in:

- contralateral hemiplegia affecting face, arm, and leg (lesser)
- homonymous hemianopia - ipsilateral head/eye deviation
- if on left: global aphasia.

Posterior cerebral artery - A variety of neurological syndromes including:

- pure hemisensory loss
- visual field loss- a variety
- visual agnosia
- disorders of reading (alexia, dyslexia) and more.

Reference:

1. Critchley M. Syndromes of the Anterior Cerebral Artery. *Proc R Soc Med.* 1930;23:630-2.

Question

Next

Question

A 62-year-old man seeks an opinion about a tremor which mostly affects his right hand but also latterly his left hand and which has gradually deteriorated over five years.

His medical history includes asthma for which he takes inhaled salbutamol, hypertension for which he takes bendroflumethiazide and lisinopril and depression for which he takes amitriptyline.

He smokes 10 cigarettes daily and drinks approximately 15 units of alcohol weekly, noting an improvement in his tremor following alcohol.

Examination reveals some mild titubation and a postural tremor in both arms with no worsening during finger-nose testing.

What is the most likely diagnosis?

(Please select 1 option)

- Benign essential tremor
- Hyperthyroidism
- Parkinson's disease
- Physiological tremor
- Salbutamol-induced tremor

Answer Question

Incorrect

Explanation

The features of relief with alcohol, postural tremor and a slight and rather benign deterioration over five years suggests a diagnosis of benign essential tremor.

Physiological tremor usually affects the hands only.

In this case there is titubation, again a feature of essential tremor.

The mild features argue against Parkinson's disease.

The condition is typically slowly progressive and occurs from approximately 50 years.

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Next

Question

A 29-year-old woman who has a history of epilepsy comes to the clinic complaining of worsening hair loss. She has generalised tonic clonic seizures and has been taking her medication for the past two to three years. Her epilepsy is currently well controlled.

Which of the following medications is she most likely to be taking?

(Please select 1 option)

- Carbamazepine
- Gabapentin
- Lamotrigine
- Valproate
- Vigabatrin

Answer Question

Incorrect

Explanation

Up to 12% of patients taking sodium valproate report significant hair loss in clinical trials. Of course, as hair loss is relatively common, other causes of hair loss should be excluded before changing anti-epileptic medication.

Carbamazepine hair loss is recognised, but is only seen in around 6% of patients.

Limited data suggest zinc or selenium supplementation may be associated with reduced hair loss, but these data are somewhat controversial.

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Next

Question

A 65-year-old man presents with four months history of swallowing difficulties (worse with liquids than solids).

He also complains of nasal regurgitation, coughing and choking episodes during meals and slight dysarthria. He lost one stone over the last eight weeks.

Which of the following investigations is the most appropriate for this case?

(Please select 1 option)

- Acetyl choline receptors antibodies
- Barium swallow
- CXR
- Gastroscopy
- Tumour markers

Answer Question

Explanation

Nasal regurgitation, coughing and choking episodes during meals, dysphagia that is worse with liquids than solids and dysarthria indicate neurogenic dysphagia.

Important causes at this age include myasthenia gravis and motor neuron disease. Lambert Eaton syndrome very rarely affects the bulbar muscles.

Myasthenia gravis is an antibody-mediated disorder which reduces the efficiency of signal transduction across the neuromuscular junction. There is resultant weakness of the innervated muscle, which increases with fatigue. The commonest associated auto-antibodies are against the nicotinic acetylcholine receptor (AChR). The majority of patients are affected by ptosis, ophthalmoplegia, dysarthria and dysphasia. Treatment is with cholinesterase inhibitors, and immunosuppression in severe cases.

Mechanical dysphagia (for example, oesophageal and gastric carcinoma, oesophageal stricture, etc) causes dysphagia that is worse with solids than liquids. Nasal regurgitation and dysarthria are not usually accompanying features of mechanical dysphagia.

No abnormality would be expected on chest x ray, barium swallow or gastroscopy with myasthenia gravis, and tumour markers are not raised.

A number of you suggest achalasia could be the diagnosis in this case. However, achalasia typically affects solids more than liquids, or solids and liquids equally (rather than the opposite as in this case). It typically presents earlier than this (25 to 40-years-old). Chest pain is a predominant feature, and this level of weight loss is unusual.

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Next

Question

Which of the following will not be affected by a lesion of the facial nerve in the internal auditory meatus?

(Please select 1 option)

- Blinking
- Hearing
- Lacrimation
- Sweating over the cheek
- Taste

Answer Question

Incorrect

Explanation

The extent of dysfunction depends on the level of injury.

If it is proximal to geniculate ganglion, for example, internal auditory meatus, taste is lost in the anterior 2/3 of tongue. Also secretion from submandibular, sublingual and lacrimal glands is impaired.

Hyperacusis is due to paralysis of stapedius. Orbicularis oculi is affected causing inability to blink/close eyelids.

Sensation over the face is supplied by the trigeminal nerve, and sweat glands are controlled by the sympathetic nervous system, for example, anhidrosis in Horner's syndrome.

Question

Which of the following will not be affected by a lesion of the facial nerve in the internal auditory meatus?

Your Answer

- Blinking
- Hearing
- Lacrimation
- Sweating over the cheek - This is the correct answer ✔
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Next

Question

An 18-year-old male presents with blurring of vision in his right eye.

Examination reveals visual acuity in the right eye of 6/18 and in the left eye 6/6. Visual fields to confrontation reveal a right temporal visual field defect and partial loss of superior part of the temporal field of the left eye.

Where is the most likely position of the lesion responsible for this defect?

(Please select 1 option)

- Occipital lobe
- Optic chiasm
- Optic nerve
- Optic tract
- Temporal lobe

Answer Question

Incorrect

Explanation

The most likely localisation of the lesion is around the optic chiasm spreading up the right optic nerve. The signs indicate a bitemporal visual field defect with involvement of the right optic nerve (decreased visual acuity).

Occipital lobe lesion causes a congruous homonymous hemianopia whereas an optic tract lesion causes an incongruous homonymous hemianopia. Temporal lobe lesion causes an upper homonymous quantranopia. Optic nerve lesions in isolation lead to unilateral visual signs.

Further Reading:

1. Jay WM. Visual field defects. *Am Fam Physician.* 1981;24:138-42.
2. Smythies J. A note on the concept of the visual field in neurology, psychology, and visual neuroscience. *Perception.* 1996;25:369-71.

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Next

Question

A 72-year-old woman has a five-year history of worsening mental functioning with trouble remembering things. She has no problems with movement.

She is noted on an MRI scan of the brain to have symmetrically increased size of the lateral ventricles along with cerebral cortical atrophy in a mainly frontal and parietal distribution.

A lumbar puncture reveals a normal opening pressure, and analysis of the clear, colorless cerebrospinal fluid (CSF) reveals glucose and protein which are in normal ranges.

Cell count on the CSF shows 3 WBCs (all lymphocytes) and 1 RBC. A fundoscopic examination is normal.

Which of the following findings is most likely associated with her underlying disease process?

(Please select 1 option)

- Increased numbers of Lewy bodies
- Loss of Betz cells
- Loss of gamma aminobutyric acid (GABA)
- Perivascular mononuclear inflammation
- Presence of the e4 allele of apolipoprotein E

Answer Question

Explanation

She has findings characteristic for Alzheimer's disease.
Loss of GABA is seen in Parkinson's disease.
Perivascular mononuclear inflammation is seen in multiple sclerosis.
Loss of Betz cells is seen in motor neurone disease.

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- Perivascular mononuclear inflammation
- ✓ Presence of the e4 allele of apolipoprotein E - Correct ✔

Next

Question

A 76-year-old male presents with cognitive impairment and is diagnosed with dementia. Which of the following is the most probable cause of the dementia?

(Please select 1 option)

- Alzheimer's disease
- Creutzfeldt-Jakob disease
- Lewy body dementia
- Pick's disease
- Vascular dementia

Answer Question

Incorrect

Explanation

Dementia is a clinical state characterised by loss of function in multiple cognitive domains beyond what might be expected from normal ageing.

Particularly affected areas may be memory, attention, language, and solving.

The most common form of dementia, Alzheimer's disease, accounts for 50-75% of all cases of dementia. The presenting symptom is usually forgetfulness for newly acquired information. As the disease progresses there is disorientation and progressive cognitive decline with personality disruption.

Another 20-30% is due to blood vessel disease (multi-infarct dementia), and approximately 20% is dementia with Lewy bodies. Frontotemporal dementia (Pick's disease) accounts for 5% of cases. The remaining cases result from a variety of less common disorders, including Creutzfeldt-Jakob disease, progressive supranuclear palsy, Huntington's disease and AIDS-associated dementia.

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Your Answer

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Next

Question

A 67-year-old man is admitted to the Emergency department with drooling, tongue and lip swelling and tachypnoea. He has COPD, angina, diabetes and hypertension.

He was at home when the incident occurred, and had not recently been in contact with anything new. He has no known allergies and his medication has not changed in the past year.

What is the likely cause of his symptoms?

(Please select 1 option)

- Aspirin
- Diltiazem
- Enalapril
- Food allergy
- Tetanus

Answer Question

Incorrect

Explanation

This gentleman has angioedema.

This is a side effect of angiotensin-converting enzyme inhibitor (ACEi) and to a lesser extent angiotensin receptor blocker (ARB). It does not necessarily occur as soon as the medication is started.

There is nothing pointing towards it being a food or drug allergy as he has not done anything different from normal.

Tetanus results in lock jaw and there is usually a history of injury.

The commoner side effects of diltiazem are leg swelling, bradycardia, AV node block and gastrointestinal (GI) disturbance.

The commoner side effects of aspirin are reflux or acid symptoms, with the possibility of GI bleed.

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- Aspirin
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Next

Question

A 48-year old alcoholic man presents with gradually increasing confusion and drowsiness over the past two weeks.

He had previously attended the Emergency department having fallen over drunk, but had discharged himself before being reviewed by a doctor.

On examination he has multiple old bruises including one to his right arm and to the right side of his face above his eye. His BP is 150/82 mmHg, his pulse is 67 and irregular. There is 3/5 power weakness of his left arm, he is drowsy and confused.

Investigations show:

Haemoglobin	102 g/L	(135-177)
White cell count	12.3 $\times 10^9$/L	(4-11)
Platelets	121 $\times 10^9$/L	(150-400)
Sodium	133 mmol/L	(135-146)
Potassium	3.9 mmol/L	(3.5-5)
Creatinine	90 µmol/L	(79-118)
ALT	190 U/L	(5-40)

Which of the following is the most appropriate intervention?

(Please select 1 option)

- CT head
- IV broad spectrum antibiotics
- Lumbar puncture
- Ultrasound abdomen
- Upper GI endoscopy

Answer Question

Haemoglobin	102 g/L	(135-177)
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Rate this question

Next

Incorrect

Explanation

The suspicion is that this patient has a subdural haematoma. In patients with alcoholism who are more likely to have abnormal clotting, what seems like a very minor, innocuous injury may lead to a potentially serious bleed. CT head is the initial investigation of choice.

Whilst sepsis is possible, we have no indication on initial findings of a source of infection, therefore antibiotics are not appropriate.

A lumbar puncture should also be avoided until after CT head.

An ultrasound, whilst it would confirm liver changes, is unlikely to be helpful in the acute stage, and the anaemia is likely to be chronic, rather than due to an acute bleed.

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Next

Question

A 33-year-old woman with epilepsy presents with visual problems.
Examination reveals a constriction of visual fields to confrontation.
Which of the following may be responsible for her visual deterioration?

(Please select 1 option)

- Gabapentin
- Lamotrigine
- Phenytoin
- Sodium valproate
- Vigabatrin

Answer Question

Correct

Explanation

Vigabatrin is associated with constricted visual fields and when detected therapy should be stopped.

Question

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- Phenytoin
- Sodium valproate
- ✓ Vigabatrin - Correct ✔

Rate this question

Next

Question

Which one of the following is associated with parkinsonian features?

(Please select 1 option)

- Chronic carbon dioxide retention
- Kernicterus
- Lead poisoning
- Mercury poisoning
- Wilson's disease

Answer Question

- Progressive supranuclear palsy
- Diffuse Lewy body disease
- Creutzfeldt-Jacob disease, and even
- Alzheimer's disease.

Question

Which one of the following is associated with parkinsonian features?

Your Answer

- Chronic carbon dioxide retention
- Kernicterus
- Lead poisoning
- Mercury poisoning
- ✓ Wilson's disease - Correct ✔

Rate this question

Next

Correct

Explanation

Poisons that can cause parkinsonism include:

- Manganese
- Carbon monoxide
- Carbon disulfide
- The cycad nut, and
- The illicit drug MPTP (methyl-phenyl tetrahydropyridine).

There are also other diseases of the brain that combine parkinsonism.
These include:

- Wilson's disease
- Huntington's disease
- Multiple system atrophy
- Striatonigral degeneration
- Olivo-ponto-cerebellar degeneration
- Cortical-basal ganglionic degeneration
- Progressive supranuclear palsy
- Diffuse Lewy body disease
- Creutzfeldt-Jacob disease, and even
- Alzheimer's disease.

Question

Which one of the following is associated with parkinsonian features?

Next

Question

A 60-year-old male with a history of diabetes, hypertension and hypercholesterolaemia presents with dizziness.

He reports that he woke up this morning and attempted to get out of bed but felt dizzy. He felt nauseous and was unable to get out of bed to go to the bathroom. His wife was concerned as this had never happened before and called for the ambulance.

On arrival at the emergency room his blood pressure was 180/70 mmHg, pulse was regular at 60 beats per minute and he was apyrexial. Blood sugar was within normal limits.

On neurological examination his visual fields were full, and fundoscopy was notable for grade 2 hypertensive retinopathy. He had left jerk nystagmus on looking to the left and left jerk nystagmus on looking to the right. He was able to perform finger to nose and heel to shin normally.

On standing the patient felt dizzy. His blood pressure was 170/80 mmHg after three minutes standing. He refused to walk for fear of falling. The rest of his examination was unremarkable.

What is the most likely diagnosis?

(Please select 1 option)

- Benign paroxysmal positional vertigo
- Cerebrovascular accident
- Hypertensive encephalopathy
- Labyrinthitis
- Orthostatic hypotension

Answer Question

Incorrect

Explanation

This patient is suffering from acute onset vertigo and nausea, with nystagmus a dominant feature on examination. This would fit best with benign paroxysmal positional vertigo, which occurs due to otolith detachment into the semicircular canals of the inner ear.

The constellation of symptoms here would be difficult to explain by a stroke - if the posterior circulation were affected you would also expect dysarthria and impaired coordination.

The patient is not orthostatic on examination by definition.

Labyrinthitis typically has associated tinnitus and a history of infection or head trauma.

This history, and blood pressure, does not fit with hypertensive encephalopathy.

Question

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What is the most likely diagnosis?

Your Answer

Benign paroxysmal positional vertigo - This is the correct answer ✔

Next

A 71-year-old man attends the memory clinic with his wife. She has noticed that he has become progressively more forgetful over the past few years and has begun to wander at night. Most recently he became lost whilst shopping in the local village and had to be brought home by the police. This caused his wife significant distress.

On examination in the clinic he has easily demonstrable short-term memory loss, with relative preservation of memory for events from his 40s. He also has visuospatial dysfunction.

His BP is 142/72 mmHg, his pulse is 78 and regular. There are no murmurs or bruits on auscultation.

Investigations showed

Haemoglobin	129 g/L	(135-177)
White cells	7.4 $\times 10^9$/L	(4-11)
Platelets	193 $\times 10^9$/L	(150-400)
Sodium	141 mmol/L	(135-146)
Potassium	4.6 mmol/L	(3.5-5)
Creatinine	90 µmol/L	(79-118)
CT head	Mild cortical atrophy	

Which of the following is the most likely diagnosis?

(Please select 1 option)

- Alzheimer's dementia
- Lewy body dementia
- Multi-infarct dementia
- Multiple system atrophy
- Pick's disease

Answer Question

Haemoglobin	129 g/L	(135-177)
White cells	7.4 $\times 10^9$/L	(4-11)
Platelets	193 $\times 10^9$/L	(150-400)
Sodium	141 mmol/L	(135-146)
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CT head	Mild cortical atrophy	

Which of the following is the most likely diagnosis?

Your Answer

- Alzheimer's dementia - This is the correct answer ✔
- Lewy body dementia
- Multi-infarct dementia
- Multiple system atrophy
- ✓ Pick's disease - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

Given the relatively insidious onset of this gentleman's memory loss, now accompanied by visuospatial dysfunction, his unremarkable cardiovascular examination and relatively normal CT head, Alzheimer's dementia seems the most likely diagnosis.

There are no features particularly consistent with emotional lability to indicate Pick's disease, and no features of Parkinson's, which would be consistent with Lewy body dementia or Multiple system atrophy.

Prescription of cholinergic agonists depends on a mini-mental state score of between 10 and 20 points.

Question

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Creatinine	90 µmol/L	(79-118)
CT head	Mild cortical atrophy	

Next

Question

A 35-year-old man with a known history of epilepsy presents with a skin rash, lymphadenopathy and gingival hypertrophy.
Which of the following medications is most likely to be responsible for his symptoms?

(Please select 1 option)

- Carbamazapine
- Lamotrigene
- Lorazepam
- Phenytoin
- Sodium valproate

Answer Question

Incorrect

Explanation

Common side effects of phenytoin include gingival hyperplasia, coarsening of the facies, and hirsutism.

Phenytoin is linked to a hypersensitivity syndrome manifested by fever, rash, and lymphadenopathy.

Patients receiving phenytoin may develop pseudolymphoma or, rarely, malignant lymphoma and mycosis-fungoides-like lesions.

Question

A 35-year-old man with a known history of epilepsy presents with a skin rash, lymphadenopathy and gingival hypertrophy.

Which of the following medications is most likely to be responsible for his symptoms?

Your Answer

- Carbamazapine
- Lamotrigene
- Lorazepam
- Phenytoin - This is the correct answer ✔
- ✓ Sodium valproate - Incorrect answer selected ✖

Next

Question

A 58-year-old man presents with central back pain which shoots down to his left foot. There is paraesthesia over the lateral aspect of the left foot, impaired ankle jerk and weakness of plantarflexion. His right leg is normal.

What is the most likely cause of his pain?

(Please select 1 option)

- Cauda equina syndrome
- Cervical disc prolapse
- L3/4 disc prolapse
- L4/5 disc prolapse
- L5/S1 disc prolapse

Answer Question

Explanation

L5/S1 is correct as it is the S1 nerve root that is involved. The L5/S1 disc can compress the S1 nerve root causing:

- sciatic pain
- loss of plantarflexion
- impaired S1 reflex (ankle jerk), and
- paraesthesia over the lateral aspect of the foot.

Cauda equina syndrome is incorrect as there would be bilateral signs and bladder involvement.
Cervical disc prolapse is incorrect as signs would be bilateral and involve paraplegia.
L3/4 and L4/5 are incorrect as they involve the wrong spinal root.

Question

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What is the most likely cause of his pain?

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- L3/4 disc prolapse
- L4/5 disc prolapse
- ✓ L5/S1 disc prolapse - Correct ✔

Next

Question

A 70-year-old woman presented with an acute, severe occipital headache, unsteadiness of her gait, and vomiting. She had a history of poorly controlled hypertension.

On examination there was nystagmus to the left, ataxia of the left limbs, and gait ataxia.

Which of the following is the most likely diagnosis?

(Please select 1 option)

- Acute cerebellar haemorrhage
- Basal ganglia haemorrhage
- Pontine haemorrhage
- Subdural haemorrhage
- Temporal lobe haemorrhage

Answer Question

Incorrect

Explanation

Cerebellar haemorrhage:

The most common symptoms are of severe nausea and vomiting, and ataxia. Headache may be severe. Patients with cerebellar haemorrhage can rapidly become comatose within hours after the onset from herniation, because of its limited space in the posterior fossa.

Pontine haemorrhage:

There are numerous nuclei located within the pons. Rapidly deteriorating level of consciousness, impaired extraocular movement, and extensive sensorimotor deficits are clinical clues to pontine haemorrhage.

Basal ganglia haemorrhage:

Contralateral hemiparesis, hemisensory loss, or hemi-inattention. Aphasia, especially non-fluency and impaired comprehension, is frequently seen if haemorrhage occurs in the posterior limb of the left internal capsule.

Question

A 70-year-old woman presented with an acute, severe occipital headache, unsteadiness of her gait, and vomiting. She had a history of poorly controlled hypertension.

On examination there was nystagmus to the left, ataxia of the left limbs, and gait ataxia.

Which of the following is the most likely diagnosis?

Your Answer

- Acute cerebellar haemorrhage - This is the correct answer ✔
- Basal ganglia haemorrhage
- Pontine haemorrhage

Next

Question

A 50-year-old woman is referred with a two week history of difficulty walking and weakness in her arms.

On examination, there was proximal and distal limb weakness which was more marked in the legs than the arms. All tendon reflexes were absent and the plantar responses were flexor. There was no sensory loss.

Blood pressure in the supine position was 140/78 mmHg (lying) and was 110/70 mmHg on standing.

What is the most likely diagnosis?

(Please select 1 option)

- Cervical cord compression
- Guillain-Barré syndrome
- Myasthenia gravis
- Poliomyelitis
- Polymyositis

Answer Question

Incorrect

Explanation

This is a classical presentation of Guillain-Barre with the gradual development of ascending weakness with autonomic involvement.

Question

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Next

Question

A 25-year-old male presents to the Emergency department with weakness of his right hand. Examination reveals weakness of right wrist and finger extension.
What is the most likely diagnosis?

(Please select 1 option)

- Axillary nerve palsy
- C8 nerve root lesion
- Proximal median nerve lesion
- Radial nerve lesion
- Ulnar nerve lesion at the elbow

Answer Question

Incorrect

Explanation

Weakness of wrist extension with wrist drop and weakness of finger extension are typical of a radial nerve lesion.

Question

A 25-year-old male presents to the Emergency department with weakness of his right hand.
Examination reveals weakness of right wrist and finger extension.
What is the most likely diagnosis?

Your Answer

- Axillary nerve palsy
- C8 nerve root lesion
- Proximal median nerve lesion
- Radial nerve lesion - This is the correct answer ✔
- ✓ Ulnar nerve lesion at the elbow - Incorrect answer selected ✖

Rate this question

Next

Question

A 65-year-old male presents with acute severe headache, ataxia, and vomiting. Six hours later he became drowsy.

On examination he had left horizontal nystagmus, a partial left sixth cranial nerve palsy, and extensor plantar responses. His blood pressure was 188/110 mmHg.

Which is the most likely cause for this deterioration?

(Please select 1 option)

- Brain stem herniation
- Cerebral oedema
- Dehydration
- Malignant hypertension
- Non-convulsive status epilepticus

Answer Question

Corey-Bloom J, David RB. *Clinical Adult Neurology.* 3rd ed. New York: Demos Medical; 2009.

Question

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Rate this question

Next

Incorrect

Explanation

The most likely explanation of the sudden deterioration will be brain stem herniation. The sudden onset of headache, ataxia, and vomiting a few hours prior to this suggest that there may have been an intracranial haemorrhage which led to mass effect and subsequent herniation.

Brain herniation often causes false localising signs due to compression of various areas of the brain. There are various forms of herniation, which are outside the scope of this question. Simply, it usually follows two patterns: uncal herniation or central herniation.

Clinical presentation of uncal herniation includes a third nerve paresis (ipsilateral dilated pupil, abnormal external ocular movements, including nystagmus), contralateral hemiparesis, which can lead to ipsilateral hemiparesis. The third nerve paresis occurs due to compression of the parasympathetic fibres around the third nerve, which results in unopposed sympathetic response. Contralateral hemiparesis occurs with compression of the cerebral peduncle. Ipsilateral hemiparesis and third nerve palsy occur late when the lateral translation is so great that it compresses the contralateral third nerve and peduncle.

Central herniation usually presents with confusion and drowsiness, followed by impaired vertical gaze, small pupils, impaired oculocephalic reflexes, and bilateral corticospinal tract signs including increased tone and Babinski signs.

Additional signs are present due to raised intracranial pressure: bradycardia, hypertension, irregular breathing (Cushing response), and a sixth-nerve palsy. The sixth nerve is usually the first to be compressed due to its long extracerebral intracranial course.

Diplopia from either a third or sixth nerve palsy can cause nystagmus.

This patient needs immediate intensive care support, with intubation and hyperventilation. The case should be discussed urgently with neurosurgeons, and their advice sought regarding the possibility of operative intervention. Intravenous mannitol and other hyperosmolar solutions are oftenindicated, and should be considered.

Cerebral oedema could account for the sixth nerve palsy, nystagmus, and hypertension, but the deterioration with impaired consciousness and extensor plantar responses should lead you to consider herniation as the cause.

Dehydration would not cause this constellation of neurological signs.

The blood pressure in malignant hypertension is typically higher than this (>220/120 mmHg).

This history is not typical for status epilepticus.

Further Reading:

Next

Question

A 60-year-old gentleman attends the Emergency department with left-sided weakness.
Over the next hour his symptoms resolve, and after two hours he is feeling completely back to normal.
Which is the best course of action?

(Please select 1 option)

- Discharge and see in stroke clinic in 3 months
- Discharge and follow up the next day in TIA clinic
- Discharge and GP follow up
- Urgent carotid endarterectomy
- Urgent CT head and carotid duplex whilst inpatient

Answer Question

Incorrect

Explanation

NICE guidelines on Stroke (CG68) state that a patient with a TIA should receive a CT/MRI head and carotid duplex within a week. If carotid endarterectomy is deemed necessary then surgery should be performed within two weeks.

Most NHS trusts have a daily TIA clinic which can organise these urgent investigations, and patients can be discharged and seen the next day in one of these. Inpatient admission is not required, and GP or three month follow up is inappropriate.

Question

A 60-year-old gentleman attends the Emergency department with left-sided weakness. Over the next hour his symptoms resolve, and after two hours he is feeling completely back to normal.

Which is the best course of action?

Your Answer

- Discharge and see in stroke clinic in 3 months
- Discharge and follow up the next day in TIA clinic - This is the correct answer ✔
- Discharge and GP follow up
- Urgent carotid endarterectomy
- ✓ Urgent CT head and carotid duplex whilst inpatient - Incorrect answer selected ✖

Next

Question

Chronic subdural haematoma in a 75-year-old man is not associated with the presence of which of the following?

(Please select 1 option)

- Bilateral papilloedema
- Hemiparesis
- Fluctuating level of consciousness
- Impaired cognitive function
- Internuclear ophthalmoplegia

Answer Question

The most common presenting symptom of chronic subdural haematoma (SDH) is headache, which is seen in up to 80% of patients.

Other common symptoms are:

- fatigue
- memory impairment
- confusion
- nausea and vomiting
- impaired vision, and
- seizures.

Hemiparesis, or paralysis is also possible. Patients with large haematomas may develop fluctuating levels or consciousness, or coma.

Although it is a late sign, bilateral papilloedema may occur with raised intracranial pressure.

Bilateral internuclear ophthalmoplegia is associated with multiple sclerosis and unilateral lesions of medial longitudinal fasciculus and may occur with small brain stem infarcts. It is not a presenting feature of chronic subdural haematoma.

Question

Chronic subdural haematoma in a 75-year-old man is not associated with the presence of which of the following?

Your Answer

- Bilateral papilloedema
- Hemiparesis
- Fluctuating level of consciousness
- Impaired cognitive function
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Next

Question

What is the most common finding in Cheyne-Stokes breathing?

(Please select 1 option)

- Heart failure
- Liver failure
- Pilocytic astrocytoma
- Renal failure
- Stroke

Answer Question

Incorrect

Explanation

Two-thirds of cases of Cheyne-Stokes breathing appear to have heart failure. Treatment of this can result in improvement of the breathing disorder.

Stroke and metabolic dysfunction can also result in Cheyne-Stokes apnoea but are not as common as heart failure.

Cheyne-Stokes is a type of central sleep apnoea in which there is loss of chest and abdominal movements and crescendo-decrescendo breathing in a repetitive fashion.

Treatments include diuretics and non-invasive ventilation.

Question

What is the most common finding in Cheyne-Stokes breathing?

Your Answer

- Heart failure - This is the correct answer ✔
- Liver failure
- Pilocytic astrocytoma
- Renal failure
- ✓ Stroke - Incorrect answer selected ✖

Next

Question

A 75-year-old man is awaiting transurethral resection of the prostate, but is brought into hospital in acute urinary retention.
Which of the following drugs might be responsible?

(Please select 1 option)

- Ipatroprium bromide inhaler
- Montelukast
- Serevent inhaler
- Sodium chromoglycate
- Theophylline

Answer Question

Incorrect

Explanation

Ipatropium bromide acts as an antimuscarinic bronchodilator and has traditionally been regarded as more effective in relieving bronchoconstriction associated with chronic bronchitis.

Side effects are rare and it does not increase sputum viscosity or affect the mucociliary clearance of sputum.

Reported side effects are dry mouth, blurred vision, constipation and urinary retention.

The nebulised drug has occasionally been reported to leak around the mask and precipitate acute angle closure glaucoma in susceptible patients.

Question

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Next

Question

A 70-year-old woman presents with acute back pain followed by weakness of dorsiflexion of her left foot.
Where would you expect the associated sensory loss?

(Please select 1 option)

- Anterior thigh
- Dorsum of foot
- Perineum
- Posterior calf
- Sole of foot

Answer Question

Incorrect

Explanation

The features suggest an L5 radiculopathy which would be associated with a loss of sensation in the dorsum of the foot and big toe.

Question

A 70-year-old woman presents with acute back pain followed by weakness of dorsiflexion of her left foot.
Where would you expect the associated sensory loss?

Your Answer

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- Dorsum of foot - This is the correct answer ✔
- Perineum
- Posterior calf
- ✓ Sole of foot - Incorrect answer selected ✖

Rate this question

Next

Question

A 62-year-old male is noted to have a broad-based ataxic gait.
This is characteristic of which of the following?

(Please select 1 option)

- A basal ganglia lesion
- Cerebellar vermis lesion
- Osteomalacia
- Phenytoin toxicity
- Right-sided cerebral infarction

Answer Question

Incorrect

Explanation

Broad-based gait is associated with cerebellar syndrome.
However, lesions of cerebellar vermis cause truncal ataxia and tendency to fall backwards.
Right-sided cerebral infarction is associated with a hemiplegic gait.
Basal ganglia disease causes extrapyramidal signs with parkinsonism (festinant gait, marche à petit pas).
Proximal myopathy causes a waddling gait.

Question

A 62-year-old male is noted to have a broad-based ataxic gait.
This is characteristic of which of the following?

Your Answer

- A basal ganglia lesion
- Cerebellar vermis lesion
- Osteomalacia
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Next

Question

A 77-year-old gentleman with a past medical history of myocardial infarct, atrial fibrillation, type 2 diabetes and a recent stroke presents with loss of consciousness followed by jerking and shaking, witnessed by his wife. He is on a number of medications which include simvastatin and warfarin.

Whilst you are assessing him in Accident and Emergency he suffers a second generalised tonic-clonic seizure. What anti-epileptic should he be started on after management of the acute episode?

(Please select 1 option)

- Carbamezapine
- Clonazepam
- Gabapentin
- Lamotrigine
- Sodium valproate

Answer Question

Up to 10% of patients who have stroke are thought to subsequently develop seizures. These are classically focal initially and then develop secondary generalisation.

There is a lack of high-quality evidence regarding the relative effectiveness of the different anti-seizure medications in this setting. Some studies suggest that the newer agents have similar efficacy to traditional treatments, with a more favourable adverse event profile in older patients. Both lamotrigine and gabapentin have been showed to be beneficial in this setting, but lamotrigine is preferred in the current NICE guidelines.

Sodium valproate, which is a first-line treatment for tonic-clonic epilepsy in adults, is a potent cytochrome P450 enzyme inhibitor which is therefore contraindicated due to the patient being on warfarin.

Carbamazepine is also contraindicated, as it is a P450 inducer.

Clonazepam is more often used in the management of myoclonic epilepsy, rather than in the post-stroke setting.

Reference & Further Reading:

NICE: Epilepsies: diagnosis and management

Question

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- Carbamezapine
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- Lamotrigine - This is the correct answer ✔

Next

Question

A 50-year-old man has drunk six units of alcohol a day for most of his adult life.
He has worsening symptoms of difficulty walking, headaches and urinary incontinence for the past ten months.
What is the most likely diagnosis?

(Please select 1 option)

- Encephalopathy
- Meningovascular syphilis
- Normal pressure hydrocephalus
- Syringomyelia
- Wernicke-Korsakoff syndrome

Answer Question

progression. Prognosis is variable, but early surgical involvement is beneficial.
In this scenario, the alcohol is a distractor.

Question

A 50-year-old man has drunk six units of alcohol a day for most of his adult life.
He has worsening symptoms of difficulty walking, headaches and urinary incontinence for the past ten months.
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Your Answer

- Encephalopathy
- Meningovascular syphilis
- Normal pressure hydrocephalus
- Syringomyelia - This is the correct answer ✔
- ✓ Wernicke-Korsakoff syndrome - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

There is no suggestion of memory loss so normal pressure hydrocephalus and Wernicke-Korsakoff syndrome are less likely.

Encephalopathy is more likely to be associated with symptoms of drowsiness.

Although meningovascular syphilis can present in many different forms it is rather rare.

Syringomyelia is associated with headaches, motor and bladder symptoms and is the likely diagnosis. There is syrinx (fluid-filled cavitation) in the central spinal cord, usually cervical. This can elongate and enlarge, causing compression of the corticospinal and spinothalamic tracts and anterior horn cells.

Syringobulbia describes the situation when the syrinx extends into the brainstem. The most common cause is impaired cerebrospinal fluid circulation, usually due to a Chiari malformation (also associated with arachnoiditis, meningeal carcinomatosis, space-occupying lesions or idiopathic). It is more common in men than women, and usually presents in the 20s and 30s although it can present later in life.

Sensory features are pain and temperature loss, classically in a shawl-like distribution and dysaesthesia. Light touch, vibration and position sense are affected later. Motor signs start as muscle wasting and weakness that begins in the hands, and progresses to affect the forearms and shoulders. Tendon reflexes are lost and there may be respiratory muscle involvement. Bladder, bowel and sexual dysfunction can develop, as can Horner's syndrome. Extension of the syrinx into the lumbar region can involve the legs.

Lumbar puncture should be avoided due to the risk of herniation. CT and MRI can be used to delineate the extent. Management involves physiotherapy, and neurosurgery to halt progression. Prognosis is variable, but early surgical involvement is beneficial.

In this scenario, the alcohol is a distractor.

Question

A 50-year-old man has drunk six units of alcohol a day for most of his adult life.

He has worsening symptoms of difficulty walking, headaches and urinary incontinence for the past ten months.

What is the most likely diagnosis?

Next

A 19-year-old woman presents to the Emergency department with a severe headache, vomiting and right hemiplegia. She has recently begun the progesterone only pill, but has no other past medical history of note.

On examination her blood pressure is 155/80 mmHg, her pulse is 80 and regular and she is in obvious pain. There is a 3/5 power weakness affecting both her right upper and lower limb. Her reflexes are normal.

Investigations show:

Haemoglobin	120 g/L	(115-160)
White cell count	6.1 $\times 10^9$/L	(4-11)
Platelets	241 $\times 10^9$/L	(150-400)
ESR	9 mm/hr	(<10)
Sodium	139 mmol/L	(135-146)
Potassium	4.0 mmol/L	(3.5-5)
Creatinine	82 µmol/L	(79-118)
MRI brain	normal	

Which of the following is the most appropriate treatment for her?

(Please select 1 option)

- Acetazolamide
- Diclofenac
- Ergotamine
- Sumatriptan
- Zolmitriptan

Answer Question

White cell count	6.1 $\times 10^9$/L	(4-11)
Platelets	241 $\times 10^9$/L	(150-400)
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MRI brain	normal	

Which of the following is the most appropriate treatment for her?

Your Answer

- Acetazolamide
- Diclofenac - This is the correct answer ✔
- Ergotamine
- Sumatriptan
- ✓ Zolmitriptan - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

This unfortunate young woman has hemiplegic migraine, for which non-steroidals and antiemetics are the acute treatment of choice. Options for prophylaxis include tricyclics, antidepressants, anticonvulsants, calcium channel blockers and beta blockers.

Ergot derived compounds and triptans are contraindicated for the treatment of hemiplegic migraine because of the risk of precipitating a stroke.

Whilst acetazolamide has found favour as a treatment for hemiplegic migraine, data are unconvincing.

Question

A 19-year-old woman presents to the Emergency department with a severe headache, vomiting and right hemiplegia. She has recently begun the progesterone only pill, but has no other past medical history of note.

On examination her blood pressure is 155/80 mmHg, her pulse is 80 and regular and she is in obvious pain. There is a 3/5 power weakness affecting both her right upper and lower limb. Her reflexes are normal.

Investigations show:

Haemoglobin	120 g/L	(115-160)
White cell count	6.1 $\times 10^9$/L	(4-11)
Platelets	241 $\times 10^9$/L	(150-400)
ESR	9 mm/hr	(<10)
Sodium	139 mmol/L	(135-146)
Potassium	4.0 mmol/L	(3.5-5)
Creatinine	82 µmol/L	(79-118)
MRI brain	normal	

Which of the following is the most appropriate treatment for her?

Next

Question

A 16-year-old boy is admitted after a blackout at the dentist.

His mother describes how he blacked out as the dentist began performing a filling and that he jerked his arms a few times and was then incontinent. He awoke after a minute or so and was oriented but nauseated.

There have been no similar episodes in the past and he is totally unaware of what happened. Examination is normal and his ECG is normal.

Which one of the following is the most likely diagnosis?

(Please select 1 option)

- Complex partial seizure
- Pseudoseizure
- Stokes-Adams attack
- Tonic-clonic seizure
- Vasovagal syncope

Answer Question

Correct

Explanation

Vasovagal syncope is common during dental procedures, mainly induced by pain (as the dentist started drilling). The fact that he recovered very quickly supports the diagnosis of syncope. It is common to have jerking of limbs due to brain hypoxia.

ECG is always normal. Incontinence of urine can occur, but not biting of the tongue.

Question

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His mother describes how he blacked out as the dentist began performing a filling and that he jerked his arms a few times and was then incontinent. He awoke after a minute or so and was oriented but nauseated.

There have been no similar episodes in the past and he is totally unaware of what happened. Examination is normal and his ECG is normal.

Which one of the following is the most likely diagnosis?

Your Answer

- Complex partial seizure
- Pseudoseizure
- Stokes-Adams attack
- Tonic-clonic seizure
- ✓ Vasovagal syncope - Correct ✔

Next

A 67-year-old man presents with a severe headache, the worst he has ever had, affecting the back of his head and his neck.

On admission to the Emergency department he is very agitated and requires opiate based pain relief for his headache. He has a history of hypertension for which he takes ramipril, amlodipine and indapamide. His BP is elevated at 185/100 mmHg and he has a tachycardia of 90 BPM.

He is severely photophobic and finds it impossible to comply with ophthalmoscopy. Neurological examination, as far as you can tell, is normal.

Investigations show

Haemoglobin	111 g/L	(135-177)
White cell count	4.2 $\times 10^9$/L	(4-11)
Platelets	231 $\times 10^9$/L	(150-400)
Sodium	143 mmol/L	(135-146)
Potassium	4.3 mmol/L	(3.5-5)
Creatinine	90 µmol/L	(79-118)
CT head	Left parietal lobe haemorrhage	

What neurological finding would you most expect?

(Please select 1 option)

- Acalculia
- Dysphagia
- Expressive dysphasia
- Left hemiplegia
- Contralateral homonymous superior quadrantanopia

Answer Question

Haemoglobin	111 g/L	(135-177)
White cell count	4.2 $\times 10^9$/L	(4-11)
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Sodium	143 mmol/L	(135-146)
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Creatinine	90 µmol/L	(79-118)
CT head	Left parietal lobe haemorrhage	

What neurological finding would you most expect?

Your Answer

- Acalculia - This is the correct answer ✔
- Dysphagia
- Expressive dysphasia
- Left hemiplegia
- ✓ Contralateral homonymous superior quadrantanopia - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

The dominant parietal lobe (usually the left) is important for perception, interpretation of sensory information and the formation of motor responses. The non-dominant lobe has a number of visual-spatial functions. Involve of the optic tract, in either lobe, causes a contralateral homonymous inferior quadrantanopia. Typical signs associated with different lesions are:

Post-central gyrus (anterior parietal lobe), dominant or non-dominant:

- Impaired proprioception
- Impaired two point discrimination
- Agraphism
- Astereognosis
- Sensory +/- visual inattention

Superior parietal lobule, dominant or non-dominant:

- Balint syndrome: optic ataxia
- Impaired spatial procressing

Inferior parietal lobule, dominant or non-dominant:

- Sensory extinction
- Asteroagnosia
- Dysgraphaesthesia

Dominant inferior parietal lobule:

- Acalculia
- Agraphia
- Left/right confusion
- Finger agnosia
- Receptive dysphasia
- Alexia or dyslexia
- Gerstmann's syndrome

Non-dominant inferior parietal lobule:

- Geographical agnosia

Dominant inferior parietal lobule:

- Acalculia
- Agraphia
- Left/right confusion
- Finger agnosia
- Receptive dysphasia
- Alexia or dyslexia
- Gerstmann's syndrome

Non-dominant inferior parietal lobule:

- Geographical agnosia
- Phonagnosia
- Constructional apraxia
- Anosognosia
- Spatial neglect of the contralateral limb
- Dressing apraxia

Expressive dysphasia is caused by damage to the posterior inferior frontal gyrus.
Homonymous superior quadrantanopia is caused by a lesion of the temporal lobe.
Dysphagia is caused by a number of neurological conditions, but not specifically a lesion of the parietal lobe.

Reference:

CNS: Parietal Lobes

Question

A 67-year-old man presents with a severe headache, the worst he has ever had, affecting the back of his head and his neck.

On admission to the Emergency department he is very agitated and requires opiate based pain relief for his headache. He has a history of hypertension for which he takes ramipril, amlodipine and indapamide. His BP is elevated at 185/100 mmHg and he has a tachycardia of 90 BPM.

He is severely photophobic and finds it impossible to comply with ophthalmoscopy. Neurological examination, as far as you can tell, is normal.

Next

Question

A 28-year-old female, three days postpartum, develops severe headache associated with seizures.

During her pregnancy, her blood pressure had been mildly elevated in the third trimester.

On examination, she had a GCS of 15 but was slightly confused and drowsy. Her temperature was 37.5°C, she had mild nuchal rigidity but neurological examination was otherwise normal.

Which is the most likely diagnosis?

(Please select 1 option)

- Bacterial meningitis
- Cortical vein thrombosis
- Eclampsia
- Intracerebral haemorrhage
- Subarachnoid haemorrhage

Answer Question

Postpartum period is a risk factor of cortical vein and sinus thrombosis.

It typically presents with headache, seizures, and focal neurological deficit two to three weeks postpartum (but is also seen earlier).

Other clinical presentations include an idiopathic intracranial hypertension (BIH) type of picture (papilloedema, visual disturbances, and headaches) or a subacute encephalopathic picture. Thrombophilia screen should be performed.

Eclampsia typically improves following delivery but despite this 1/3 of seizures occur in the four days following delivery, the seizures can in fact occur antepartum, intrapartum, or postpartum. If a seizure does occur postpartum, it usually occurs within the first 24 hours after delivery.

Although eclampsia would be in the differential diagnosis in this case, nuchal rigidity is not a typical feature which points more to the direction of cortical vein thrombosis.

Subarachnoid haemorrhage is less often associated with seizures than a cortical vein thrombosis. In addition, patients with significant subarachnoid haemorrhage are usually very meningitic with photophobia and significant neck stiffness and pain.

Question

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Which is the most likely diagnosis?

Your Answer

- Bacterial meningitis
- Cortical vein thrombosis - This is the correct answer ✔
- Eclampsia
- Intracerebral haemorrhage

Next

Question

A 31-year-old woman presents to the Emergency department following a witnessed first ever seizure. She is drowsy and confused postictally.

A CT brain shows petechial haemorrhages in the right hemisphere. An MRI shows cerebral venous sinus thrombosis.

Which of the following would be the best initial treatment?

(Please select 1 option)

- Antibiotics
- Aspirin
- Heparin
- Supportive management
- Vitamin K

Answer Question

Explanation

Venous sinus thrombosis is more common in young women and it may present with headaches or symptoms of raised intracranial pressure. It can also cause seizures. The underlying problem is a thrombosis and the petechial haemorrhages are caused by venous outflow blockage. It is therefore important that anticoagulation is started immediately to relieve the cause. Heparin is the most appropriate anticoagulant to use in this circumstance.

Antibiotics are not the best answer. The underlying cause may be infection and it would be important to look for this and treat it. However, there is no sign of this in this case. It would be most important here to get on and treat the thrombosis.

Aspirin is not the best answer. Since the clot is venous, heparin is more appropriate.

Supportive management is not the best answer. The underlying thrombosis should be treated to relieve symptoms. The petechial haemorrhages should not put you off anticoagulating the patient.

Vitamin K can sometimes be used to treat coagulopathies in deficient patients; however that is not applicable here. The underlying problem is a clot which should be treated. The haemorrhages are secondary to the venous outflow blockage.

Question

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A CT brain shows petechial haemorrhages in the right hemisphere. An MRI shows cerebral venous sinus thrombosis.

Which of the following would be the best initial treatment?

Your Answer

- Antibiotics
- Aspirin
- Heparin - This is the correct answer ✔
- Supportive management

Next

Question

A 50-year-old gentleman presents to the emergency department having had a fall.

Examination revealed ataxia and some mild extrapyramidal signs. He was receiving treatment for suspected Parkinson's disease following a fall he had had six months ago when he demonstrated extrapyramidal signs. His symptoms had been noted to have improved with the medication. Tilt table testing was performed and found to be positive.

What is the likely diagnosis?

(Please select 1 option)

- Cerebellar degeneration
- Multi-system atrophy
- Parkinson's disease
- Postural hypotension
- Wilson's disease

Answer Question

Explanation

Multi-system atrophy includes three syndromes that usually overlap

1. Strionigral degeneration leading to parkinsonism
2. Autonomic failure
3. Olivopontocerebellar degeneration.

The average age of onset is 50 years (earlier than in Parkinson's disease) and the median survival six to nine years. It runs a briefer course than Parkinson's disease.

The clinical presentation is highly varied and may begin with any of the above clinical signs. The unifying pathologic hallmark is the presence of a-synuclein-positive inclusions located in various brain regions.

Early in the course of the illness parkinsonian features may respond to dopaminomimetic agents. These have to be used with caution due to their tendency to provoke orthostatic hypotension.

Question

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What is the likely diagnosis?

Your Answer

- Cerebellar degeneration
- Multi-system atrophy - This is the correct answer ✔
- Parkinson's disease

Next

Question

A 27-year-old man presents with three months of difficulty walking.
Examination reveals motor weakness of left leg in a pyramidal distribution with increase in tone. There is impaired pinprick sensation of right leg extending into the groin.
What is the cause of these signs?

(Please select 1 option)

- A central cauda equina lesion
- A cervical spinal cord lesion
- A foramen magnum lesion
- A left sided thoracic spinal cord lesion
- Bilateral cerebral hemisphere lesions

Answer Question

Incorrect

Explanation

The history suggests Brown-Séquard's syndrome syndrome produced by a hemisection of the spinal cord.
The clinical presentation is that of ipsilateral weakness and a loss of position and vibration below the lesion with contralateral loss of pain and temperature.

Question

A 27-year-old man presents with three months of difficulty walking.
Examination reveals motor weakness of left leg in a pyramidal distribution with increase in tone. There is impaired pinprick sensation of right leg extending into the groin.
What is the cause of these signs?

Your Answer

- A central cauda equina lesion
- A cervical spinal cord lesion
- A foramen magnum lesion
- A left sided thoracic spinal cord lesion - This is the correct answer ✔
- ✓ Bilateral cerebral hemisphere lesions - Incorrect answer selected ✖

Next

Question

With which of the following does a broad-based ataxic gait characteristically occur?

(Please select 1 option)

- Basal ganglia lesion
- Cerebellar vermis lesion
- Phenytoin toxicity
- Proximal myopathy
- Right-sided cerebral infarction

Answer Question

Incorrect

Explanation

Broad based gait is associated with cerebellar syndrome. However, lesions of cerebellar vermis cause truncal ataxia and tendency to fall backwards.

Basal ganglia disease causes extrapyramidal signs with Parkinsonism (festinant gait, marche à petits pas).

Proximal myopathy causes a waddling gait.

Right-sided cerebral infarction is associated with a hemiplegic gait.

Question

With which of the following does a broad-based ataxic gait characteristically occur?

Your Answer

- Basal ganglia lesion
- Cerebellar vermis lesion
- Phenytoin toxicity - This is the correct answer ✔
- Proximal myopathy
- ✓ Right-sided cerebral infarction - Incorrect answer selected ✖

Next

Question

A 40-year-old patient is being evaluated in your clinic for headaches.
On examination you notice that the left pupil constricts and then enlarges and constricts again while shining the pen torch on the eye.
What is this finding called?

(Please select 1 option)

- Hippus
- Horner's pupil
- Iridocyclitis
- Relative afferent papillary defect
- Tonic pupil

Answer Question

Incorrect

Explanation

Hippus is papillary athetosis. It is typically a benign finding. It is a spasmodic rhythmical dilation and contraction of the pupil. It is particularly noticeable when pupils are tested with a light, but is independent of eye movements or light. Pathological hippus is rare but is recognised with aconite poisoning, trauma, cirrhosis and renal disease (possibly due to frontal lobe dysfunction).

Iridocyclitis is inflammation of the uvea and is a form of anterior uveitis.

A relative afferent papillary defect is detected with the swinging light test, however in this case the pen torch is held on one eye only.

A Horner's pupil is a miotic pupil caused by damage to the sympathetic chain.

A tonic pupil or Holmes-Adie pupil is a dilated pupil caused by parasympathetic damage.

Question

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On examination you notice that the left pupil constricts and then enlarges and constricts again while shining the pen torch on the eye.

What is this finding called?

Your Answer

- Hippus - This is the correct answer ✔
- Horner's pupil
- Iridocyclitis
- Relative afferent papillary defect

Next

Question

A 62-year-old male presents with weakness of the right hand.
You note global wasting of the small hand muscles, there is also sensory loss over the medial border of the forearm around the elbow.
Which nerve root is damaged?

(Please select 1 option)

- C5
- C6
- C7
- C8
- T1

Answer Question

Explanation

This patient has Klumpke's paralysis due to damage to the T1 nerve root.
This root eventually supplies the median and ulnar nerves.
The ulnar nerve supplies all of the intrinsic hand muscles except for those of the thenar eminence and the first and second lumbricals which are innervated by the median nerve.

Question

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You note global wasting of the small hand muscles, there is also sensory loss over the medial border of the forearm around the elbow.
Which nerve root is damaged?

Your Answer

- C5
- C6
- C7
- C8
- ✓ T1 - Correct ✔

Rate this question

Next

Question

A 57-year-old woman is referred to the clinic with progressive hearing loss affecting her left ear and tinnitus.

She had been diagnosed with Meniere's disease some two years earlier and feels that her problems are slowly getting worse with vertigo and double vision recent additional features.

Her GP prescribed some betahistine but it does not seem to be working.

On examination her BP is 134/72 mmHg, pulse is 70 and regular, her BMI is 29.

There is coarse nystagmus when she looks towards the left, nystagmus is rapid when she looks to the right. There is a deficient corneal reflex on the left. Audiometry reveals significant sensorineural hearing loss affecting the left side.

Which of the following is the most appropriate next intervention?

(Please select 1 option)

- Added cyclizine
- CT brain
- Increased dose of betahistine
- MRI brain
- Referral for Hallpike manoeuvre

Answer Question

The pattern of nystagmus, slowly progressive symptoms of hearing loss, tinnitus, and loss of corneal reflex fits best with a diagnosis of acoustic neuroma. As such an MRI brain is the investigation of choice.

There is no role for increased medical therapy, betahistine or cyclizine in the management of acoustic neuroma. As such neither of those options is appropriate.

CT is not as sensitive as MRI for detection of acoustic neuroma, whereas MRI can detect tumours as small as 1-2 mm, tumours as large as 1.5 cm have been missed on CT.

The Hallpike manoeuvre is considered in the diagnosis of benign positional vertigo.

Question

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Which of the following is the most appropriate next intervention?

Your Answer

- Added cyclizine
- CT brain
- Increased dose of betahistine
- MRI brain - This is the correct answer ✔

Next

Question

Which of the following features is characteristic of myasthenia gravis?

(Please select 1 option)

- Diplopia
- Equal sex incidence
- Fasciculation
- Lid lag
- Loss of pupillary reflexes

Answer Question

Incorrect

Explanation

Myasthenia gravis is more common in females (it is an autoimmune disease).
The most common features include ptosis, diplopia and ophthalmoplegia.
It is a neuromuscular disorder and therefore does not cause any lower motor neuron signs such as fasciculations, wasting, and loss of reflexes.
Pupils are always normal.
Lid lag is a feature of thyroid eye disease.

Question

Which of the following features is characteristic of myasthenia gravis?

Your Answer

- Diplopia - This is the correct answer ✔
- Equal sex incidence
- Fasciculation
- Lid lag
- ✓ Loss of pupillary reflexes - Incorrect answer selected ✖

Next

Question

A 60-year-old man presents with an episode of memory loss.

Three days earlier he had become confused. His wife led him into the house where he apparently sat down at her request and had a cup of tea. He then wandered around the house confused, but remained conscious and able to have some conversation with his wife, though continuing to ask similar questions repeatedly.

After three hours, he abruptly returned to normal and had no recollection of the events.

Which is the most likely diagnosis?

(Please select 1 option)

- Alcohol related amnesia
- Chronic subdural haematoma
- Complex partial status epilepticus
- Hysterical fugue state
- Transient global amnesia

Answer Question

Explanation

This is the typical clinical description of transient global amnesia which represents a transient vascular insufficiency of both hippocampi.

This is a rare condition which usually affects people over the age of 50. It lasts less than 24 hours and an awareness of personal identity is retained, along with normal cognition.

Reference:

Mayo Clinic. Transient Global Amnesia.

Question

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Which is the most likely diagnosis?

Your Answer

- Alcohol related amnesia
- Chronic subdural haematoma
- Complex partial status epilepticus
- Hysterical fugue state
- ✓ Transient global amnesia - Correct ✔

Next

Question

An 18-year-old man presented with a history of a sudden onset of a frontal headache and photophobia. He had neck stiffness and a temperature of 38°C.

Which one of the following findings would suggest a diagnosis of subarachnoid haemorrhage rather than bacterial meningitis?

(Please select 1 option)

- A blood neutrophil leucocytosis
- A family history of polycystic renal disease
- A fluctuating conscious level
- A history of diabetes mellitus
- A history of opiate abuse

Answer Question

Incorrect

Explanation

Fluctuating level of consciousness can occur in both meningitis and subarachnoid haemorrhage (SAH).
Hypertension is a risk factor for SAH, but not diabetes.
Opiate abuse does not increase the risk for SAH.
Cerebral aneurysms are associated with polycystic kidney disease.

Question

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Which one of the following findings would suggest a diagnosis of subarachnoid haemorrhage rather than bacterial meningitis?

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- A history of diabetes mellitus
- ✓ A history of opiate abuse - Incorrect answer selected ✖

Next

Question

Which visual field defect is most likely to occur with multiple sclerosis?

(Please select 1 option)

- Bitemporal hemianopia
- Central scotoma
- Homonymous hemianopia
- Increased blind spot
- Tunnel vision

Answer Question

Incorrect

Explanation

Central scotoma is likely with retrobulbar neuritis and optic atrophy.
Tunnel vision occurs in:

- Glaucoma
- Retinitis pigmentosa, and
- Retinal panphotocoagulation.

Increased blind spot occurs with papilloedema, which may lead to optic atrophy.
Optic chiasma compression causes bitemporal hemianopia.

Question

Which visual field defect is most likely to occur with multiple sclerosis?

Your Answer

- Bitemporal hemianopia
- Central scotoma - This is the correct answer ✔
- Homonymous hemianopia
- Increased blind spot
- Tunnel vision - Incorrect answer selected ✖

Next

Question

An 80-year-old man presented to his GP having developed uncontrollable flinging movements of his right arm and leg in the last few days. He had been previously well prior to the event.

The movements were irregular involving the proximal limb muscles and did not follow a particular pattern. They occurred several times a minute and had led to several falls. He had a past medical history of hypertension and ischaemic heart disease and took regular Ramipril and Aspirin. He was a smoker of 10 cigarettes per day and did not drink any alcohol. There was no family history of neurological disease.

On examination he was alert and orientated, but had several episodes of flinging proximal movements of his right upper and lower limb that made examination difficult. Tone, power and reflexes all appeared normal and there were no obvious cranial nerve abnormalities. General examination revealed a blood pressure of 140/90 mmHg, pulse of 78/min and regular and heart sounds were normal.

Investigations revealed:

Haemoglobin	152 g/L	(130 - 180)
Mean cell volume	92 fL	(80 - 96)
White cell count	10.5 $\times 10^9$/L	(4 - 11)
Platelets	299 $\times 10^9$/L	(150 - 400)
Serum sodium	135 mmol/L	(137 - 144)
Serum potassium	4.5 mmol/L	(3.5 - 4.9)
Serum urea	3.6 mmol/L	(2.5 - 7.5)
Serum creatinine	98 umol/L	(60 - 110)
Fasting plasma glucose	8.9 mmol/L	(3 - 6)
Serum cholesterol	6.2 mmol/L	(<5.2)

What is the most likely diagnosis in this patient?

(Please select 1 option)

Answer Question

Investigations revealed:

Haemoglobin	152 g/L	(130 - 180)
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What is the most likely diagnosis in this patient?

(Please select 1 option)

- Functional disorder
- Huntington disease
- Infarction within the substantia nigra
- Infarction within the subthalamic nucleus
- Senile chorea

Answer Question

Platelets	299 ×10⁹/L	(150 - 400)
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What is the most likely diagnosis in this patient?

Your Answer

- Functional disorder
- Huntington disease
- Infarction within the substantia nigra
- Infarction within the subthalamic nucleus - This is the correct answer ✔
- ✓ Senile chorea - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

The patient presents with a history in keeping with hemiballism. The presence of severe flinging movements affecting proximal muscles and following no particular pattern is typical for hemiballism. The site of the lesion is in the contralateral subthalamic nucleus, infarction being the commonest cause.

The patient has several arteriosclerotic risk factors including hypertension, hyperlipidaemia, ischaemic heart disease and diabetes. Usually the flinging movements stop spontaneously in the next 4-8 weeks and tetrabenazine is the treatment of choice. Bilateral ballismus is rare and implicates a metabolic cause usually non-ketotic hyperosmolar coma.

Question

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Next

Question

A 46-year-old gentleman is diagnosed with epilepsy and started on sodium valproate, which fails to control his seizures.
What is the likelihood of him being seizure-free after a second or third antiepileptic is added?

(Please select 1 option)

- 8%
- 14%
- 20%
- 35%
- 47%

Answer Question

Incorrect

Explanation

A study of patients with previously untreated epilepsy demonstrated that 47% achieved control of seizures with the use of their first single drug.

Fourteen per cent became seizure-free during treatment with a second or third drug.

Further Reading:

Birbeck GL, et al. Seizure reduction and quality of life improvements in people with epilepsy. *Epilepsia*. 2002;43:535-8.

Question

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What is the likelihood of him being seizure-free after a second or third antiepileptic is added?

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Next

Question

A 30-year-old woman presents with problems seeing for the past two days.

She reports that the vision of her left eye is much worse than normal for the last two days. She reports that she woke up and thought there was something in her eye but the vision is getting worse. She denies diplopia but has blurred vision.

On examination her visual acuity is 20/20 in the right eye and finger counting only in the left. There is red desaturation and a relative afferent papillary defect. Her past medical history is unremarkable and she reports never having had neurological symptoms in the past.

On examination of her fundus, what is the most likely finding?

(Please select 1 option)

- Cupped disc
- Macular star
- Normal optic disc
- Optic atrophy
- Papilloedema

Answer Question

Explanation

Most cases of optic neuritis are retrobulbar and hence there are no abnormalities on fundoscopy. Obtaining an MRI with gadolinium of the brain will likely show enhancement of the optic nerve on the left.

The patient has a clinically isolated syndrome presenting as retrobulbar neuritis. The concern for the patient to develop MS would be high given this initial presentation.

Optic atrophy occurs over a longer period of time.

Papilloedema suggests increased intracranial pressure.

A macular star is a finding seen in some inflammatory diseases but not in optic neuritis.

A cupped disc is seen in glaucoma.

Question

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On examination of her fundus, what is the most likely finding?

Your Answer

- Cupped disc
- Macular star
- Normal optic disc - This is the correct answer ✔
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Next

Question

An 81-year-old female is admitted following a seizure although her relatives state that prior to this she had been increasingly confused, unsteady and unable to look after herself over the last two to three weeks.

On examination she was drowsy and had a temperature of 37.5°C, and a blood pressure of 192/108 mmHg.

She had a mixed aphasia, with a mild right hemiparesis.

What is the most likely diagnosis?

(Please select 1 option)

- Acute cerebral infarction
- Acute intracerebral haemorrhage
- Cerebral abscess
- Chronic subdural haematoma
- Glioblastoma

Answer Question

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- Cerebral abscess
- Chronic subdural haematoma - This is the correct answer ✔
- ✓ Glioblastoma - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

The history of progressive 'confusion' and unsteadiness for some weeks followed by an acute exacerbation is a typical presentation of a subdural haematoma in the elderly population.

Cerebral abscess is unlikely due to the absence of significant fever. The onset may be sudden or subacute over several weeks, but headache is usually a dominant feature as are focal neurological deficits.

Acute infarction or acute intracerebral haemorrhage would not explain the two week history of confusion and unsteadiness.

Glioblastoma usually causes symptoms over months, and are less common than intracranial haemorrhages in patients in this age group.

Mixed aphasia (or transcortical mixed aphasia) is not a complete 'global aphasia'. In global aphasia there is receptive and expressive dysphasia. With mixed aphasia, patients can often repeat words but not understand commands, name objects or have intelligible spontaneous speech. 'Mixed aphasia' is not specific for stroke, although it can be caused by it.

It may be caused by the following:

- Alzheimer's disease
- Bilateral cerebral damage
- Tumours, and
- Thalamic lesions.

Further Reading:

Patient.info. Dysarthria and Dysphasia.

Question

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On examination she was drowsy and had a temperature of 37.5°C, and a blood pressure of 192/108 mmHg.

Next

Question

A 75-year-old woman presents with acute monocular visual loss.
Fundoscopy reveals a swollen pale optic disc in the affected eye.
What is the most likely diagnosis?

(Please select 1 option)

- Central retinal vein occlusion
- Closed angle glaucoma
- Giant cell arteritis
- Optic neuritis
- Raised intracranial pressure

Answer Question

Incorrect

Explanation

The presence of a swollen optic disc suggests ischaemic optic neuropathy.
In elderly people giant cell arteritis is a common presentation of acute monocular visual loss.
Optic neuritis is very rare in people over the age of 50.
You would expect bilateral swollen optic discs in raised intracranial pressure.
In central retinal vein occlusion you would expect diffuse retinal haemorrhages.

Question

A 75-year-old woman presents with acute monocular visual loss.
Fundoscopy reveals a swollen pale optic disc in the affected eye.
What is the most likely diagnosis?

Your Answer

- Central retinal vein occlusion
- Closed angle glaucoma
- Giant cell arteritis - This is the correct answer ✔
- Optic neuritis
- ✓ Raised intracranial pressure - Incorrect answer selected ✖

Next

Question

Imaging changes in frontotemporal dementia (FTD) start initially in which parts of the brain?

(Please select 1 option)

- Corpus callosum
- Dorsolateral prefrontal cortex and anterior cingulate
- Hippocampus, parahippocampus
- Orbitofrontal cortex and anterior cingulate
- Prefrontal cortex and anterior thalamic nucleus

Answer Question

Incorrect

Explanation

FTD appears to begin in the orbitofrontal cortex and anterior cingulate regions of the frontal lobes, along with the anterior insula.

Damage to the hippocampus and parahippocampus results in memory problems and has early involvement in Alzheimer's disease.

The corpus callosum can be involved in multiple sclerosis where so-called Dawson's fingers can be seen.

Prefrontal cortex damage can result in disinhibition and problems with social interaction and judgement and has been implicated in schizophrenia.

Question

Imaging changes in frontotemporal dementia (FTD) start initially in which parts of the brain?

Your Answer

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- Dorsolateral prefrontal cortex and anterior cingulate
- Hippocampus, parahippocampus
- Orbitofrontal cortex and anterior cingulate - This is the correct answer ✔
- ✓ Prefrontal cortex and anterior thalamic nucleus - Incorrect answer selected ✖

Next

Question

A 22-year-old female presents with a month history of episodic, brief visual loss affecting the right eye.

Over the last one year she had gained a considerable amount of weight. Examination reveals a BMI of 35, with bilateral optic disc swelling, worse on the right and small retinal haemorrhages on the right.

What is the most likely diagnosis?

(Please select 1 option)

- Craniopharyngioma
- Graves' ophthalmopathy
- Idiopathic intracranial hypertension (IIH)
- Optic neuritis
- Sagittal sinus thrombosis

Answer Question

chemosis. The presentation described above is not classical.

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Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

The combination of papilloedema and visual disturbance in a young overweight woman should lead you to a diagnosis of idiopathic intracranial hypertension (IIH).

Idiopathic intracranial hypertension is thought to be due to impaired cerebrospinal fluid (CSF) absorption across the arachnoid villi into the dural sinuses. Its exact cause is unknown, but it is most common in overweight young women. If left untreated it can result in permanent visual loss.

IIH normally presents with headache, blurred vision, dizziness, horizontal diplopia and transient visual loss (as described here). Ophthalmological examination demonstrates papilloedema, an enlarged blind spot, and reduced peripheral vision. Opening pressure is raised on lumbar puncture.

Treatment is with a combination of weight loss, acetazolamide, and regular lumbar puncture. Drugs thought to increase the risk (oral contraceptives, steroids, tetracycline, nitrofurantoin) should be withdrawn or avoided. If sight is threatened optic nerve fenestration should be considered. Ventriculoperitoneal shunting can be performed in resistant cases.

Both craniopharyngioma and sagittal sinus thrombosis would be expected to produce focal neurological signs in addition to papilloedema. Intermittent visual loss would not be classical.

Optic neuritis tends to present with reduced visual acuity, pain, relative afferent pupillary defect and red colour desaturation. It causes papillitis only if it affects the nerve head, rather than the retrobulbar portion of the nerve.

Graves's ophthalmology results in restrictions of eye movements, lid lag, exopthalmos and chemosis. The presentation described above is not classical.

Question

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What is the most likely diagnosis?

Next

Question

A 70-year-old female patient presents with two months' history of apathy, withdrawal, urinary and faecal incontinence and anosmia.
Which of the following is the most likely anatomical site of the neurological lesion?

(Please select 1 option)

- Frontal lobe
- Internal capsule
- Occipital lobe
- Parietal lobe
- Temporal lobe

Answer Question

Incorrect

Explanation

Frontal lobe syndrome usually presents with

- Personality changes
- Urinary and faecal incontinence
- Anosmia
- Expressive dysphasia (dominant lobe)
- Release of primitive reflexes (positive grasp, pout and palmomental reflexes) and
- Epilepsy.

Fifty percent of patients presenting with status epilepticus (with no previous history of seizures) have frontal lobe tumour.

It can mimic dementia.

Question

A 70-year-old female patient presents with two months' history of apathy, withdrawal, urinary and faecal incontinence and anosmia.

Which of the following is the most likely anatomical site of the neurological lesion?

Your Answer

- Frontal lobe - This is the correct answer ✔
- Internal capsule
- Occipital lobe

Next

Question

A 16-year-old male presents with a five year history of absence seizures with three recent generalised convulsions.
Which one of the following drugs, given as monotherapy, is most likely to control his seizures?

(Please select 1 option)

- Clonazepam
- Ethosuximide
- Gabapentin
- Sodium Valproate
- Topiramate

Answer Question

Incorrect

Explanation

Absences, generalized tonic clonic seizures and myoclonus are features of primary generalized epilepsy. The treatment of choice includes sodium valproate, lamotrigine and topiramate.

Clonazepam is useful in myoclonus, ethosuximide in isolated absences and gabapentin in partial seizures.

Valproate would be the most appropriate first line agent.

Question

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Next

Question

A 46-year-old father of three has just been diagnosed with Huntington's disease.
His oldest daughter is 21-years-old and thinking about starting a family soon.
He asks you what the chances are of his daughter also having Huntington's disease?

(Please select 1 option)

- She will be a carrier as it is X linked.
- She will definitely inherit it.
- She will not have it as it is X linked.
- There is a 25% chance that she will have it.
- There is a 50% chance that she will have it.

Answer Question

Correct

Explanation

Huntington's disease is a neurodegenerative genetic disorder that is autosomal dominant.
Therefore she has a 50% chance of having the disease as she needs only to inherit one mutant gene, from her father.
The features are of choreiform movements, psychiatric illness and eventually dementia.

Question

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- ✓ There is a 50% chance that she will have it. - Correct ✔

Next

Question

A 68-year-old gentleman with Parkinson's disease on donepezil and L-dopa presents with increasing agitation, inability to perform simple tasks, fluctuating consciousness, visual hallucinations, and memory loss over a period of six months.

An MRI shows enlarged lateral ventricles as well as hypothalamic atrophy.

Dementia with Lewy bodies is diagnosed.

Which pathological changes would you expect in this condition?

(Please select 1 option)

- Alpha synuclein accumulation
- Beta amyloid plaque formation
- Micro-aneursyms and infarcts.
- Pick body formation
- Tau tangle formation

Answer Question

Incorrect

Explanation

Dementia with Lewy bodies shares characteristics with Parkinson's and Alzheimer's disease, and is the second most common form of dementia in the UK behind Alzheimer's. It predominantly affects patients aged between 50-70 and MRI is the diagnostic imaging of choice.

It is caused by accumulation of the protein Alpha-synuclein in the brain. Although already present in abundance in the brain, it is not until alpha-synuculein is in its insoluble form that it begins to form lewy bodies and result in dementia with Lewy bodies.

Tau tangle and beta amyloid plaque formation are pathological changes characteristic of Alzheimer's disease.

Micro-aneurysms and infarcts are the cause of vascular dementia which classically presents with stepwise cognitive decline.

Pick bodies can be seen in Pick's disease, a form of fronto-temporal dementia.

Question

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Next

Question

A 45-year-old male with a long history of alcohol abuse presents with a two day history of deteriorating confusion.

On examination he is drowsy, has a temperature of 39°C, a pulse of 110 beats per minute, a small amount of ascites and has features of a left side hemiparesis.

What is the most likely diagnosis?

(Please select 1 option)

- Cerebral abscess
- Cerebro-vascular accident
- Hepatic encephalopathy
- Subdural haematoma
- Wernicke's encephalopathy

Answer Question

Incorrect

Explanation

The combination of fever and focal neurological signs makes a cerebral abscess the most likely diagnosis here. The history of alcohol abuse is a risk factor.

Onset may be sudden or subacute over several weeks. Presenting symptoms include fever, headache, drowsiness, confusion, nausea, vomiting, focal neurological deficits and seizures. Rupture can result in a sudden headache with meningism.

Whilst a subdural haematoma would be a possibility, it would not really explain the fevers or tachycardia. A CVA would also not explain the fever.

Whilst the patient is at risk of hepatic encephalopathy and Wernicke's, these would not explain the left hemiparesis.

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Next

Question

A 70-year-old man presents with difficulty speaking.

He has a history of diabetes, hypertension, hypercholesterolaemia, chronic obstructive pulmonary disease. He is currently on aspirin, simvastatin, amlodipine and hydrochlorothiazide. On examination the patient is awake; his blood pressure is 150/70 mmHg. His pulse is irregularly irregular. He has 4/5 strength on the right arm and leg and 5/5 strength on the left.

When asked to point to the window he appears unable to do so. When told to raise his arms and place his hands out he does not. When visually shown the same action he is able to perform it. When asked to repeat 'Today is a sunny day', he is unable to do so. He appears frustrated and makes no intelligible words.

With what type of dysphasia is this consistent?

(Please select 1 option)

- Broca's aphasia
- Global aphasia
- Transcortical motor aphasia
- Transcortical sensory aphasia
- Wernicke's aphasia

Answer Question

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- ✓ Wernicke's aphasia - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

In Broca's or non-fluent or expressive aphasia the patient is unable to name objects with poor comprehension and repetition. It localises to the Broca's area in the left posterior inferior frontal gyrus.

In transcortical motor aphasia, which localises to the anterior superior frontal lobe, the patient is has good comprehension and repetition but has halting, effortful speech. Patients also have impaired writing skills.

Transcortical sensory aphasia is characterised by impaired auditory comprehension with intact repetition and fluent speech, and is caused by damage to the temporal lobes. It differs from Wernicke's aphasia in that patients still have intact repetition, and exhibit cholalia (the compulsive repetition of words). Improvement may be seen with speech therapy.

In Wernicke's or fluent or receptive aphasia the patient is able to form correct grammatical sentences but language content is incorrect. It localises to the dominant superior temporal gyrus. There is poor comprehension and repetition but verbal output is fluent.

Global aphasia is what is described in this case. It results in an almost mute patient with deficits in all aspects of language: spontaneous speech, naming, repetition, auditory comprehension, reading and writing. Global aphasia is commonly seen in patients with large infarctions of the left cerebral hemisphere, usually due to occlusion of the internal carotid or middle cerebral artery. This results in resulting in damage of Broca's, Wernicke's and the arcuate fasiculus. It is also usually associated with right hemiplegia and right homonymous hemianopia, but it is increasingly recognised in isolation. The visual centres remain intact and therefore patients are able to follow instructions shown to them.

Reference:

Boatman D, et al. Transcortical sensory aphasia: revisited and revised. *Brain.* 2000;123:1634-42.

Question

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Next

Question

A 32-year-old scientist presents to the Emergency department with a right facial weakness. He has recently returned from a conference in the USA. There is no history of systemic illness but on examination he has mild neck stiffness and a painful right wrist and knee with a right facial palsy.

Investigations were as follows:

Hb	120 g/L	(130-180)
WCC	7 $\times 10^9$/L	(4-11)
Platelets	190 $\times 10^9$/L	(150-400)
Clotting	Normal	
ESR	32 mm/1st hour	(0-15)
Sodium	138 mmol/L	(137-144)
Potassium	4.0 mmol/L	(3.5-4.9)
Urea	6.9 mmol/L	(2.5-7.5)
Creatinine	76 µmol/L	(60-110)
Calcium and LFTs	Normal	
CXR	Normal	
CT head	Normal	
CSF: Protein	1.2 g	(0.15-0.45)
CSF: WCC	67 (97% lymphocytes)	
CSF	No organisms seen	

What is the most likely diagnosis?

(Please select 1 option)

- Behçet's disease

Answer Question

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- HIV associated neuropathy
- Lyme disease
- Sarcoidosis
- Tuberculous meningitis

Answer Question

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- HIV associated neuropathy
- Lyme disease - This is the correct answer ✔
- Sarcoidosis
- ✓ Tuberculous meningitis - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

All the answers are possible causes of a facial palsy.

The high protein and lymphocytosis of the cerebrospinal fluid (CSF) imply an acute or sub-acute infective process. Neurosarcoidosis is thus unlikely.

The main clinical features of Behçet's are not present - orogenital ulceration, iritis and pathergy.

HIV is usually associated with a peripheral sensory neuropathy.

TB meningitis is likely to lead to a generalised systemic illness.

The fact that the patient has recently been to America and has a unilateral facial palsy makes Lyme disease the most likely diagnosis. Lyme disease is spread by the bite of ticks of the genus *Ixodes* that are infected with *Borrelia burgdorferi*.

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Next

Question

A 17-year-old female is admitted with an oculogyric crisis.
Which of the following statements concerning this case is correct?

(Please select 1 option)

- She is likely to have been prescribed olanzapine
- She is unlikely to have a recurrence
- She should be observed without treatment
- She should be treated with parenteral procyclidine
- She should receive procyclidine as long-term prophylaxis

Answer Question

Incorrect

Explanation

Oculogyric crisis is an acute dystonic reaction of the face/eyes and is usually a consequence of typical neuroleptic drugs such as haloperidol or chlorpromazine, but is unusual with newer agents such as olanzapine or clozapine.

The condition is often precipitated by re-introduction of the agent.

The condition should be treated with procyclidine (usually IV or IM) or benztropine. Chronic treatment beyond a couple of days is not required.

Further Reading:

Canadian Movement Disorder Group. Oculogyric Crisis.

Question

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Which of the following statements concerning this case is correct?

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- She should be treated with parenteral procyclidine - This is the correct answer ✔
- ✓ She should receive procyclidine as long-term prophylaxis - Incorrect answer selected ✖

Next

Question

A 28-year-old man comes to the surgery complaining that he has begun waking from sleep in the early hours of the morning, unable to move. He is very distressed by this and is worried that he will become paralysed.

Additionally, he has begun to suffer from excessive sleepiness during the day and fell asleep once whilst out for dinner with a new girlfriend during the middle of the meal.

On examination his BP is 132/70 mmHg, pulse is 72 and regular. Neurological examination is entirely normal.

Investigations show

Haemoglobin	132 g/L	(135-180)
White cell count	6.0 $\times 10^9$/L	(4-10)
Platelets	189 $\times 10^9$/L	(150-400)
Sodium	139 mmol/L	(134-143)
Potassium	4.3 mmol/L	(3.5-5)
Creatinine	110 µmol/L	(60-120)

Which of the following best describes the condition he suffers when he wakes from sleep?

(Please select 1 option)

- Hypnagogic hallucinations
- Restless legs syndrome
- Sleep apnoea
- Sleep paralysis
- Sleep terrors

Answer Question

Haemoglobin	132 g/L	(135-180)
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- Sleep paralysis - This is the correct answer ✔
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Rate this question

Next

Incorrect

Explanation

This patient has a history of sleep paralysis, excessive daytime somnolence and cataplexy. This triad of symptoms is suggestive of an underlying diagnosis of narcolepsy.

Diagnosis is a clinical one, supported by an overnight polysomnogram and multi sleep latency test.

Sleep hygiene is important in the management of the condition, with CNS stimulants being the main option with respect to pharmacological management.

Non-amphetamine based agents, such modafinil, are the treatment of choice.

Question

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Next

Question

A 40-year-old male presents to his GP with a two week history numbness and a burning sensation on the lateral aspect of the left upper thigh.

Examination reveals sensory loss over the anterolateral thigh.

Which one of the following nerves is most likely to be involved in this patient?

(Please select 1 option)

- Femoral nerve
- L2 nerve root
- L3 nerve root
- Lateral cutaneous nerve of the thigh
- Obturator nerve

Answer Question

Incorrect

Explanation

The pure sensory loss makes the diagnosis of meralgia paraesthetica and is a consequence of damage to the lateral cutaneous nerve of the thigh.

It is usually a consequence of entrapment at the lateral inguinal ligament or less likely, trauma, ischaemia, or a retroperitoneal lesion.

Question

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- L3 nerve root
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- ✓ Obturator nerve - Incorrect answer selected ✖

Next

Question

A 40-year-old male presents to the Emergency department with weakness and paraesthesia of the right arm and leg.

The symptoms developed 12 hours after the onset of a piercing left sided headache. There is no neck stiffness, but there is a pain in the left side of the neck and occiput. Kernig's sign is negative. The patient is afebrile, and blood results are normal.

What is the single best investigation of choice?

(Please select 1 option)

- Contrast arteriography of the neck vessels
- CT head
- Duplex scanning of the neck vessels
- Lumbar puncture
- MRI brain

Answer Question

Explanation

Ischaemic neurological features (transient or completed strokes) are found in 30-80% of patients presenting with carotid artery dissection.

Pulsatile tinnitus is common, as well as syncope and amaurosis fugax.

Headache is commonly ipsilateral to the side of the carotid dissection, and recurrence of the headache suggests extension or recurrence of the dissection.

As it is the most accurate study and the current gold standard for diagnosis of carotid artery dissection, contrast arteriography should be strongly considered, if there is mono or hemiparesis with normal mental state, signs or history of major cervical trauma with abnormal neurology, or basilar skull fracture in a patient with altered mental status.

Obviously in practice many trusts will require a CT head first. Additionally in the absence of arteriography, duplex scanning or MRI with MRA may be considered the next best tests.

However limitations of duplex scanning include difficulties of scanning the distal internal carotid artery, detecting emboli, and evaluating intracranial arteries.

The combination of MRI and MRA is more reliable in detecting dissection than either modality alone.

Lumbar puncture results may be misleading, as xanthochromia may occur when a haematoma propagates. This rare finding may lead to a misdiagnosis of subarachnoid haemorrhage and failure to perform further carotid workup.

Question

A 40-year-old male presents to the Emergency department with weakness and paraesthesia of the right arm and leg.

The symptoms developed 12 hours after the onset of a piercing left sided headache. There is no neck stiffness, but there is a pain in the left side of the neck and occiput. Kernig's sign is negative. The patient is afebrile, and blood results are normal.

What is the single best investigation of choice?

Your Answer

- Contrast arteriography of the neck vessels - This is the correct answer ✔
- CT head

Next

Question

An 80-year-old man comes to the office to be evaluated for difficulty moving and memory problems.

On examination he has mask-like facies and a pill-rolling tremor. His gait is bradykinetic. He is unable to look down and has been falling frequently only in the last few months. He is not orthostatic on examination

The histopathological changes in this disease are similar to those found in which of the following conditions?

(Please select 1 option)

- Alzheimer's disease
- Chronic progressive external ophthalmoplegia (CPEO)
- Multiple system atrophy (MSA)
- Prion disease
- Tabes dorsalis

Answer Question

Incorrect

Explanation

The vignette describes a case of progressive supranuclear palsy (PSP), a disease referred to as a "Parkinson plus syndrome". The stem gives you the point that the patient cannot look down - this is common in progressive supranuclear palsy.

It is important to remember that, unlike Parkinson's disease which is predominantly an alpha-synucleinopathy, PSP is a tauopathy similar to Alzheimer's disease.

Of the incorrect answer options:

- CPEO is a mitochondrial disorder.
- Multiple system atrophy is an alpha-synucleinopathy.
- Prion disease has spongiform changes.
- Tabes dorsalis is a result of inflammation from a syphilis infection.

Question

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The histopathological changes in this disease are similar to those found in which of the following conditions?

Your Answer

- Alzheimer's disease - This is the correct answer ✔
- Chronic progressive external ophthalmoplegia (CPEO)

Next

Question

A 28-year-old woman who is getting married soon comes to the clinic complaining that her right pupil is much larger than the other. She says that she first noticed this a few weeks ago after suffering from an attack of shingles.

On examination the pupil is larger than the other, reacts poorly to light, but appears to have a normal near reflex.

Which of the following is the most likely diagnosis?

(Please select 1 option)

- Argyll-Robertson pupil
- Holmes-Adie pupil
- Horner's syndrome
- Normal variant
- Third nerve palsy

Answer Question

Incorrect

Explanation

The Holmes-Adie pupil usually occurs after a herpes zoster infection, which initially leads to an abnormally large pupil poorly reactive to light with a normal near reflex.

Over years it gradually diminishes in size actually to be smaller than the non-affected pupil.

The diagnosis is supported by an abnormally vigorous reaction to weak pupil constricting eye drops, which can be compared to the changes seen on the normal side.

Question

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On examination the pupil is larger than the other, reacts poorly to light, but appears to have a normal near reflex.

Which of the following is the most likely diagnosis?

Your Answer

- Argyll-Robertson pupil
- Holmes-Adie pupil - This is the correct answer ✔
- Horner's syndrome
- Normal variant
- ✓ Third nerve palsy - Incorrect answer selected ✖

Next

Question

A 23-year-old man presents with visual loss in his right eye and this is diagnosed as optic neuritis.
Which one of the following statements would be seen in an afferent pupillary defect?

(Please select 1 option)

- Accommodation response is unaffected
- Hypersensitive response to pilocarpine in the affected eye
- Irregular pupil of the affected eye
- Pupil of affected eye larger than the unaffected eye
- Pupil of affected eye smaller than the unaffected eye

Answer Question

Incorrect

Explanation

Optic neuropathy does not cause any abnormalities of the shape or size of the pupil.
However the light reaction is diminished.
Accommodation is normal.

Question

A 23-year-old man presents with visual loss in his right eye and this is diagnosed as optic neuritis.
Which one of the following statements would be seen in an afferent pupillary defect?

Your Answer

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- Irregular pupil of the affected eye
- Pupil of affected eye larger than the unaffected eye
- ✓ Pupil of affected eye smaller than the unaffected eye - Incorrect answer selected ✖

Rate this question

Next

Question

A 25-year-old woman presents with new double vision.

On examination she experiences horizontal diplopia on looking to her far right. Covering her left eye only obscures the innermost image. Covering her right eye only obscures the outermost image. In the neutral position her right eye is deviated medially. She has no problem on looking to the far left.

Her neurological examination is otherwise normal.

What is the most likely problem?

(Please select 1 option)

- Concomitant right esotropia
- Left sided IVth nerve palsy
- Left sided VIth nerve palsy
- Medial longitudinal fasciculus lesion
- Right sided VIth nerve palsy

Answer Question

Question

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Your Answer

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- Left sided IVth nerve palsy
- Left sided VIth nerve palsy
- Medial longitudinal fasciculus lesion
- ✓ Right sided VIth nerve palsy - Correct ✔

Rate this question

Next

Correct

Explanation

- The VIth nerve is motor to the lateral rectus muscle.
- It is responsible for abduction of the ipsilateral eye.
- In the neutral position the affected eye is deviated medially due to unopposed action of the medial rectus.
- In patients with diplopia the 'cover test' can be used to determine the eye that has the problem. On covering the affected eye the outermost image disappears.
- After finding a VIth nerve palsy the cause should always be looked for, it is not a diagnosis in itself.
- Due to the long course and anatomy of the VIth nerve it can be damaged in any condition causing raised intracranial pressure. It can therefore be a 'false localising sign'.

Regarding the options:

Concomitant right esotropia is not the answer. An esotropia is a squint where one or both eyes turn inwards. This may alternate between the eyes or may be a problem in just one eye. A concomitant esotropia is a squint where the degree by which the eye turns inwards does not vary in any direction of gaze (as opposed to an incomitant esotropia where the direction of gaze does affect the size or presence of deviation). Concomitant esotropias usually begin early in childhood. The patient has diplopia in all directions of gaze if vision is normal in both eyes.

Left sided IVth nerve palsy is not the answer. The IVth nerve controls the superior oblique muscle. Lesions of it typically cause a vertical diplopia, usually noticed on going downstairs or reading.

Left sided VIth nerve palsy is not the answer. This would cause a horizontal diplopia but it would be on far left gaze. The outermost image would disappear with the cover test over the left eye if it was affected.

A medial longitudinal fasciculus lesion is not the answer. This connects the IIIrd and VIth cranial nerve nuclei in the pons and co-ordinates conjugate horizontal eye movements. Its lesions typically cause internuclear ophthalmoplegia. There will be impaired adduction on the side of the lesion with nystagmus of the contralateral eye. In the neutral position the eyes appear normal.

Right VIth nerve palsy is the correct answer (see above).

Next

Question

A 30-year-old female presents to the eye clinic with an acute history of pain and blurring in the right eye.

Examination reveals a visual acuity of 6/36 in the right eye but 6/6 in the left eye, a central scotoma in the right eye, with a right swollen optic disc.

What is the most likely diagnosis?

(Please select 1 option)

- Cavernous sinus thrombosis
- Compression of the optic nerve
- Glaucoma
- Optic neuritis
- Retinal vein occlusion

Answer Question

Explanation

The acute presentation with central scotoma, reduced visual acuity and a swollen optic disc in a young female suggests a diagnosis of multiple sclerosis with an optic neuritis.

Optic neuritis is a broad term which can be used to describe inflammation, degeneration or demyelination of the optic nerve. It encompasses a number of conditions, including:

- Papillitis (anterior optic neuritis) - the intraocular portion of the nerve is affected, and the optic disc is swollen
- Retrobular neuritis - the distal portion of the optic nerve is affected, and the disc is therefore not swollen
- Neuroretinitis - optic disc and adjacent temporal retina are affected.

Also important to note is that the disc changes in papilloedema may closely resemble those of papillitis but visual acuity is markedly reduced in papillitis and not papilloedema.

Question

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What is the most likely diagnosis?

Your Answer

- Cavernous sinus thrombosis
- Compression of the optic nerve
- Glaucoma
- Optic neuritis - This is the correct answer ✔

Next

Question

A 36-year-old male patient with a long history of relapsing-remitting multiple sclerosis, develops double vision.

On examination of his eye movements abduction of either eye elicits nystagmus in that eye. Adduction is impaired in both eyes.

On MRI scanning, where will a new white matter lesion probably be evident?

(Please select 1 option)

- Cerebellum
- Cingulate gyrus
- Medial longtitudinal bundle
- Optic chiasm
- Parietal lobes

Answer Question

Incorrect

Explanation

Impairment of adduction in both eyes signifies an internuclear ophthalmoplegia. This is often accompanied by nystagmus of the abducting eye.

The area of the brain affected is the medial longtitudinal bundle in the brain stem which connects the third and sixth nerve nuclei.

The main causes of internuclear ophthalmoplegia are:

- Multiple sclerosis
- Tumour of the brainstem (glioma, for example)
- Brainstem vascular lesions, or
- Wernicke's encephalopathy.

Question

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On MRI scanning, where will a new white matter lesion probably be evident?

Your Answer

- Cerebellum
- Cingulate gyrus
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Next

Question

A 40-year-old civil servant attends the clinic stating that she has difficulty swallowing.

She gives a two month history of difficulty with solids which has progressed to difficulty tolerating liquids in the previous two weeks. She has noticed some weakness in her right arm which has affected her ability to lift certain objects like the kettle. Previously, she has enjoyed good health with no hearing loss or facial weakness. She describes no visual symptoms.

On examination, she has an absent gag reflex on the right, with reduced palatal movements. There is weakness on rotating the head to the left with flattening and weakness of elevation of the right shoulder. Eye movements, visual acuity, hearing and tongue movements are all normal.

Where is the likely site of the lesion?

(Please select 1 option)

- Left cerebello-pontine angle
- Left jugular foramen
- Right cerebello-pontine angle
- Right jugular foramen
- Right pons

Answer Question

Explanation

The clinical scenario is that of a right sided pathology affecting the IX, X and XI cranial nerves.
This produces the palatal weakness and the swallowing difficulties (IX/X), while the shoulder and sternocleidomastoid weakness are due to accessory nerve (XI) involvement.
The absence of hearing loss or facial weakness makes a cerebello-pontine angle lesion unlikely.
A lesion outside the skull may also involve the XII nerve (tongue).
The most likely site, therefore is the jugular foramen.

Question

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- Left jugular foramen
- Right cerebello-pontine angle
- Right jugular foramen - This is the correct answer ✔
- Right pons - Incorrect answer selected ✖

Next

Question

A 60-year-old male presents with a six month history of a gradually increasing burning sensation in his feet.

Examination revealed normal cranial nerves and higher mental function. There was also normal bulk, tone, power, light touch and pinprick sensation, co-ordination and reflexes in upper and lower limbs

With which of the following are the clinical findings are consistent?

(Please select 1 option)

- Diabetic amyotrophy
- Large fibre sensory neuropathy
- Motor neurone disease
- Sjögren's syndrome
- Small fibre sensory neuropathy

Answer Question

Explanation

The burning sensation described is typical of a neuropathy affecting the small unmyelinated and thinly myelinated nerve fibres. General neurological examination and reflexes are usually normal in this type of neuropathy unless there is coexisting large (myelinated) fibre involvement.

Neuropathy affecting the large myelinated sensory fibres generally causes glove and stocking sensory loss and loss of reflexes.

Conditions in which the small fibres are preferentially affected in the early stages include diabetes and amyloidosis. In the later stages however the neuropathy in these conditions also affects large fibres.

The neuropathy associated with Sjögren's syndrome is a pure sensory neuropathy (ganglionopathy).

Question

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- Large fibre sensory neuropathy
- Motor neurone disease
- Sjögren's syndrome
- ✓ Small fibre sensory neuropathy - Correct ✔

Next

Question

A 17-year-old male has been diagnosed with schizophrenia four weeks ago.
He was started on haloperidol. Two weeks later he was found confused and drowsy.
On examination he was pyrexial (40.7°C), rigid with blood pressure of 200/100 mmHg.
Which of the following treatments would you initiate?

(Please select 1 option)

- Aciclovir
- Cefuroxime
- Dantrolene
- Diazepam
- Phenytoin

Answer Question

Explanation

Neuroleptic malignant syndrome is the most likely diagnosis.
Its major features are:

- Rigidity
- Altered mental state
- Autonomic dysfunction
- Fever
- High creatinine kinase.

It is usually caused by potent neuroleptics.
The treatment of choice is dantrolene and bromocriptine.
Withdrawal of neuroleptic treatment is mandatory.
Rhabdomyolysis and acute renal failure are potential complications.

Question

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On examination he was pyrexial (40.7°C), rigid with blood pressure of 200/100 mmHg.
Which of the following treatments would you initiate?

Your Answer

- Aciclovir
- Cefuroxime
- Dantrolene - This is the correct answer ✔
- Diazepam

Next

Question

A 55-year-old man presents with a right sided rest tremor and slowness of movement.
A year ago he noticed that he could not smell his food. He has not had any falls and his eye movements are normal. His past medical history is unremarkable and he does not take any medication.
Which of the following structures is most likely to be most affected?

(Please select 1 option)

- Left cerebellar hemisphere
- Left cerebral neocortex
- Olfactory nerve
- Red nucleus
- Substantia nigra

Answer Question

NICE. Parkinson's disease (CG35).

Question

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- Left cerebral neocortex
- Olfactory nerve
- Red nucleus
- ✓ Substantia nigra - Correct ✔

Rate this question

Next

Correct

Explanation

The diagnosis is most likely idiopathic Parkinson's disease.

The patient has a pre-motor symptom of olfactory disturbance and fulfils the UK-PDS brain bank criteria for Parkinson's disease. He is developing motor symptoms due to loss of more than 50% of the dopaminergic neurones in the substantia nigra.

Left cerebellar hemisphere is incorrect because there are no cerebellar signs (he has normal eye movements and no nystagmus).

Left cerebral neocortex is incorrect as lesions of the outermost layer of the cerebral cortex present with problems of memory, attention and consciousness.

Olfactory nerve is incorrect as isolated lesions of the olfactory nerve would not present with tremor.

Red nucleus is incorrect as the red nucleus is responsible for motor coordination of the upper arm and shoulder.

Loss of dopaminergic neurones in the substantia nigra is predominantly responsible for the symptoms in Parkinson's disease.

Reference:

NICE. Parkinson's disease (CG35).

Question

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Which of the following structures is most likely to be most affected?

Your Answer

- Left cerebellar hemisphere

Next

Question

A 75-year-old lady attends the Emergency department with a stroke affecting her left arm and leg.

A CT scan confirms that there is a right CVA. Carotid scanning shows stenosis of 50% on the right and 90% on the left.

After a couple of days of physiotherapy her symptoms are much improved.

What is the best course of action?

(Please select 1 option)

- Bilateral carotid endarterectomy
- Discharge and GP follow up
- Discharge and urgent outpatient follow up
- Urgent carotid endarterectomy on the left
- Urgent carotid endarterectomy on the right

Answer Question

Question

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- Discharge and urgent outpatient follow up - This is the correct answer ✔
- Urgent carotid endarterectomy on the left
- ✓ Urgent carotid endarterectomy on the right - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Carotid artery atherosclerosis is an important cause of iscahemic stroke. The left-sided neurological signs in this patient indicate the symptomatic carotid is on the right side.

Carotid endarterectomy has been established as an effective treatment for both symptomatic patients and asymptomatic patients. It reduces the risk of disabling stroke or death by 48% in a person with severe symptomatic carotid stenosis (>70%) who has had a TIA. The peri-operative risk of disabling stroke or death is approximately 3%. Current UK guidelines recommend endarterectomy for symptomatic patients with greater than 70% stenosis, based on the North American Symptomatic Carotid Endarterectomy Trial which showed clear benefit. The endarterectomy should be performed as soon as the patient is fit for surgery, preferably within two weeks of a TIA.

The benefit is marginal for symptomatic patients with 50-69% stenosis, but may be greater in male patients. NICE recommends these patients are also considered for endarterectomy. There is significantly less benefit for asymptomatic patients, even those with greater than 60% stenosis. Patients with less than 50% stenosis should not be considered for carotid surgery.

Recurrent stenosis can occur in 1-20% of patients following endarterectomy, and re-operation is needed in 1-3% of cases. Ipsilateral strokes occur in 9% of patients following endarterectomy, and 26% of those treated with medical management alone (within 2 years).

All patients with suspected non-disabling stroke or TIA who are considered as candidates for carotid endarterectomy should have carotid imaging within 1 week.

Carotid endarterectomy is also indicated following a non-disabling stroke. However, if the patient has had a disabling stroke there is no real benefit in them undergoing the procedure.

Carotid stenting is increasingly being used as an alternative to endarterectomy. This is a less invasive revascularisation strategy, and uses an embolic protection device. There seems to be a similar early risk of death or stroke, and similar long-term benefits. Risk is higher in elderly patients, possibly due to vascular tortuosity and calcification. The procedure is currently indicated in selected cases, such as restenosis.

Please note for this explanation we have used the North American Symptomatic Carotid Endarterecomy Trial (NASCET) criteria, as opposed to the European Carotid Surgery Trialists' Collaborative Group (ECST) criteria. See NICE guidelines for the difference - carotid imaging reports will state which criteria are being used.

Reference:

1. Brott TG, et al. Stenting versus Endarterectomy for Treatment of Carotid-Artery Stenosis. *N Engl J Med.* 2010;363:11-23.
2. Chambers BR, et al. Carotid endarterectomy for asymptomatic carotid stenosis. *Cochrane Database Syst Rev.* 2000;(2):CD001923.
3. NICE. Stroke (CG68).

Next

Question

A 70-year-old man presents with difficulty speaking.

He has a history of diabetes, hypertension, hypercholesterolaemia, chronic obstructive pulmonary disease. He is currently on aspirin, simvastatin, amlodipine and hydrochlorothiazide.

On examination the patient is awake; his blood pressure is 150/70 mmHg. His pulse is irregularly irregular. He has 4/5 strength on the right arm and leg and 5/5 strength on the left.

When asked to point to the window he does this correctly. When told to raise his arms and place his hands out he is seen to have a pronator drift on the right. He is shown a pen and asked what it is. He is unable to identify it by name and appears frustrated, applying much effort to speak a sentence. He is asked to use it appropriately and begins to write on a piece of paper but no makes no legible words despite being a retired journalist. When asked to repeat 'Today is a sunny day', he is able to do so.

With what type of dysphasia is this consistent?

(Please select 1 option)

- Broca's aphasia
- Global aphasia
- Transcortical motor aphasia
- Transcortical sensory aphasia
- Wernicke's aphasia

Answer Question

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- Transcortical sensory aphasia
- ✓ Wernicke's aphasia - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

An injury to the anterior superior frontal lobe results in good comprehension but poor verbal output with the exception of echolalia or repetition. Writing is usually also impaired. Repetition is also spared as the arcuate fasciculus is not involved.

In Broca's or non-fluent or expressive aphasia the patient is unable to name objects with poor comprehension and repetition. It localises to the Broca's area in the left posterior inferior frontal gyrus.

In Wernicke's or fluent or receptive aphasia the patient is able to form correct grammatical sentences but language content is incorrect. It localises to the dominant superior temporal gyrus. There is poor comprehension and repetition but verbal output is fluent.

Transcortical sensory aphasia is similar to transcortical motor aphasia in that there is good repetition but comprehension and fluency are poor.

Global aphasia results in an almost mute patient: there is poor verbal output, comprehension, repetition and understanding.

Question

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Next

Question

A 20-year-old presents to the emergency room having experienced altered mental state for several days. There is no travel history reported.

She is rousable but appears confused. She has spontaneous movements of the limbs which are erratic and non-rhythmical and last a second.

She has reported difficulty in concentration and headaches recently. A head CT is obtained which is normal and a lumbar puncture shows normal protein, glucose and no white cells or red cells.

Laboratory results include a normochromic normocytic anaemia, elevated TSH, normal electrolytes and renal function, normal coagulation and liver studies. Serum and urine toxicology is negative. HIV screen is negative.

She has no history of drug or alcohol abuse. Pregnancy test was negative.

Which of the following laboratory tests should be ordered based on the history?

(Please select 1 option)

- Anti-thyroid peroxidase antibodies
- Gamma-glutamyltransferase
- Peripheral/blood smear
- Prealbumin
- Thyroglobulin level

Answer Question

Explanation

This is a case of Hashimoto's encephalopathy which is extremely rare. You should suspect this as TSH derangement however there may be no clinical evidence of thyroid dysfunction. It is a steroid responsive encephalopathy and can result in altered mental state, myoclonus and ataxia.

Gamma-glutamyltransferase would not change the management as the drug screen was negative and liver function tests are normal.

Prealbumin is a marker of nutritional status but would not be important at this time, and albumin was reported normal.

Thyroglobulin levels would not change management; however antibodies to thyroglobulin can be present in Hashimoto's encephalopathy.

Peripheral or blood smear may be chosen because of the anaemia however given this is a normocytic normochromic anaemia it is likely the result of iron loss through menstruation.

Question

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Which of the following laboratory tests should be ordered based on the history?

Your Answer

- Anti-thyroid peroxidase antibodies - This is the correct answer ✔
- Gamma-glutamyltransferase

Next

Question

A 54-year-old female is admitted with progressive weakness three weeks following a trivial flu-like illness.
Which of the following would make Guillain-Barré syndrome an unlikely diagnosis?

(Please select 1 option)

- Autonomic dysfunction
- Elevated protein on CSF examination
- Marked muscle wasting
- Hyporeflexia
- Sensory level below T1

Answer Question

Explanation

Guillain-Barré syndrome is a neurological disorder causing demyelination and axonal degeneration, with resultant acute, ascending and progressing neuropathy. The majority of patients have had an infection (classically respiratory or gastrointestinal) in the preceding weeks. Classic symptoms are weakness, paraesthesiae and hyporeflexia. The symptoms usually reach a peak 2 weeks following onset, and improve by 5 weeks. Marked muscle wasting is therefore not a usual feature.

Sensory symptoms are variable, and typically include paraesthesia and sensory loss which starts in the lower extremities. Sensory levels are unusual, but the symptoms can present as a pseudo-sensory level (making marked muscle wasting the more correct option in this scenario).

Autonomic dysfunction may also be present, with reduced sweating, poor heat tolerance, paralytic ileus and urinary hesitancy.

Most patients have elevated CSF protein, with normal cell counts, although this may not be present until 1-2 weeks following the onset of symptoms.

Reflexes are typically reduced or absent.

Reference & Further Reading:
http://patient.info/doctor/guillain-barre-syndrome-pro

Question

A 54-year-old female is admitted with progressive weakness three weeks following a trivial flu-like illness.

Which of the following would make Guillain-Barré syndrome an unlikely diagnosis?

Your Answer

- Autonomic dysfunction
- Elevated protein on CSF examination
- Marked muscle wasting - This is the correct answer ✔
- Hyporeflexia

Next

Question

A 72-year-old female presents with general slowness.
Examination reveals a tremor of the hands.
What frequency of tremor would you suspect in Parkinson's disease?

(Please select 1 option)

- 1 Hz
- 2 Hz
- 5 Hz
- 8 Hz
- 10 Hz

Answer Question

Incorrect

Explanation

The typical tremor associated with Parkinson's disease is 4-6 Hz although in a minority the tremor may be faster - 8 Hz. This rate is more typical of essential tremor.

Question

A 72-year-old female presents with general slowness.
Examination reveals a tremor of the hands.
What frequency of tremor would you suspect in Parkinson's disease?

Your Answer

- 1 Hz
- 2 Hz
- 5 Hz - This is the correct answer ✔
- 8 Hz
- 10 Hz - Incorrect answer selected ✖

Rate this question

Next

Question

A 26-year-old female is admitted to ICU with severe asthma.
She is ventilated for one week and receives IV co-amoxiclav/clarithromycin, magnesium, prednisolone, sedatives and muscle relaxants.
She improves gradually but two days after stopping muscle relaxants she still is unable to be weaned from ventilatory support.
On examination, she is alert but has flaccid weakness of all limbs.
Which of the following is the likely diagnosis?

(Please select 1 option)

- Critical illness polyneuropathy
- Guillain-Barré syndrome
- Hypermagnesaemia
- Prolonged neuromuscular blockade
- Steroid induced myopathy

Answer Question

Incorrect

Explanation

The history suggests prolonged neuromuscular junction (NMJ) blockade which may be exacerbated by both corticosteroids and magnesium.

This condition was originally described with suxamethonium due to hereditary reductions in plasma cholinesterase activity.

However, drugs and electrolyte abnormalities may exacerbate this.

Question

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- Guillain-Barré syndrome
- Hypermagnesaemia
- Prolonged neuromuscular blockade - This is the correct answer ✔
- ✓ Steroid induced myopathy - Incorrect answer selected ✖

Next

Question

A 75-year-old man is brought to see you by his wife. She is no longer able to manage his urinary incontinence.

He was diagnosed with Parkinson's disease by his GP a few years ago when he became slow and shuffling and used to struggle to get to the toilet in time. She says he 'lost a lot of the warning' from his bladder and would sometimes be incontinent. However, his wife says he now no longer seems to care whether he is being incontinent of urine or not. She admits that he has been 'forgetful' for a few years but that this is also getting much worse.

What is the most likely diagnosis?

(Please select 1 option)

- Alzheimer's dementia
- Lewy body dementia
- Normal pressure hydrocephalus
- Obstructive uropathy
- Parkinson's plus syndrome

Answer Question

Question

A 75-year-old man is brought to see you by his wife. She is no longer able to manage his urinary incontinence.

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What is the most likely diagnosis?

Your Answer

- Alzheimer's dementia
- Lewy body dementia
- Normal pressure hydrocephalus - This is the correct answer ✔
- Obstructive uropathy
- ✓ Parkinson's plus syndrome - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

Normal pressure hydrocephalus is the correct answer. It causes the triad of dementia, gait abnormality and urinary incontinence. It is a cause of reversible dementia as symptoms may resolve with a shunt, so is an important diagnosis not to miss.

The gait can often be confused with that of a Parkinson's patient. Urinary problems often begin as urgency and frequency and may progress to frontal lobe incontinence (patients are indifferent to their incontinence). Sometimes diagnosing conditions, particularly dementias, may be difficult in the early stages. Always be ready to consider reviewing a previous diagnosis (such as this patient's previous diagnosis of Parkinson's disease) in light of new symptoms.

Alzheimer's dementia initially causes forgetfulness. Patients then undergo progressive cognitive decline with disintegration of personality. However, urinary incontinence and gait disturbance are not typical features.

Patients with Lewy body dementia typically complain of visual hallucinations and fluctuating cognition. They usually have a degree of parkinsonism, but urinary incontinence is not typically prominent.

Obstructive uropathy may cause overflow incontinence of the bladder and confusion, particularly in patients with already impaired cognition. However, it would not explain the patient's indifference to his incontinence.

Parkinson's plus syndrome is a group of neurodegenerative disorders with classical parkinsonian signs and some additional features. However, this history does not fit well with any of these conditions.

Question

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What is the most likely diagnosis?

Next

Question

A 30-year-old male presents with a week history of right arm weakness. Originally the problem began with severe pain in the neck which radiated into the right shoulder, which was followed by weakness.

Examination revealed winging of the right scapula with weakness of right shoulder abduction and elbow extension. There was some sensory loss over the lateral aspect of the right shoulder and right triceps reflex was absent.

What is the most likely diagnosis?

(Please select 1 option)

- C7 entrapment radiculopathy
- Central C5/6 disc prolapse
- Neuralgic amyotrophy
- Suprascapular nerve entrapment
- Traction of lateral cord of brachial plexus

Answer Question

Incorrect

Explanation

Neuralgic amyotrophy is a brachial plexopathy (usually upper brachial plexus) usually preceded by an infective picture.

It usually presents with severe pain for days to weeks followed by weakness and sensory loss over the corresponding territory of the brachial plexus (more commonly C5-7).

It is self-limiting condition but recovery may be slow (years).

Question

A 30-year-old male presents with a week history of right arm weakness. Originally the problem began with severe pain in the neck which radiated into the right shoulder, which was followed by weakness.

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Your Answer

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- Central C5/6 disc prolapse
- Neuralgic amyotrophy - This is the correct answer ✔
- Suprascapular nerve entrapment
- ✓ Traction of lateral cord of brachial plexus - Incorrect answer selected ✖

Finish

Question

A 36-year-old police officer presents with a three day history of slurred speech. She also complains of double vision and a sensation of breathlessness.

The oxygen saturations are 99% on air. Neurological examination reveals normal power, reflexes and plantar responses.

Which of the following would improve symptoms in this presentation?

(Please select 1 option)

- G-CSF
- Edrophonium
- Non-steroidal anti-inflammatory drugs
- Physiotherapy
- Plasmapheresis

Answer Question

Incorrect

Explanation

This lady has symptoms suggesting myasthenia gravis.
Her breathlessness is probably secondary to anxiety about the symptoms and associated hyperventilation.
Edrophonium (Tensilon) is sometimes used in the diagnosis of myasthenia gravis and would be expected temporarily to improve symtpoms.

Question

A 36-year-old police officer presents with a three day history of slurred speech. She also complains of double vision and a sensation of breathlessness.
The oxygen saturations are 99% on air. Neurological examination reveals normal power, reflexes and plantar responses.
Which of the following would improve symptoms in this presentation?

Your Answer

- G-CSF
- Edrophonium - This is the correct answer ✔
- Non-steroidal anti-inflammatory drugs
- Physiotherapy
- ✓ Plasmapheresis - Incorrect answer selected ✖

Next

Question

A 63-year-old man presents with a three month history of tremor affecting his left arm.

In his past medical history he had suffered from a depressive psychosis for 10 years for which he had received intermittent chlorpromazine and amitriptyline but had had not taken any therapy for the last four months. He describes that his two brothers also had tremors.

On examination he had a resting tremor of his left hand, with cogwheel rigidity of that arm and he had a mild generalised bradykinesia.

What is the most likely diagnosis?

(Please select 1 option)

- Benign essential tremor
- Drug-induced parkinsonism
- Idiopathic Parkinson's disease
- Multiple system atrophy
- Wilson's disease

Answer Question

Explanation

Due to the fact that the symptoms and signs are present only on the left side the most likely diagnosis is idiopathic Parkinson's disease.

Parkinson's disease is a common neurodegenerative disorder which selectively affects dopaminergic neurons of the substantia nigra, cultimating in their destruction. After approximately 50% of the dopamine neurones, and 75-80% of striatal dopamine is lost patients start to exhibit the classical signs of bradykinesia, resting tremor and rigidity. These signs are often unilateral initially.

Despite many years of research, the cause of Parkinson's disease is not fully understood. The relative contribution of genetic and environmental factors still remains unclear.

Neuroleptic-induced parkinsonism is usually bilateral and symmetrical.

Essential tremor does not cause rest tremor (it usually causes bilateral postural and action tremor).

It is unusal for Wilson's disease to present this late in life.

Multi-system atrophy is characterised by Parkinsonian features, cerebellar ataxia and autonomin dysfunction.

Question

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What is the most likely diagnosis?

Your Answer

- Benign essential tremor
- Drug-induced parkinsonism
- Idiopathic Parkinson’s disease - This is the correct answer ✔

Next

Question

A 21-year-old male is admitted with acute onset headache and is drowsy.
He is opening his eyes spontaneously, is disoriented but is localising to painful stimuli.
Which of the following is the investigation of choice for this man?

(Please select 1 option)

- Computed tomography (CT)
- Lumbar puncture (LP)
- Magnetic resonance angiography (MRA)
- Magnetic resonance imaging (MRI)
- Positron emission tomography (PET)

Answer Question

Incorrect

Explanation

Urgent CT will confirm diagnosis in 95% of patients with subarachnoid haemorrhage.
Lumbar puncture is not usually required unless the history is suggestive and the CT is normal.
Blood will be present in the cerebro-spinal fluid (if a bloody tap is suspected the number of red blood cells should fall with each successive sample).
If the LP is performed six hours after onset of symptoms the supernatant fluid should be examined for xanthochromia after centrifugation.

Question

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- Lumbar puncture (LP)
- Magnetic resonance angiography (MRA)
- Magnetic resonance imaging (MRI)
- ✓ Positron emission tomography (PET) - Incorrect answer selected ✖

Next

Question

A 50-year-old lady suffers with migraine. She smokes 20 cigarettes a day.
She has found that paracetamol 1 g was not always effective in relieving her pain.
Which of the following factors is the most likely to account for this problem?

(Please select 1 option)

- Altered volume of distribution
- Delayed gastric emptying
- First pass metabolism
- Hepatic enzyme induction
- Reduced gut blood flow

Answer Question

Incorrect

Explanation

Paracetamol absorption is reduced during migraine attacks and reduced absorption is associated with increased nausea.

There is evidence that delayed gastric emptying is to blame[1].

In fact the paracetamol absorption technique is used to study gastric emptying[2].

Enzyme induction with cigarette smoking does affect paracetamol metabolism. Its importance however, is in toxicity. Smokers would be classified as in a high risk for paracetamol overdose and are assessed using a different time - paracetamol level curve.

Reference:

1. Tokola RA, Neuvonen PJ. Effect of migraine attacks on paracetamol absorption. *Br J Clin Pharmacol.* 1984;18:867-71.
2. Sanaka M1, Kuyama Y, Yamanaka M. Guide for judicious use of the paracetamol absorption technique in a study of gastric emptying rate of liquids. *J Gastroenterol.* 1998;33:785-91.

Question

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- Delayed gastric emptying - This is the correct answer ✔
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Next

Question

A 35-year-old woman is referred with right eye pain that has deteriorated over the last week. On examination she had a mild ptosis of the right eye and was aware of diplopia with vertical image separation on looking upwards. She also had weakness of elevation of the right eye and the pupil was slightly larger compared to the left.

What is the most likely diagnosis?

(Please select 1 option)

- Cavernous sinus thrombosis
- Graves' ophthalmopathy
- Myasthenia gravis
- Posterior communicating artery aneurysm
- Sphenoid sinusitis

Answer Question

Explanation

The signs are consistent with a unilateral partial third nerve palsy associated with periorbital pain. Of the options given, a posterior communicating artery aneurysm is the one which can present with an isolated painful third nerve palsy with pupillary involvement (a 'surgical third' - suggestive of external compression).

With cavernous sinus thrombosis one should expect some other signs such as periorbital swelling, proptosis, and conjuctival injection.

Graves' eye disease is associated with proptosis and lid retraction and is usually bilateral.

Myasthenia gravis does not classically present with pain, and the signs are bilateral and are predominantly associated with fatigue.

Sphenoid sinusitis is usually associated with facial pain, and systemic signs of infection. There is normally chemosis and may be proptosis and a seventh nerve palsy. Involvement of the third cranial nerve is less common.

Question

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Your Answer

- Cavernous sinus thrombosis
- Graves' ophthalmopathy
- Myasthenia gravis
- Posterior communicating artery aneurysm - This is the correct answer ✔

Next

Question

What is the mechanism of action of tetrabenazine?

(Please select 1 option)

- Activates GABAa receptors
- Antimuscarinic
- Dihydropyridine calcium channel antagonist
- Monoamine oxidase inhibitor
- VMAT inhibitor (vesicular monoamine transporter-2)

Answer Question

Correct

Explanation

Tetrabenazine works as a VMAT-inhibitor (vesicular monoamine transporter 2), involved in transportation of monoamines. It is indicated for Huntington's chorea to reduce hyperkinetic movements.

Benzodiazepines activate GABAa receptors.

Antimuscarinic drugs include trihexyphenidyl used in Parkinson's disease.

Dihydropyridine calcium channel antagonists include amlodipine.

Selegiline is a monoamine oxidase inhibitor used in Parkinson's disease.

Question

What is the mechanism of action of tetrabenazine?

Your Answer

- Activates GABAa receptors
- Antimuscarinic
- Dihydropyridine calcium channel antagonist
- Monoamine oxidase inhibitor
- ✓ VMAT inhibitor (vesicular monoamine transporter-2) - Correct ✔

Next

Question

The parents of an 8-year-old boy have noticed increased blinking and throat clearing.

He had normal development and is doing well at school until recently when he was sent home for shouting swear words during assembly.

His parents have not noticed any change in behaviour, with normal appetite, sleep and energy. He takes no medication. His father suffers with partial seizures.

What is the likely diagnosis?

(Please select 1 option)

- Epilepsy
- Huntington's disease
- Rett syndrome
- Tourette syndrome
- Wilson's disease

Answer Question

Question

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What is the likely diagnosis?

Your Answer

- Epilepsy
- Huntington's disease
- Rett syndrome
- Tourette syndrome - This is the correct answer ✔
- ✓ Wilson's disease - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

Tourette syndrome presents before 18 years of age and many children grow out of it.

The criteria for diagnosis require multiple motor and one or more vocal tics, showing themselves over a year, with not more than three consecutive months tic free. The motor tics often have a build up that the patient is aware of, like an itch. Commonly they involve blinking, throat clearing or shoulder shrugging.

Although his father has epilepsy this is unlikely to be epilepsy as the shouting of swear words is a typical vocal tic of Tourette's.

Huntington's disease is a neurodegenerative genetic disorder that is autosomal dominant. The features are of choreiform movements, problems with coordination and walking, behavioural and psychiatric problems. The disease leads eventually to dementia and premature death.

Rett syndrome predominantly affects females and is a neurodevelopment disorder of the grey matter. The sufferers have small hands and feet with deceleration of head growth. Many patients are epileptic, display repetitive hand movements, rarely develop speech and also have GI problems, such as constipation.

Wilson's disease is an autosomal recessive condition which causes build up of copper in the body. Copper accumulates in the liver and brain. This results in hepatitis, liver failure or cirrhosis. Accumulation in the brain can result in behavioural changes, depression, seizures, parkinsonism, however the initial sign is usually increased clumsiness.

Question

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His parents have not noticed any change in behaviour, with normal appetite, sleep and energy. He takes no medication. His father suffers with partial seizures.

What is the likely diagnosis?

Your Answer

Next

Question

A 65-year-old man with hypertension and hypercholesterolaemia is admitted with right sided weakness. He has marked receptive dysphasia.

Examination reveals right sided facial weakness as well as right-sided hemiparesis. Sensation on the right side of the body is also impaired.

The presence of which additional finding would suggest a diagnosis of a left total anterior circulation infarct (L TACI) rather than a left partial anterior circulation infarct (L PACI)?

(Please select 1 option)

- Bitemporal hemianopia
- Left homonomous hemianopia
- Left sided visual neglect
- Right homonomous hemianopia
- Right sided visual neglect

Answer Question

infarction. *Lancet*. 1991;337:1521-6.

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Your Answer

- Bitemporal hemianopia
- Left homonomous hemianopia
- Left sided visual neglect
- Right homonomous hemianopia - This is the correct answer ✔
- ✓ Right sided visual neglect - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

A bitemporal hemianopia is caused by a lesion of the optic chiasm.

Right homonymous hemianopia is the correct answer. A TACI comprises of all three of the following:

- higher cortical dysfunction which includes visuospatial disturbance (in this case visuospatial neglect), dysphasia, and/or a decreased level of consciousness
- contralateral homonymous hemianopia, and
- motor and sensory deficits in two or more of the contralateral face/arm/leg.

Left sided visual neglect may be present in this patient (as part of the higher cortical dysfunction), but a contralateral homonymous hemianopsia must be present to fulfil the criteria for a TACI. It is important to note that a patient may have normal visual fields, but may still have left-sided visual neglect.

A right TACI would cause a left homonymous hemianopia and not a right homonymous hemianopia.

Reference:

Bamford J, et al. Classification of natural history and clinically identifiable subtypes of cerebral infarction. *Lancet*. 1991;337:1521-6.

Question

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The presence of which additional finding would suggest a diagnosis of a left total anterior circulation infarct (L TACI) rather than a left partial anterior circulation infarct (L PACI)?

Your Answer

Next

Question

A 73-year-old man presents with an abrupt onset of double vision and left leg weakness. Examination shows right sided facial weakness affecting upper and lower parts of the face. He also has a left hemiparesis.

Which of the following is the site of the lesion?

(Please select 1 option)

- Left frontal lobe
- Left lateral medulla
- Right corpus striatum
- Right midbrain
- Right pons

Answer Question

- Ipsilateral limb and gait apraxia - middle and inferior cerebellar peduncle
- Ipsilateral Horner's syndrome - descending sympathetic tract.

Question

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Which of the following is the site of the lesion?

Your Answer

- Left frontal lobe
- Left lateral medulla
- Right corpus striatum
- Right midbrain
- ✓ Right pons - Correct ✔

Rate this question

Next

Correct

Explanation

The combination of diplopia, hemiparesis, and a lower motor neurone facial nerve lesion should lead you to consider a pontine stroke.

The lateral pontine syndrome classically consists of:

- Contralateral loss of pain and temperature sensation in the trunk and extremities - lateral spinothalamic tract
- Ipsilateral paralysis of the upper and lower face (lower motor neurone lesion), ipsilateral loss of lacrimation and reduced salivation, ipsilateral loss of taste from the anterior two thirds of the tongue, loss of the corneal reflex (efferent limb) - facial nucleus and nerve (VII)
- Ipsilateral loss of pain and temperature sensation of the face - spinal trigeminal nucleus and tract
- Nystagmus, nausea, vomiting, vertigo - vestibular nuclei
- Ipsilateral central deafness - cochlear nuclei
- Ipsilateral limb and gait apraxia - middle and inferior cerebellar peduncle
- Ipsilateral Horner's syndrome - descending sympathetic tract.

Question

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Examination shows right sided facial weakness affecting upper and lower parts of the face. He also has a left hemiparesis.

Which of the following is the site of the lesion?

Your Answer

Left frontal lobe

Next

Incorrect

Explanation

Acute cerebellar infarct or haemorrhage is associated with acute onset of ataxia, headache and vomiting and eventually drowsiness and coma due to the development of obstructing hydrocephalus.

Early computerised tomography (CT) brain scan and close observation are essential in the management of acute cerebellar haemorrhage.

Question

A 66-year-old male presents with a sudden onset of ataxia, vomiting and headache, followed by increasing drowsiness.

What is the most likely diagnosis?

Your Answer

- Acute cerebellar haemorrhage - This is the correct answer ✔
- Acute subdural haemorrhage
- Frontal subdural empyema
- Herpes simplex encephalitis
- ✓ Pituitary apoplexy - Incorrect answer selected ✖

Next

Question

A 45-year-old woman presented with a severe sudden onset headache, describing it as the worst headache she could imagine, but denying any head trauma.

On examination of her cranial nervous system she had a partial ptosis of her right eye, which was unable to look up or medially, and her right pupil was dilated. Her only past medical history is polycystic kidney disease.

What is the most likely diagnosis?

(Please select 1 option)

- First presentation of cluster headache
- Subarachnoid haemorrhage caused by a ruptured left sided anterior communicating artery aneurysm
- Subarachnoid haemorrhage caused by a ruptured left sided posterior communicating artery aneurysm
- Subarachnoid haemorrhage caused by a ruptured right sided anterior communicating artery aneurysm
- Subarachnoid haemorrhage caused by a ruptured right sided posterior communicating artery aneurysm

Answer Question

Posterior communicating artery aneurysms can compress the third cranial nerve. If the aneurysm ruptures it can cause the classic picture of an ipsilateral painful third nerve palsy, with the eye down and out, ptosis, and pupil dilation.

Cerebral aneurysms may be associated with polycystic kidney disease.

It is the ipsilateral posterior communicating artery aneurysm that is compressing the third nerve.

Posterior communicating artery aneurysms do not cause contralateral compressive symptoms.

Anterior communicating artery aneurysms do not compress the third nerve.

Question

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- Subarachnoid haemorrhage caused by a ruptured left sided posterior communicating artery aneurysm
- Subarachnoid haemorrhage caused by a ruptured right sided anterior communicating artery aneurysm
- ✓ Subarachnoid haemorrhage caused by a ruptured right sided posterior communicating artery aneurysm -
  Correct ✔

Next

Question

An 18-year-old female presents with a three day history of progressive weakness and numbness of her legs, urinary retention and back pain for two weeks following an upper respiratory infection.

On examination there is spastic paraparesis, sensory level up to T5, extensor plantars.

Examination of cranial nerves and upper limbs is normal. MRI of the spine is normal.

Of the following, which is the most likely diagnosis?

(Please select 1 option)

- Anterior spinal artery occlusion
- Guillain-Barré syndrome
- Multiple sclerosis
- Post-infectious transverse myelitis
- Thoracic disc prolapse

Answer Question

Question

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- Anterior spinal artery occlusion
- Guillain-Barré syndrome
- Multiple sclerosis
- Post-infectious transverse myelitis - This is the correct answer ✔
- ✓ Thoracic disc prolapse - Incorrect answer selected ✖

Rate this question

Next

Explanation

Transverse myelitis describes a heterogeneous group of conditions that are characterised by acute or subacute motor, sensory and autonomic spinal cord dysfunction.

The clinical signs are caused by an interruption in ascending and descending pathways in the transverse plane of the spinal cord. A sensory level is characteristic. Midline or dermatomal neuropathic pain can be present. Urinary incontinence or retention, bowel incontinence or constipation, and sexual dysfunction are common but vary in severity. These signs develop over hours to days, and are usually bilateral.

There are a variety of causes, but it most often occurs as an autoimmune phenomenon after an infection or vaccination, or as a result of direct infection, an underlying systemic autoimmune disease, or an acquired demyelinating disease. For a significant proportion of cases no cause is found.

MRI is indicated to rule out the presence of structural lesions, and determine the presence of myelitis which enhances with gadolinium in the acute phase. There may be more than one area of myelitis, and the lesions usually span at least two vertebral segments. In the acute phase the MRI may be normal.

Treatment in the acute phase aims to halt the progression and initiate resolution of the inflammatory cord lesion. Corticosteroids are first line, and are initially given in high doses intravenously. Plasma exchange can be given to those who fail to respond. Patients with demyelinating disease can be started on long term immunosuppression.

The prognosis is highly variable, and improvement can take three months and longer to develop. A rapidly progressive course, severe weakness, hypotonia and areflexia are predictors of poor prognosis. Fifty per cent to 70% of patients have partial or complete recovery.

Whilst multiple sclerosis may be a possible underlying cause in this young lady, the proximity to an infection and the lack of history of other neurological deficits makes it less likely.

Guillain-Barré syndrome presents with ascending progressive symmetrical weakness, with lower motor neurone signs.

Anterior spinal artery occlusion typically presents with a flaccid paraplegia or quadriplegia (depending on the level). It is usually associated with atherosclerosis or aortic dissection, and would therefore be unusual in this age group.

A thoracic disc prolapse would be seen on MRI.

Further Reading:

Frohman EM, Wingerchuck DM. Transverse Myelitis. *N Engl J Med.* 2010;363:564-572.

Question

Next

Question

A 60-year-old woman presented with a small right pupil, right ptosis, and impaired sweating over the ipsilateral forehead. Sweating on the rest of the face was unaffected.
Where is the most likely site of this lesion?

(Please select 1 option)

- Cervical spinal cord
- Common carotid artery
- Hypothalamus
- Internal carotid artery
- Lateral medulla

Answer Question

This presentation is consistent with Horner's syndrome, which develops following disruption of the sympathetic chain. The classical clinical features are ptosis, miosis, and anhidrosis.

There are three separate forms of Horner's syndrome, depending on what level the sympathetic fibres are affected at:

First-order sympathetic fibres originate in the hypothalamus and descend through the brainstem to their synapse with the preganglionic sympathetic fibres at C8-T2. First-order lesions can be caused by strokes, multiple sclerosis, and basal meningitis.

Second-order (preganglionic) fibres leave the cord at T1 and ascend in the sympathetic chain over the lung apex. They synapse in the superior cervical ganglion at the level of C3-C4, at the bifurcation of the common carotid artery. Lesions affecting these fibres can be caused by apical lung tumours, lymphadenopathy, and lower brachial plexus trauma.

Third-order (postganglionic) fibres pass along the internal carotid artery, with branches passing to the blood vessels and sweat glands of the face. They pass through the cavernous sinus and superior orbital fissure, where they joint the long ciliary nerves to supply the iris dilator and Muller's muscle. Because the sympathetic plexus accompanying the internal carotid artery innervates sweat glands only to the medial forehead, facial anhydrosis is only partial when Horner's syndrome is caused postganglionic lesions. These lesions can be caused by internal carotid artery dissection or herpes zoster infection.

Question

A 60-year-old woman presented with a small right pupil, right ptosis, and impaired sweating over the ipsilateral forehead. Sweating on the rest of the face was unaffected.

Where is the most likely site of this lesion?

Your Answer

- Cervical spinal cord
- Common carotid artery
- Hypothalamus
- Internal carotid artery - This is the correct answer ✔

Next

Question

A 55-year-old man presents with a resting tremor of his right arm and a diagnosis of idiopathic Parkinson's disease is made.
Which one of the following drugs is most likely to help his tremor?

(Please select 1 option)

- Amantadine
- Benzhexol
- Cabergoline
- Co-careldopa
- Selegiline

Answer Question

Incorrect

Explanation

Anticholinergic treatment (for example, benzhexol) is the treatment of choice for tremor predominantly Parkinson's disease.
L-dopa and dopamine agonists are the treatment of choice for bradykinesia and rigidity.

Question

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Your Answer

- Amantadine
- Benzhexol - This is the correct answer ✔
- Cabergoline
- Co-careldopa
- ✓ Selegiline - Incorrect answer selected ✖

Rate this question

Next

Question

A 36-year-old female presents with a six month history of having problems sleeping at night. She has been woken on numerous occasions by her legs which are irritable and feel that they are being tugged. She needs to keep moving them. This urge lasts variable periods and she finds little relief from rubbing the legs. No abnormalities are noted on examination of her legs.

Which of the following is the most appropriate treatment for this patient?

(Please select 1 option)

- Amitriptyline
- Gabapentin
- Psychiatric referral
- Ropinirole
- Venlafaxine

Answer Question

This patient has features of restless legs syndrome.

Typically there is an uncomfortable sensation in the legs and a feeling of needing to move them. The exact aetiology is unknown.

Although no specific tests exist for the diagnosis it is based on the international restless legs syndrome study group four basic criteria for diagnosing RLS:

1. A desire to move the limbs, often associated with paraesthesias or dysaesthesias
2. Symptoms that are worse or present only during rest and are partially or temporarily relieved by activity
3. Motor restlessness, and
4. Nocturnal worsening of symptoms.

Treatment depends on the severity of the problem and the most appropriate treatment here would be ropinirole, which is the one agent, in the options, licensed for this purpose. Pramipexole and rotigotine are also licensed for moderate to severe restless legs.

Question

A 36-year-old female presents with a six month history of having problems sleeping at night.

She has been woken on numerous occasions by her legs which are irritable and feel that they are being tugged. She needs to keep moving them. This urge lasts variable periods and she finds little relief from rubbing the legs. No abnormalities are noted on examination of her legs.

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Your Answer

- Amitriptyline
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- Ropinirole - This is the correct answer ✔

Next

Question

An 86-year-old lady is admitted with parkinsonism.
Exposure to which of the following drugs is the most likely cause?

(Please select 1 option)

- Buprenorphine
- Cyclizine
- Metoclopramide
- Phenytoin
- Trimethoprim

Answer Question

Incorrect

Explanation

Metoclopramide is a dopamine receptor antagonist that can induce parkinsonism. It can also worsen control in patients with idiopathic Parkinson's disease to its antagonistic effect on dopamine receptors.

Buprenorphine is an opioid agonist and does not cause parkinsonism.

It is very rare for cyclizine to induce parkinsonism. Cyclizine is a histamine receptor antagonist.

There have been only two case reports of phenytoin-induced parkinsonism that resolved after discontinuation of phenytoin.

Trimethoprim does not cause extrapyramidal side effects.

Of the options given, metoclopramide is far more likely to cause extrapyramidal side effects.

Reference:

Ertan S, et al Phenytoin-induced parkinsonism. *Singapore Med J.* 2006;47:981-3.

Question

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Exposure to which of the following drugs is the most likely cause?

Your Answer

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- Phenytoin

Next

Question

A 60-year-old male is accompanied to the office by his wife who has noticed that his memory is deteriorating. She also reports that at dinner parties he is inappropriate in his behaviour and she thinks that his personality has changed.

On examination the patient has frontal lobe release signs. He is hypotonic in the arms but his reflexes are brisk. He has fasciculations in the tongue and in all four limbs.

You suspect frontotemporal dementia (FTD) with amyotrophic lateral sclerosis (ALS).

On which chromosome is the responsible gene located?

(Please select 1 option)

- Chromosome 3
- Chromosome 9
- Chromosome 17
- Chromosome 19
- Chromosome 22

Answer Question

Incorrect

Explanation

The vignette describes a patient with motor neurone disease. In addition there is evidence of cognitive impairment suggestive of frontotemporal dementia. FTD-MND or FTS-ALS has been linked to chromosome 9.

Although frontotemporal dementia is associated with chromosome 17, when there is motor neurone disease (MND) associated the chromosome linked to the disorder is 9.

Question

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- Chromosome 9 - This is the correct answer ✔
- Chromosome 17
- Chromosome 19
- ✓ Chromosome 22 - Incorrect answer selected ✖

Next

Question

A 50-year-old woman presented to her GP with a four month history of progressive distal sensory loss and weakness of both legs and arms. The weakness and numbness had extended to the elbows and knees. She had great difficulty in fine manipulation and had become unsteady on her feet. She had osteoarthritis in her neck, but did not take any regular medication. She was a non-smoker and did not drink any alcohol. There was no family history of any neurological disease.

On examination, cranial nerves and fundoscopy were normal. Examination of the upper limb revealed bilaterally reduced tone at the elbows and wrists with absent biceps, triceps and supinator jerks. There was mild weakness of shoulder abduction and adduction 4/5 with marked weakness of handgrip and elbow flexion, extension 3/5.

Sensory examination revealed reduced pinprick sensation extending from the hand to the elbow and vibration was felt at the elbow. Lower limb examination revealed some mild weakness of hip flexion and extension with marked weakness of dorsiflexion and plantarflexion. Both knee and ankle jerks were absent and both plantar responses were mute. There was absent sensation to all modalities affecting both feet extending to the knees.

A lumbar puncture was performed and yielded the following data:

Opening pressure	14 cm H_2O	(5-18)
CSF protein	0.75 g/L	(0.15-0.45)
CSF white cell count	10 cells per ml	(<5 cells)
CSF white cell differential	90% lymphocytes	-
CSF red cell count	2 cells per ml	(<5 cells)

Nerve conduction studies showed multifocal motor and sensory conduction block with prolonged distal latencies.

What is the likely diagnosis in this patient?

(Please select 1 option)

Answer Question

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What is the likely diagnosis in this patient?

(Please select 1 option)

- Cervical spondylosis
- Chronic inflammatory demyelinating neuropathy (CIDP)
- Guillain-Barré syndrome
- Hereditary motor and sensory neuropathy (HMSN)
- Multifocal motor neuropathy

Answer Question

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- ✓ Multifocal motor neuropathy - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

The history is compatible with a subacute sensory and motor peripheral neuropathy.

Causes of such conditions include inflammatory neuropathies such as chronic inflammatory demyelinating polyneuropathy (CIDP) and paraproteinaemic neuropathies.

CIDP is characterised by progressive weakness and impaired sensory function in the upper and lower limbs. The cause of the demyelination is not understood, but it is more common in young adults and in men. It presents with abnormal sensation (which typically begins distally), weakness of the limbs, areflexia and fatigue.

Treatment for CIDP includes corticosteroids, plasmapheresis and intravenous immunoglobulin. Physiotherapy is an effective adjunct. The course varies widely, and patients may be left with residual neurology or suffer a number of relapses.

Guillain-Barré syndrome (GBS) is an acute post-infectious neuropathy, thought possibily to be a post-infectious phenomenon, which reaches its peak in severity within six weeks. CIDP is closely linked to GBS, and is thought by some to be its chronic counterpart. Both CIDP and GBS can affect motor and sensory nerves, and it is the four month history which distinguishes the two here.

Cervical spondylosis would cause upper motor neurone signs such as hyperreflexia, extensor plantar response and possibly a sensory level.

HMSN is normally a very chronic neuropathy developing over many years and usually with a family history of the condition.

Multifocal motor neuropathy is a treatable neuropathy affecting motor conduction only. It is associated with antibodies to a ganglioside component of peripheral myelin.

Further Reading:

National Institute of Neurological Disorders and Stroke. Chronic Inflammatory Demyelinating Polyneuropathy (CIDP).

Question

A 50-year-old woman presented to her GP with a four month history of progressive distal sensory loss and weakness of both legs and arms. The weakness and numbness had extended to the elbows and knees. She had great difficulty in fine manipulation and had become unsteady on her feet. She had osteoarthritis in her neck, but did not take any

Next

Question

A 46-year-old man is found to have nystagmus.
On closer examination it is downbeat nystagmus.
Which of the following conditions is the most likely to cause this clinical finding?

(Please select 1 option)

- Aqueduct stenosis
- Central cerebellar lesion
- Chiari type I malformation
- Unilateral medial longitudinal fasciculus lesion
- Wernicke's encephalopathy

Answer Question

medulla. It is therefore typical of the Arnold-Chiari malformation.

Wernicke's or thiamine deficiency is a rare cause of downbeat nystagmus and therefore is not as likely a diagnosis as the Arnold Chiari malformation in the option list.

Question

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On closer examination it is downbeat nystagmus.
Which of the following conditions is the most likely to cause this clinical finding?

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- Central cerebellar lesion
- Chiari type I malformation - This is the correct answer ✔
- Unilateral medial longitudinal fasciculus lesion
- ✓ Wernicke's encephalopathy - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

Nystagmus is defined as involuntary oscillations of the eyes.

This may be pendular when the oscillations are equal in rate and amplitude, or jerking when there are quick and slow phases. (The quicker phase is used to define the direction.)

Nystagmus may be caused by:

- Visual disturbances
- Lesions of the labyrinth
- The central vestibular connections, and
- Brain stem or cerebellar lesions.

Pendular nystagmus is usually due to loss of macular vision, but may be seen in diffuse brain stem lesions.

Jerking nystagmus which is of constant direction regardless of the direction of gaze, suggests a labyrinthine or cerebellar lesion.

Nystagmus which changes with the direction of gaze suggests widespread central involvement of vestibular nuclei.

Jerking nystagmus present only on lateral gaze, and the fast component of which is in the direction of gaze, indicates a lesion of the brain stem or cerebellum.

Nystagmus confined to one eye suggests a peripheral lesion of the nerve or muscle, or a lesion of the medial longitudinal bundle.

Nystagmus restricted to the abducting eye on lateral gaze (ataxic nystagmus) is due to a lesion of the medial longitudinal bundle between the pons and mid-brain as in multiple sclerosis (MS).

Nystagmus occurring on upward gaze with the fast component upwards (upbeat nystagmus) may be due to a lesion in the mid-brain at the level of the superior colliculus.

Downbeat nystagmus (fast phase downwards) suggests a lesion in the lower part of the medulla. It is therefore typical of the Arnold-Chiari malformation.

Wernicke's or thiamine deficiency is a rare cause of downbeat nystagmus and therefore is not as likely a diagnosis as the Arnold Chiari malformation in the option list.

Question

Next

Question

A lesion of the frontal lobe causes which of the following?

(Please select 1 option)

- Apraxia
- Broca's (expressive) aphasia
- Cortical blindness
- Homonymous hemianopia
- Visuospatial neglect

Answer Question

- cortical blindness (blindness due to damage to the visual cortex and may present as Anton syndrome where there is blindness but the patient is unaware or denies blindness)
- homonymous hemianopia, and
- visual agnosia (seeing but not perceiving objects - it is different to neglect since in agnosia the objects are seen and followed but cannot be named).

Question

A lesion of the frontal lobe causes which of the following?

Your Answer

- Apraxia
- Broca's (expressive) aphasia - This is the correct answer ✔
- Cortical blindness
- Homonymous hemianopia
- ✓ Visuospatial neglect - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Explanation

Lesions of the frontal lobe include:

- expressive aphasia
- primitive reflexes
- perseveration (repeatedly asking the same question or performing the same task)
- difficulties with task sequencing and executive skills
- changes in personality.

Lesions of the parietal lobe include:

- apraxia
- neglect
- astereognosis (unable to recognise an object by feeling it), and
- visual field defects (typically homonymous inferior quadrantanopia).

They may also cause alcalculia (inability to perform mental arithmetic).
Lesions of the temporal lobe cause:

- visual field defects (typically homonymous superior quadrantanopia)
- Wernike's (receptive) aphasia
- auditory agnosia, and
- memory impairment.

Occipital lobe lesions include:

- cortical blindness (blindness due to damage to the visual cortex and may present as Anton syndrome where there is blindness but the patient is unaware or denies blindness)
- homonymous hemianopia, and
- visual agnosia (seeing but not perceiving objects - it is different to neglect since in agnosia the objects are seen and followed but cannot be named).

Question

Next

Question

A 25-year-old female presented with six months history of depression, irritability and painful sensory symptoms in her legs. Over the last four weeks she presents a broad base ataxic gait. An MRI brain showed bilateral posterior thalamic nuclei (pulvinar region) high signals.
Which of the following is the most likely diagnosis?

(Please select 1 option)

- Herpes simplex encephalitis
- Multiple system atrophy
- New variant CJD
- Sporadic CJD
- Wilson disease

Answer Question

Incorrect

Explanation

New variant Creutzfeldt-Jakob disease (CJD) usually presents in a young person, in their twenties or thirties.

In the majority of the cases the first symptoms are psychiatric and painful sensory symptoms in the lower limbs.

Ataxia and involuntary movements (for example, myoclonus) usually appear at an interval of about six months after the initial symptoms.

MRI brain shows bilateral pulvinar (posterior thalamic nuclei) high signals.

EEG is usually normal in new variant CJD.

Question

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Your Answer

- Herpes simplex encephalitis
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- Sporadic CJD
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Next

Question

Which one of the following would support a diagnosis of subacute combined degeneration of the cord (SACDC) rather than multiple sclerosis (MS)?

(Please select 1 option)

- Absent ankle jerks
- Autonomic symptoms
- Cerebellar signs
- Extensor plantars
- Visual problems

Answer Question

Incorrect

Explanation

The causes of absent ankle reflexes and extensor plantars include

- Subacute combined degeneration of the cord (posterior column signs, positive Romberg's sign, anaemia, splenomegaly)
- Syphilitic taboparesis
- Friedreich's ataxia
- Motor neurone disease.

Knee reflexes in SACDC may be increased, normal or absent.

In the latter stages of MS with marked muscle wasting, tendon jerks may be difficult to elicit.

All the other features may be common to both conditions - optic atrophy, cerebellar ataxia and spasticity.

The only tricky one is autonomic features because these are rare in both conditions. Remember MS affects the CNS whereas subacute combined degeneration of the cord affects central and peripheral nerves. That is the easiest way of answering the question.

Question

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Your Answer

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- Autonomic symptoms
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Next

Question

An old man presents to his GP with difficulty driving. He reports not seeing cars approaching from the right.
On examination he has a right inferior homonymous quadrantanopia.
Where is the lesion most likely to be?

(Please select 1 option)

- Left optic tract
- Left parietal lobe
- Optic chiasm
- Right occipital lobe
- Right temporal lobe

Answer Question

Incorrect

Explanation

Lesions affecting the optic radiation cause a contralateral homonymous quadrantanopia.

The upper part of the visual field flows through the temporal lobe, whilst the inferior part flows through the parietal lobe. This can be remembered with the mnemonic, PITS: Parietal Inferior, Temporal Superior.

Lesions of the optic tract (before the lateral geniculate body) result in a contralateral homonymous hemianopia, whilst lesions of the optic chiasm cause a bitemporal hemianopia.

Left optic tract is incorrect because optic tract lesions cause hemianopsia.

Right occipital lobe is incorrect because it is ipsilateral and would cause a hemianopia.

Right temporal lobe is incorrect because it is ipsilateral and would cause a superior quadrantanopia.

Optic chiasm is incorrect because optic chiasm lesions cause bitemporal hemianopsia.

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Next

Question

A 50-year-old male epileptic presents with paraesthesia of hands and feet. He also has unsteadiness when walking.

On examination he has Dupuytren's contracture in his left hand, a peripheral sensory neuropathy and palpable lymph nodes in his neck and axillae.

Which of the following drugs is the most likely cause of these features?

(Please select 1 option)

- Carbamazepine
- Clonazepam
- Lamotrigine
- Phenytoin
- Sodium valproate

Answer Question

Explanation

Phenytoin is well known to cause neurological side effects such as peripheral sensory neuropathy and cerebellar ataxia.

Other side effects include:

- Gingival hypertrophy
- Lymphadenopathy
- Hypocalcaemia, and
- Hirsutism.

Question

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Next

Question

A 69-year-old male presents with sudden onset weakness of his legs associated with urinary retention. Five years previously he was diagnosed with sigmoid colonic carcinoma which was surgically resected.

Examination revealed a flaccid paraparesis of the legs with absent tendon reflexes and plantar responses. Pinprick and temperature sensations were absent to T12 level, but there was a relative sparing of light touch and joint position sensation.

What is the most likely diagnosis?

(Please select 1 option)

- Anterior spinal artery occlusion
- Intramedullary spinal cord metastasis
- Spinal cord compression due to vertebral metastasis
- T11/12 central disc prolapse
- Transverse myelitis

Answer Question

Incorrect

Explanation

The lesion is involving the anterior two thirds of the spinal cord which spares light touch, vibration and position sense, but causes loss of pain and temperature sensation distally.

The diagnostic possibilities therefore include anterior spinal artery occlusion, which is rare, and intramedullary spinal cord metastasis.

The condition has developed quite suddenly, which is the key and supports a vascular event.

Intramedullary spinal cord lesions are also rare, and vertebral metastasis causing cord compression occurs more commonly; however the clinical signs suggest sparing of the dorsal columns.

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Next

Question

An 18-year-old male is diagnosed with Becker's muscular dystrophy.
Which of the following statements concerning the genetics of the condition is correct?

(Please select 1 option)

- His brothers will all be affected
- His daughters' sons will have a 50% chance of having the disease
- His daughters will have a 50% chance of being carriers
- His sons' children will have a 50% chance of having the disease
- His sons will be carriers of the condition

Answer Question

Incorrect

Explanation

Becker's muscular dystrophy is an X linked condition and so 50% of males will be affected in a family.

His sons will get the X chromosome from their mother and so will not be carriers, but all of his daughters will be carriers.

However, his daughters' sons will consequently have a 50% chance of inheriting the disease as all of his daughters are carriers and there is a 1 in 2 chance (50:50) of passing the gene on to their sons.

On the other hand his sons who are not affected do not pass on the condition.

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- His sons' children will have a 50% chance of having the disease
- ✓ His sons will be carriers of the condition - Incorrect answer selected ✖

Next

Question

A 60-year-old man was brought to the Emergency department after a fall in his bathroom.

Seen immediately by his family, he was already picking himself up from the floor and said he was not injured. His wife felt that he was transiently dazed.

On examination, he was alert, and no abnormalities were noted. His medical history included a history of hypertension for which he was taking bendroflumethiazide 2.5 mg daily. He was discharged without any further intervention.

Two weeks later his wife brings the patient to see you because the dazed state has returned. Examination reveals a temperature of 36.7°C, a pulse rate of 84 bpm regular, a blood pressure of 152/94 mm Hg. On questioning he is slightly slowed, being disoriented to time with some deficit in recent memory. The patient moves slowly, but power is normal. Neurologic examination shows slight hyperactivity of the tendon reflexes on the right with unclear plantar responses because of bilateral withdrawal.

Which of the following would you request?

(Please select 1 option)

- 24-hour ambulatory electrocardiogram
- CSF analysis
- CT of the head
- EEG
- Electromyography and nerve conduction testing

Answer Question

Explanation

This patient probably has evidence of a right sided hemiparesis and together with the history of confusion and previous head injury a diagnosis of subdural haematoma should be suspected.

Consequently the most appropriate investigation would be CT head scan.

Particularly in the presence of focal neurology, a CT scan should be peformed before embarking upon a lumbar puncture.

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Which of the following would you request?

Your Answer

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- CT of the head - This is the correct answer ✔
- EEG

Next

Question

A 72-year-old male presents with diplopia.
Which one of the following features would suggest a third nerve palsy caused by compression from a posterior communicating artery aneurysm?

(Please select 1 option)

- Constricted pupil
- Convergent strabismus
- Enophthalmos
- Increased lacrimation
- Unreactive pupil to light

Answer Question

Correct

Explanation

In a third nerve palsy there is typically ptosis with a dilated, unreactive pupil and the eyeball is displaced downwards and outwards.

There would be a dilated not constricted pupil and a divergent squint - affected eye deviated 'down and out'.

Increased lacrimation may be seen in VIIth nerve palsy. Enophthalmos and miosis are seen in Horner's syndrome.

Question

A 72-year-old male presents with diplopia.

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Your Answer

- Constricted pupil
- Convergent strabismus
- Enophthalmos
- Increased lacrimation
- ✓ Unreactive pupil to light - Correct ✔

Next

Question

A 25-year-old male presents with an eight week history of difficulty walking.
On examination he had increased tone and pyramidal weakness of the right leg. There was impairment of pinprick sensation in the left leg up to the groin.
Which one of the following is the cause of these signs?

(Please select 1 option)

- A central cauda equina lesion
- A cervical spinal cord lesion
- A lesion at the foramen magnum
- A right sided thoracic spinal cord lesion
- Bilateral cerebral hemisphere lesions

Answer Question

Incorrect

Explanation

The clinical features suggest Brown-Sequard syndrome. A hemicord lesion causes it.

Ipsilateral signs include pyramidal weakness and dorsal column dysfunction (joint position and light touch) and contralateral signs include spinothalamic dysfunction (pinprick and temperature).

Causes include trauma, tumours, and multiple sclerosis.

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- A right sided thoracic spinal cord lesion - This is the correct answer ✔
- ✓ Bilateral cerebral hemisphere lesions - Incorrect answer selected ✖

Next

Question

A 55-year-old woman with multiple sclerosis is treated for severe hip adductor muscle spasticity and two days later develops double vision.
Which one of the following treatments is she likely to have been given?

(Please select 1 option)

- Botulinum toxin
- Dantrolene
- Intrathecal baclofen
- Oral baclofen
- Tizanidine

Answer Question

Incorrect

Explanation

Botulinum toxin is the treatment of choice for focal dystonia (such as torticollis, and hemi-facial spasm) and focal dystonia.

The primary action of the toxin is to block acetylcholine release at the neuromuscular junction and so to produce muscle weakness.

Occasionally systemic absorption of the toxin can affect distal muscles causing symptoms such as diplopia and dysphagia.

Question

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Which one of the following treatments is she likely to have been given?

Your Answer

- Botulinum toxin - This is the correct answer ✔
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- Oral baclofen
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Next

Question

A 40-year-old male presents with abnormal movements.

On examination the patient has slow writhing movements of the arms and is unable to sit still in the chair without abnormal posturing. His father was reported to have had similar features at the age of 50 and died aged 60.

What is the most likely diagnosis?

(Please select 1 option)

- MELAS syndrome (mitochondrial encephalomyelopathy, lactic acidosis and stroke-like episodes)
- Motor neuron disease
- Myasthenia gravis
- Huntington's disease
- Rheumatic fever

Answer Question

CTG and HD is CAG

Question

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- Huntington's disease - This is the correct answer ✔
- ✓ Rheumatic fever - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

The patient described has features characteristic of Huntington's disease. This is a genetic disorder due to a trinucleotide repeat expansion in the Huntington gene of more than 35 CAG repeats. It is autosomal dominant and shows genetic anticipation (i.e. it tends to present at an earlier age in successive generations). There is often a prodromal phase of mild psychotic and behavioural symptoms, prior to the development of progressive chorea, rigidity and dementia. Seizures are often present. In the late stages, chorea is replaced by dystonia and Parkinsonian features.

MELAS syndrome is a mitochondrial cytopathy caused by defects in the mitrochondrial genome.

Motor neuron disease is a disorder of motor neurons the pathophysiology of which is unclear but which is in some cases related to SOD-1 gene.

Myasthenia gravis is an autoimmune condition in which antibodies, typically anticholinesterase antibodies, interfere with neuromuscular transmission.

Rheumatic fever can present with choreiform movements (Sydenham's chorea) but it is caused by Group A *Streptococci* and antibody cross-reactivity.

Myotonic dystrophy and huntington's disease are both trinucleotide repeat expansions. DM is CTG and HD is CAG

Question

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On examination the patient has slow writhing movements of the arms and is unable to sit still in the chair without abnormal posturing. His father was reported to have had similar features at the age of 50 and died aged 60.

What is the most likely diagnosis?

Your Answer

MELAS syndrome (mitochondrial encephalomyelopathy, lactic acidosis and stroke-like episodes)

Next

You are asked to review a 32-year-old woman on the labour ward.

She has just given birth to a healthy female child and was recovering on the ward when the midwives noticed a deterioration in her conscious level and a grand mal seizure which was self-terminating after about five minutes.

A few minutes before the seizure they said that she had increasing problems with nausea, vomiting and a severe frontal headache. Apparently there was a short period of hypotension associated with the delivery.

On examination she is drowsy with a GCS of 12, her BP is 145/91 mmHg. She has bilateral papilloedema and appears to have bilateral third nerve palsies.

Investigations show:

Haemoglobin	111 g/L	(115-165)
White cell count	5.2 $\times 10^9$/L	(4-11)
Platelets	180 $\times 10^9$/L	(150-400)
Sodium	138 mmol/L	(135-146)
Potassium	4.2 mmol/L	(3.5-5)
Creatinine	88 µmol/L	(79-118)

Which of the following is the most likely diagnosis?

(Please select 1 option)

- Cerebral venous thrombosis
- Embolic stroke
- Idiopathic epilepsy
- Migraine
- Subarachnoid haemorrhage

Answer Question

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- Embolic stroke
- Idiopathic epilepsy
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- ✓ Subarachnoid haemorrhage - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

This woman's symptoms, the onset of which has occurred a few hours after the birth of her child, are suggestive of cerebral venous thrombosis.

A number of conditions predispose to the condition, including:

- Pregnancy and use of the oral contraceptive pill
- Inherited coagulation disorders, and
- Collagen vascular disease.

Signs and symptoms may vary from headache, nausea and vomiting, to a progressive reduction in conscious level and eventual coma.

Magnetic resonance venography is extremely valuable in confirming the diagnosis.

Anti-coagulation is the treatment of choice.

Question

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Next

Question

A 29-year-old woman comes to the clinic because she is concerned that her left pupil is abnormally large. Her boyfriend noticed it and suggested she should see the doctor.

She has no past medical history of note, apart from an episode of shingles a few months earlier, and takes the oral contraceptive pill as her only medication. On further questioning she admits to unprotected sexual intercourse on two to three occasions over the past three to four years.

On examination her left pupil is clearly larger than the right. It hardly reacts to light at all, but does accommodate to near vision. You notice that re-dilatation is very slow however. Her BP is normal at 132/72 mmHg, and general physical examination is unremarkable.

How best can you confirm the diagnosis?

(Please select 1 option)

- Chest x ray
- Lumbar puncture
- MRI brain
- Reaction to weak miotic eye drops
- Syphilis serology

Answer Question

Explanation

This history is typical of an Adie's tonic pupil, which is characteristically seen in young women, and may occur after an episode of zoster infection.

At the beginning of the condition the pupil is large, but over time becomes small and poorly reactive. Slit lamp examination may reveal small worm like contractions of the iris, but the usual diagnostic test is to use weak pilocarpine eye drops, which induce vigorous pupil contraction on the affected side, but only weak contraction of the pupil on the unaffected side.

In adults it tends to be a benign condition and is simply observed, however infants are usually referred because of an association with familial dystonias.

The Argyll Robertson pupil has an absent light reflex, whereas in this case the light reflex is merely reduced.

Question

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How best can you confirm the diagnosis?

Your Answer

- Chest x ray
- Lumbar puncture
- MRI brain
- Reaction to weak miotic eye drops - This is the correct answer ✔

Next

Question

A 39-year-old man is referred by his optician with a central scotoma found in his right eye during a routine eye test.

On examination of his cranial nerves he is poorly compliant and keeps laughing. He says he is unable to smell anything and that he can no longer read as well as he would like. On fundoscopy his left fundus is hyperaemic and oedematous. You are unable to obtain clear views of his right fundus.

Which of the following is the most likely diagnosis?

(Please select 1 option)

- Drug abuse
- Foster Kennedy's syndrome
- Kallman's syndrome
- Leber's herditary optic neuropathy
- Leigh syndrome

Answer Question

Incorrect

Explanation

Foster Kennedy's syndrome is a combination of optic atrophy and central scotoma, contralateral papilloedema and anosmia. It is caused by optic and olfactory nerve compression and raised intracranial pressure. This is often secondary to a mass such as an olfactory groove meningioma.

Patients may also have other symptoms of raised intracranial pressure such as nausea and vomiting, and frontal symptoms such as emotional lability and memory loss.

Drug abuse is not the best answer; whilst drug abuse may account for his abnormal affect it would not cause the other symptoms.

Kallman's syndrome is incorrect as it is characterised by hypogonadism and anosmia.

Leber's herditary optic neuropathy is a mitochondrial disorder causing visual loss in young men but would not account for his other symptoms.

Leigh syndrome is a rare neurometabolic disorder affecting the central nervous system.

Question

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Next

Question

A 70-year-old woman presented with episodic impairment of consciousness.
Which of the following is the most likely cause?

(Please select 1 option)

- Alzheimer type dementia
- Chronic sub-dural haematoma
- Creutzfeldt-Jacob disease
- Depressive stupor
- Normal pressure hydrocephalus

Answer Question

Incorrect

Explanation

This is quite a grey question. The clinical scenario is very brief with no mention of any neurological signs so a logical deduction must be made.

Alzheimer's disease would be expected to have a continuous impairment of consciousness in its advanced stages but could be episodic if there were variation in drugs therapy or concurrent illnesses.

Similarly normal pressure hydrocephalus, Creutzfeldt-Jacob and depression would present with dementia (or apparent dementia) but not fluctuant.

Of all those listed, chronic subdural haematoma is the one which can be associated with fluctuating level of consciousness. This would make it the most likely answer in this scenario.

Question

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Next

Question

A 39-year-old woman is found to have absent ankle jerks and gait disturbance.
Which of the following investigations is not indicated?

(Please select 1 option)

- ANA
- B_{12}levels
- Cholestanol levels
- Ferritin
- VDRL

Answer Question

It is eminently treatable by the oral administration of chenodeoxycholic acid.
To clarify option 3, cholestanol is a derivative of cholesterol. In cerebrotendinous xanthomatosis there is a deficiency in sterol storage, and diagnosis is based on high serum (and tendon) cholesTANOL. Serum cholesterol may be normal or low.

Question

A 39-year-old woman is found to have absent ankle jerks and gait disturbance.
Which of the following investigations is not indicated?

Your Answer

- ANA
- B_{12}levels
- Cholestanol levels
- Ferritin - This is the correct answer ✔
- ✓ VDRL - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

Absent ankle jerks may occur in conditions associated with neuropathy (B_{12} deficiency, systemic lupus erythematosus [SLE], cerebrotendinous xanthomatosis) and dorsal root disease (tabes dorsalis).

Gait disturbance may occur for a variety of reasons:

- Sensory ataxia in B_{12} deficiency and tabes dorsalis
- Pyramidal signs in B_{12} deficiency and SLE
- Cerebellar ataxia in cerebrotendinous xanthomatosis.

Cerebrotendinous xanthomatosis is an inherited condition, associated with accumulation of cholesterol in tissues including brain, peripheral nerve and tendons which produces a clinical picture of:

- Early onset dementia
- Gait ataxia
- Loss of vibration sense
- Cataracts
- Large tendon xanthomata.

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Question

A 39-year-old woman is found to have absent ankle jerks and gait disturbance.
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Your Answer

Next

Question

A 25-year-old woman was recently diagnosed with rheumatoid arthritis.
She has developed weakness, double vision and tiredness.
Examination reveals bilateral weakness of eye abduction, bilateral ptosis, slightly reduced proximal motor power in the limbs, normal reflexes and sensation.
What is the diagnosis?

(Please select 1 option)

- Chronic progressive external ophthalmoplegia
- Guillain-Barré syndrome
- Multiple sclerosis
- Myasthenia gravis
- Polymyositis

Answer Question

Incorrect

Explanation

Myasthenia gravis is well known to be associated with other autoimmune diseases such as pernicious anaemia, thyroid disease and rheumatoid arthritis.
In Guillain-Barré syndrome you would expect absent reflexes.
Polymyositis does not usually cause ptosis or ophthalmoplegia.

Question

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- ✓ Polymyositis - Incorrect answer selected ✖

Next

Question

A 78-year-old woman presents with a six month history of episodes of giddiness and impaired consciousness. Neurological examination is normal.
What is the most likely cause?

(Please select 1 option)

- Alzheimer-type dementia
- Chronic subdural haematoma
- Creutzfeldt-Jakob disease
- Depressive stupor
- Normal pressure hydrocephalus

Answer Question

Incorrect

Explanation

Chronic subdural haematoma is a common manifestation of intermittent confusion or focal neurological deficit in the elderly population. It may mimic a stroke.

Alzheimer's dementia is usually associated with a slowly progressive cognitive impairment.

Normal pressure hydrocephalus presents with a triad of dementia, ataxia and urinary incontinence.

CJD usually presents with a rapidly progressive dementia associated with ataxia and myoclonus.

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Next

Question

An 84-year-old lady is admitted to a rehabilitation unit following a stroke.
On admission, a Barthel index is performed.
Which of the following best describes the limitations of using the Barthel index in rehabilitation?

(Please select 1 option)

- Floor and ceiling effects
- It correlates poorly with other prognostic scales
- It has poor concurrent and predictive validity
- It is not very sensitive
- It is laborious and takes a long time to perform

Answer Question

Incorrect

Explanation

The most widely recognised limitation of the Barthel index is floor and ceiling effects. It basically means that a disabled person can score a maximum score of 100 and still not be independent.

It is poor at differentiating disability in patients who function at a higher level. It also has floor effects as it may incorrectly score patients low who are initially bed bound following a stroke.

The Barthel index correlates well with other prognostic scales. It has very good concurrent and predictive validity. It is very sensitive and it only takes 10 minutes to perform.

Reference:

Gupta A. *Measurement scales used in Elderly care.* Oxford: Radcliffe Publishing; 2008.

Question

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Next

Question

A 69-year-old man is admitted with pain and numbness in his right foot following a right hip replacement.

In his past medical history he had been treated for lower backache by his GP.

On examination there was weakness of all movements at the right ankle, with absent right ankle jerk, and sensory impairment on the lateral aspect and sole of the foot.

Which is the most likely site of the lesion?

(Please select 1 option)

- Femoral nerve
- Lumbosacral plexus
- Obturator nerve
- Sciatic nerve
- S1 spinal root

Answer Question

Incorrect

Explanation

Sciatic nerve palsy is a known complication of a total hip replacement (femoral nerve palsy can occur but is much less common).

It causes global weakness of the ankle due to the involvement of both of its branches: tibial nerve (plantaflexion and inversion) and common peroneal nerve (dorsiflexion and eversion).

The right ankle jerk is absent due to tibial nerve involvement.

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Next

Question

A 75-year-old lady attends the Emergency department with amaurosis fugax on the left.
Carotid scanning shows stenosis of 80% on the right and 90% on the left.
What is the best course of action?

(Please select 1 option)

- Bilateral carotid endarterectomy
- Discharge and GP follow up
- Discharge and outpatient follow up
- Urgent carotid endarterectomy on the left
- Urgent carotid endarterectomy on the right

Answer Question

2. Chambers BR, et al. Carotid endarterectomy for asymptomatic carotid stenosis. *Cochrane Database Syst Rev.* 2000;(2):CD001923.
3. NICE. Stroke (CG68).

Question

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What is the best course of action?

Your Answer

- Bilateral carotid endarterectomy
- Discharge and GP follow up
- Discharge and outpatient follow up
- Urgent carotid endarterectomy on the left - This is the correct answer ✔
- ✓ Urgent carotid endarterectomy on the right - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

Carotid artery atherosclerosis is an important cause of amaurosis fugax. The left-sided neurological signs in this patient indicate the symptomatic carotid is on the left side.

Carotid endarterectomy has been established as an effective treatment for both symptomatic patients and asymptomatic patients who are shown to have carotid artery stenosis. It reduces the risk of disabling stroke or death by 48% in a person with severe symptomatic carotid stenosis (>70%) who has had a TIA. The peri-operative risk of disabling stroke or death is approximately 3%. Current UK guidelines recommend endarterectomy for symptomatic patients with greater than 70% stenosis, based on the North American Symptomatic Carotid Endarterectomy Trial which showed clear benefit. The endarterectomy should be performed as soon as the patient is fit for surgery, preferably within two weeks of a TIA.

The benefit is marginal for symptomatic patients with 50-69% stenosis, but may be greater in male patients. NICE recommends these patients are also considered for endarterectomy. There is significantly less benefit for asymptomatic patients, even those with greater than 60% stenosis. Patients with less than 50% stenosis should not be considered for carotid surgery

Recurrent stenosis can occur in 1-20% of patients following endarterectomy, and re-operation is needed in 1-3% of cases. Ipsilateral strokes occur in 9% of patients following endarterectomy, and 26% of those treated with medical management alone (within 2 years).

All patients with suspected non-disabling stroke or TIA who are considered as candidates for carotid endarterectomy should have carotid imaging within 1 week.

Carotid endarterectomy is also indicated following a non-disabling stroke. However, if the patient has had a disabling stroke there is no real benefit in them undergoing the procedure.

Carotid stenting is increasingly being used as an alternative to endarterectomy. This is a less invasive revascularisation strategy, and uses an embolic protection device. There seems to be a similar early risk of death or stroke, and similar long-term benefits. Risk is higher in elderly patients, possibly due to vascular tortuosity and calcification. The procedure is currently indicated in selected cases, such as restenosis.

* please note for this explanation we have used the North American Symptomatic Carotid Endarterecomy Trial (NASCET) criteria, as opposed to the European Carotid Surgery Trialists' Collaborative Group (ECST) criteria. See NICE guidelines for the difference - carotid imaging reports will state which criteria are being used.

Reference:

1. Brott TG, et al. Stenting versus Endarterectomy for Treatment of Carotid-Artery Stenosis. *N*

Next

Question

Which of the following anatomical considerations is correct?

(Please select 1 option)

- Midline cerebellar lesions cause marked horizontal nystagmus
- In cortical blindness pupillary reactions are abnormal
- Optic chiasm lesions characteristically produce a bitemporal hemianopia
- Optic tract lesions produce an ipsilateral homonymous hemianopia
- The physiological blind spot is unaffected by papilloedema

Answer Question

Incorrect

Explanation

The physiological blind spot is enlarged in papilloedema as Peripapillary photoreceptors are displaced.

In cortical blindness, pupillary reflexes, eye movements and fundoscopy are all normal.

Optic tract lesions produce an contralateral homonymous hemianopia.

Horizontal nystagmus occurs in unilateral disease of the cerebellar hemisphere, with the fast phase directed to the side of the lesion. Lateral cerebellar lesions classically cause pronounced nystagmus, whereas this is rarer and much more subtle with midline lesions.

Question

Which of the following anatomical considerations is correct?

Your Answer

- Midline cerebellar lesions cause marked horizontal nystagmus
- In cortical blindness pupillary reactions are abnormal
- Optic chiasm lesions characteristically produce a bitemporal hemianopia - This is the correct answer ✔
- Optic tract lesions produce an ipsilateral homonymous hemianopia
- ✓ The physiological blind spot is unaffected by papilloedema - Incorrect answer selected ✖

Next

Question

A 72-year-old man with a history of type 2 diabetes mellitus and multiple transient ischaemic attacks (TIAs) comes to the hospital complaining of visual field loss. He says this happened suddenly and he woke up with problems with his vision the morning before coming to the Emergency department.

Medication includes clopidogrel, ramipril, atorvastatin, and metformin.

On examination his BP is 165/100 mmHg, his pulse is 76 and regular. Visual field examination reveals a right homonymous upper quadrantanopia.

Where is the most likely site for the underlying lesion?

(Please select 1 option)

- Left occipital lobe
- Left temporal lobe
- Optic chiasm
- Right optic nerve
- Right temporal lobe

Answer Question

Incorrect

Explanation

Temporal lobe lesions result in a contralateral homonymous superior quadrantanopia. The most likely cause in this case is a thromboembolic event affecting the left temporal lobe, which is consistent with his history of multiple TIAs.

Occipital lobe lesions result in cortical blindness.

Lesions of the optic chiasm result in complex defects depending on which fibres are most affected, but the classical lesion described is bilateral homonymous hemianopia.

An optic nerve lesion results in ipsilateral blindness.

Reference & Further Reading:
http://patient.info/doctor/visual-field-defects

Question

A 72-year-old man with a history of type 2 diabetes mellitus and multiple transient ischaemic attacks (TIAs) comes to the hospital complaining of visual field loss. He says this happened suddenly and he woke up with problems with his vision the morning before coming to the Emergency department.

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Where is the most likely site for the underlying lesion?

Your Answer

- Left occipital lobe
- Left temporal lobe - This is the correct answer ✔
- Optic chiasm

Next

Question

A 21-year-old man recovered from the immediate effects of a head injury sustained in a motor cycle accident three months previously.

Which one of the following is the most likely delayed consequence of severe traumatic brain injury?

(Please select 1 option)

- Episodic hypersomnia
- Multiple obsessional symptoms
- Outbursts of aggressive behaviour
- Pathological jealousy
- Persistent anxiety

Answer Question

Explanation

The condition is post-concussion syndrome and although many of the symptoms given may be seen the commonest one (headache) has been left out.

The most common symptoms are headache and neck discomfort; changes in memory, concentration, and attention; dizziness; irritability, depression or anxiety; and sleep disturbance, among other symptoms.

There is:

- Disturbance of thought
- Poor concentration span and
- Subjects are easily distracted.

Anxiety would seem the most common and therefore the most likely answer.

Question

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Which one of the following is the most likely delayed consequence of severe traumatic brain injury?

Your Answer

- Episodic hypersomnia
- Multiple obsessional symptoms
- Outbursts of aggressive behaviour
- Pathological jealousy
- ✓ Persistent anxiety - Correct ✔

Next

Question

Depression is seen after damage to which part of the brain?

(Please select 1 option)

- Amygdala
- Left prefrontal cortex
- Left temporal lobe
- Right prefrontal cortex
- Right temporal lobe

Answer Question

Incorrect

Explanation

Major depression following traumatic brain injury has been associated with reduced gray matter volume in the lateral left prefrontal cortex.

Temporal lobe damage typically causes problems with memory and is the most epileptogenic lobe of the brain.

The amygdala is involved in emotional processing particularly fear. increased activation rather than damage to the amygdala is associated with depression, and army veterans who suffered damage to this area have in fact been shown to suffer less PTSD and depressive symptoms. Bilateral damage to the amygdala can result in Kluver-Bucy syndrome - hyperphagia, hypersexuality, hyperorality, and docility.

Question

Depression is seen after damage to which part of the brain?

Your Answer

- Amygdala
- Left prefrontal cortex - This is the correct answer ✔
- Left temporal lobe
- Right prefrontal cortex
- ✓ Right temporal lobe - Incorrect answer selected ✖

Next

Question

A 34-year-old male presents with back pain and weakness.
Which of the following would support a diagnosis of prolapsed intervertebral disc?

(Please select 1 option)

- Bilateral symmetrical nerve involvement
- Loss of sensation over the left outer upper thigh
- No evidence of nerve compression
- Pain which is unremitting in character
- Pain which is worse on resting

Answer Question

Incorrect

Explanation

Loss of sensation in the upper outer thigh is consistent with nerve root compression caused by a prolapsed vertebral disc.

'Disc prolapse' actually refers to herniation of the nucleus pulposus, which is usually contained by the annulus fibrosus. This usually occurs on one side, rather than bilaterally, and irritates or compresses the adjacent nerve root resulting in clinical symptoms. This is commonly secondary to disc degeneration, but can also be traumatic. It most often occurs in the lumbar spine, especially L5/S1 which results in sciatica.

Symptoms are unilateral leg pain in the distribution of the affected nerve (which is often more severe than the back pain), and numbness, paraesthesia, weakness and/or loss of tendon reflexes in the same distribution. Pain is typically better with rest (although prolonged sitting can worsen it) - if it is unremitting or worse on resting you should consider other causes such as bony metastases or infection.

The symptoms described here suggest either the L2 or L3 nerve root is affected.

Question

A 34-year-old male presents with back pain and weakness.

Which of the following would support a diagnosis of prolapsed intervertebral disc?

Your Answer

- Bilateral symmetrical nerve involvement
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Next

Question

Which statement is true regarding gabapentin?

(Please select 1 option)

- Is a potent hepatic enzyme inducer
- Is of particular value as monotherapy in absence attacks (petit mal)
- Requires dose adjustment in renal disease
- Side effects typically include visual field defects with long term use
- Therapy is best monitored through measuring plasma concentrations

Answer Question

Incorrect

Explanation

Gabapentin does not induce cytochrome P450 unlike other anticonvulsants such as phenytoin and phenobarbitone.

Vigabatrin may cause visual field defects, which may be irreversible. Rarely have visual disturbances been associated with gabapentin.

Gabapentin is no use in petit mal and is used for add-on therapy in partial or generalised seizures.

Question

Which statement is true regarding gabapentin?

Your Answer

- Is a potent hepatic enzyme inducer
- Is of particular value as monotherapy in absence attacks (petit mal)
- Requires dose adjustment in renal disease - This is the correct answer ✔
- Side effects typically include visual field defects with long term use
- ✓ Therapy is best monitored through measuring plasma concentrations - Incorrect answer selected ✖

Next

Question

A 59-year-old female pub landlady presents with acute, severe lumbar back pain.

There is no history of orthopaedic problems and until this event she had been in perfect health.

The patient complains of paraesthesia in the lower limbs and on further questioning has not voided urine since the onset of the pain.

Neurological examination reveals weakness (3/5 of both lower limbs) and loss of sensation to touch in L4, L5 and S1. Vibration sensation and joint position sensation is preserved. Reflexes in the ankles and knees are absent and the plantar response is equivocal.

The blood pressure is 158/68 mmHg, heart rate 95 bpm, temperature 36.9°C and ECG shows normal sinus rhythm with no ischaemic changes.

The remainder of the examination is normal.

Which of the following investigations will be most useful in securing a diagnosis?

(Please select 1 option)

- CT head
- Duplex scan of aorta
- MRI spinal cord
- Rectal examination
- USS abdomen

Answer Question

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Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

This patient has a number of features of cauda equina syndrome. There is distal weakness, with associated sensory loss. Whilst classically patients present with a sensory level, this is variable in clinical practice.

Causes of cauda equina syndrome include herniation of a lumbar disc (at L4/L5 and L5/S1), tumour (metastases, lymphoma, primary spinal tumours), trauma and infection (epidural abscess).

Clinical presentation is varied, but can include low back pain with unilateral or bilateral lower limb motor and/or sensory abnormality and bowel and/or bladder dysfunction with saddle and perineal anaesthesia.

MRI is the investigation of choice to confirm the diagnosis and determine the level of compression and underlying cause. Delayed diagnosis and intervention can lead to permanent neurological damage, and therefore MRI should be undertaken in a timely fashion.

Determining the presence of bowel dysfunction (with reduced anal tone and sensation) can be helpful prognostically, but does not assist with the differential diagnosis.

The pattern of weakness is not consistent with an intracranial cause, and USS abdomen or duplex scan of the aorta are unlikely to help here.

Question

A 59-year-old female pub landlady presents with acute, severe lumbar back pain.

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The remainder of the examination is normal.

Which of the following investigations will be most useful in securing a diagnosis?

Next

Question

A 24-year-old man presents with a headache that has been present for nine months. He has headache almost every day, mainly frontal, sometimes with nausea.

Current medication includes paracetamol, brufen and codeine with only transient relief of symptoms. He has a history of depression. Examination was normal.

What is the most likely diagnosis?

(Please select 1 option)

- Analgesic misuse headache
- Cluster headache
- Frontal brain tumour
- Headache due to depression
- Migraine

Answer Question

Incorrect

Explanation

This is one of the commonest causes of chronic daily headache (the commonest is chronic tension type headache).

It is commonly caused by the chronic use of analgesics such as codeine phosphate and paracetamol.

Treatment consists of reducing the amount of analgesics gradually until stopped.

Question

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- Cluster headache
- Frontal brain tumour
- Headache due to depression
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Next

Question

The incidence of Down's syndrome in children born to women aged less than 30 years is approximately which of the following?

(Please select 1 option)

- 1:500
- 1:1000
- 1:5000
- 1:10000
- 1:15000

Answer Question

Incorrect

Explanation

The incidence is roughly 1 in 1200 births for woman less than 30 and this incidence can rise to 1 in 60 by the age of 42.

Maternal age also affects the incidence of hydrocephalus, anencephaly and other chromosomal disorders.

Question

The incidence of Down's syndrome in children born to women aged less than 30 years is approximately which of the following?

Your Answer

- 1:500
- 1:1000 - This is the correct answer ✔
- 1:5000
- 1:10000
- ✓ 1:15000 - Incorrect answer selected ✖

Rate this question

Next

Question

Cerebral malaria is caused by which of the following?

(Please select 1 option)

- *Plasmodium falciparum*
- *Plasmodium knowlesi*
- *Plasmodium malariae*
- *Plasmodium vivax*
- *Plasmodium yoelii*

Answer Question

Incorrect

Explanation

Of the *Plasmodium* species, only *Plasmodium falciparum* invades the central nervous system, causing cerebral malaria.

The neuropathology of cerebral malaria consists of diffuse cerebral swelling, widespread small-ring haemorrhages located in the subcortical white matter of the cerebral hemispheres, and plugging of cerebral capillaries and venules by parasitised erythrocytes; pigmentation with haemozoin is quite typical.

Focal neurologic deficits are relatively uncommon in cerebral malaria and are usually caused by a cerebral infarct due to arterial thrombosis occurring during the acute phase of the disease.

Question

Cerebral malaria is caused by which of the following?

Your Answer

- *Plasmodium falciparum*- This is the correct answer ✔
- *Plasmodium knowlesi*
- *Plasmodium malariae*
- *Plasmodium vivax*
- ✓ *Plasmodium yoelii*- Incorrect answer selected ✖

Next

Question

Which area whose sensation is supplied by the median nerve will be spared if the nerve is compressed at the carpal tunnel?

(Please select 1 option)

- Skin over the hypothenar eminence
- Skin over the lateral three digits
- Skin over the medial two digits
- Skin over the thenar eminence
- Skin over the volar surface of the hand

Answer Question

Incorrect

Explanation

The palmar cutaneous branch of the median nerve lies superficial to the flexor retinaculum and does not pass through the carpal tunnel. It supplies the skin over the thenar eminence, which is therefore spared in carpal tunnel syndrome.

The hypothenar eminence is supplied by the ulnar nerve as are the volar surface and the medial two digits (the fourth and fifth digits, remember the dermatomal map has palms facing outwards).

The lateral three digits are supplied by the median nerve but are affected by carpal tunnel syndrome.

Question

Which area whose sensation is supplied by the median nerve will be spared if the nerve is compressed at the carpal tunnel?

Your Answer

- Skin over the hypothenar eminence
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- Skin over the medial two digits
- Skin over the thenar eminence - This is the correct answer ✔
- ✓ Skin over the volar surface of the hand - Incorrect answer selected ✖

Next

Question

For which of the following could a right carotid artery stenosis not account?

(Please select 1 option)

- Contralateral hemiplegia
- Contralateral hemisensory loss
- Drop attacks
- Dysphasia
- Right amaurosis fugax

Answer Question

Incorrect

Explanation

Causes of carotid artery disease include:

- Contralateral hemiplegia
- Hemisensory loss
- Homonymous hemianopia
- Dysphasia (right), and
- Hemineglect (left).

Drop attacks are due to vertebrobasilar insufficiency.

Question

For which of the following could a right carotid artery stenosis not account?

Your Answer

- Contralateral hemiplegia
- Contralateral hemisensory loss
- Drop attacks - This is the correct answer ✔
- Dysphasia
- ✓ Right amaurosis fugax - Incorrect answer selected ✖

Next

Question

A 56-year-old male with diabetes presents with a two day history of weakness of the left foot being aware of a feeling of dragging the toes along the floor when walking. He has been diabetic for two years and on previous annual review no abnormalities were noted.

On examination he is unable to dorsiflex his left foot together with eversion of the foot. The right foot is unaffected. Plantar flexion and inversion are normal.

Which sensory abnormality would you expect to find in association with this motor defect?

(Please select 1 option)

- No associated sensory loss
- Sensory loss over the big toe
- Sensory loss over the entire foot to the ankle.
- Sensory loss over the lateral part of the leg and dorsum of the foot
- Sensory loss over the plantar aspect of the foot

Answer Question

Explanation

This male with diabetes appears to have developed a mononeuropathy with the features compatible with a common peroneal nerve neuropathy. This would result in a loss of sensation over the dorsum of the foot and lateral part of the leg with sparing of the fifth toe.

Although you could argue that a peripheral neuropathy might be expected in this diabetic, the question specifically asks what defect would you expect to find with this neuropathy.

Also previously normal findings would argue against a sudden peripheral neuropathy.

Further Reading:

Medscape. Peroneal Mononeuropathy.

Question

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- ✓ Sensory loss over the plantar aspect of the foot - Incorrect answer selected ✖

Next

Question

A 75-year-old male is diagnosed with a Lewy body dementia.
Which of the following drugs would be contraindicated for this patient?

(Please select 1 option)

- Chlormethiazole
- Donepezil
- Haloperidol
- L-Dopa
- Selegiline

Answer Question

Incorrect

Explanation

Diffuse Lewy body disease is the third commonest cause of dementia (after Alzheimer's disease and vascular dementia). It presents with cognitive Impairment, visual hallucinations, and parkinsonism.

A common manifestation of the disease is severe neuroleptic treatment intolerance, which can be fatal.

Question

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Your Answer

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- Donepezil
- Haloperidol - This is the correct answer ✔
- L-Dopa
- ✓ Selegiline - Incorrect answer selected ✖

Next

Question

A 75-year-old man presents with 12 months history of cognitive impairment, parkinsonism, intermittent confusion and generalised myoclonus.

He was started on 62.5 three times daily of Sinemet. In the following two months he has started experiencing visual hallucinations.

What is the most likely diagnosis?

(Please select 1 option)

- Alzheimer's disease
- Diffuse Lewy body disease
- Multiple system atrophy
- Idiopathic Parkinson's disease
- Progressive supranuclear palsy

Answer Question

Explanation

Diffuse Lewy body disease presents with:

- Cognitive impairment
- Visual hallucinations
- Intermittent confusion
- Parkinsonism
- Myoclonus, and
- Marked sensitivity to neuroleptic treatment.

Visual hallucinations in Parkinson's disease treated with L-dopa usually appear late (more than two years after initiation of treatment).

Visual hallucinations are not features of multiple system atrophy or progressive supranuclear palsy.

Question

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What is the most likely diagnosis?

Your Answer

- Alzheimer's disease
- Diffuse Lewy body disease - This is the correct answer ✔
- Multiple system atrophy

Next

Question

A 68-year-old man presents with progressive visual impairment. On examination there is an incongruous homonymous hemianopia.

What is the most likely anatomical site of the neurological lesion?

(Please select 1 option)

- Chiasma
- Occipital lobe
- Optic nerve
- Optic radiation
- Optic tract

Answer Question

Explanation

Causes of visual field defects:

- A central scotoma - ipsilateral lesion due to optic nerve damage (e.g. optic neuritis)
- A bitemporal hemianopia - an optic chiasm lesion
- An incongruous homonymous hemianopia - an optic tract lesion prior to the geniculate body
- A homonymous superior quadrantanopia - a temporal lobe lesion
- A homonymous inferior quadrantanopia - a parietal lobe lesion
- A homonymous hemianopia - posterior occipital lobe lesion

Further Reading:

Success in MRCOphth. Incongrous homonymous hemianopia

Question

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What is the most likely anatomical site of the neurological lesion?

Your Answer

- Chiasma
- Occipital lobe
- Optic nerve
- Optic radiation
- ✓ Optic tract - Correct ✔

Next

Question

A 77-year-old male presents with sudden loss of vision in his right eye, associated with a relative afferent pupillary defect.
He has poorly controlled systemic hypertension and raised cholesterol.
What is the most likely aetiology of his presentation?

(Please select 1 option)

- Cataract
- Chronic open angle glaucoma
- Macular degeneration
- Retinal vascular occlusion
- Retinitis pigmentosa

Answer Question

Incorrect

Explanation

The history of acute loss of vision affecting one eye suggests an acute vascular occlusion, especially given the associated vascular risks.
The others cause a more chronic visual loss.

Question

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He has poorly controlled systemic hypertension and raised cholesterol.
What is the most likely aetiology of his presentation?

Your Answer

- Cataract
- Chronic open angle glaucoma
- Macular degeneration
- Retinal vascular occlusion - This is the correct answer ✔
- ✓ Retinitis pigmentosa - Incorrect answer selected ✖

Next

Question

A 29-year-old female presents with drooping of the left side of her face and an inability to close her left eye. She had a viral illness in the preceding week. There is no past medical history.

On examination, there is a left VIIth nerve palsy. The remaining cranial nerves are normal. Power, tone and reflexes are normal in the limbs.

What is the best course of treatment?

(Please select 1 option)

- Intravenous immunoglobulin
- No treatment
- Oral Augmentin
- Oral prednisolone
- Oral valaciclovir and prednisolone

Answer Question

Explanation

This is the classical history of a post-viral Bell's palsy.

There is some evidence to support a short course of steroids in the acute stages of the illness[1]. This study suggests improved recovery of facial function with early treatment. No benefit was seen in aciclovir added to prednisolone in this study.

Oral valaciclovir has been evaluated with an RCT but consensus supports steroids (with some clinicians continuing to support the concomitant use of aciclovir).

You need to be confident that there are no features of Guillain-Barré (test reflexes), or brain stem vascular disease or space occupying lesion. The neurological examination of the cranial nerves thus needs to be completed with care.

Reference:

1. Sullivan FM, Swan IR, Donnan PT, et al. Early treatment with prednisolone or aciclovir in Bell's palsy. *N Engl J Med.* 2007;357:1598-607.

Question

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- Intravenous immunoglobulin
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Next

Question

Causes of dilated pupils include which of the following?

(Please select 1 option)

- Argyll Robertson pupil
- Ethylene glycol poisoning
- Myotonic dystrophy
- Organophosphate poisoning
- Pontine haemorrhage

Answer Question

Incorrect

Explanation

Causes of dilated pupils include:

- Holmes-Adie (myotonic) pupil
- Third nerve palsy, and
- Drugs and poisons (atropine, CO, ethylene glycol).

Causes of small pupils include:

- Horner's syndrome
- Old age
- Pontine haemorrhage
- Argyll Robertson pupil, and
- Drugs and poisons (opiates, organophosphates).

Question

Causes of dilated pupils include which of the following?

Your Answer

- Argyll Robertson pupil
- Ethylene glycol poisoning - This is the correct answer ✔
- Myotonic dystrophy
- Organophosphate poisoning

Next

Question

A 55-year-old female presents with tremor of the hands which has been present for approximately five years.
She has a past medical history which includes anxiety and she receives salbutamol for asthma.
Examination revealed titubation and an upper limb postural tremor.
What is the most likely diagnosis?

(Please select 1 option)

- Anxiety disorder
- Benign essential tremor
- Multiple sclerosis
- Parkinson's disease
- Salbutamol induced tremor

Answer Question

Incorrect

Explanation

Anxiety and drugs (for example, salbutamol, sodium valproate, theophylline, amiodarone) are commonly associated with tremor of the limbs.

However, head tremor (titubation) is unusual. Essential tremor is the commonest cause of head tremor, and can be reduced with propranolol.

Parkinson's disease is associated with rest tremor but not titubation.

Multiple sclerosis is associated with titubation and intention tremor.

Question

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Next

Question

Which of the following statements regarding CADASIL (cerebral autosomal dominant arteriopathy with subcortical infarcts and leukoencephalopathy) is correct?

(Please select 1 option)

- Computerised tomography (CT) of the brain is diagnostic
- Death usually occurs in infancy
- It is associated with an abnormality of the X chromosome
- It may present with migraine
- The thalami are usually spared

Answer Question

Explanation

CADASIL is a diffuse disease of small arteries, predominantly in the brain.
It starts during mid adulthood and is characterised by:

- recurrent ischaemic events (transient or permanent)
- attacks of migraine with aura
- severe mood disorders
- sub-cortical dementia, and
- a wide spread leukoencephalopathy on magnetic resonance imaging (MRI).

CT brain is not diagnostic. Characteristic MRI changes include T2 weighted hyperintensity of the periventricular white matter.
A family history is almost always present, as it is an autosomal dominant condition, located to chromosome 19.
Infarcts are subcortical, and the thalami and basal ganglia are usually involved.

Question

Which of the following statements regarding CADASIL (cerebral autosomal dominant arteriopathy with subcortical infarcts and leukoencephalopathy) is correct?

Your Answer

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- Death usually occurs in infancy
- It is associated with an abnormality of the X chromosome
- It may present with migraine - This is the correct answer ✔
- ✓ The thalami are usually spared - Incorrect answer selected ✖

Next

Question

Frontal lobe brain damage is associated with which of the following?

(Please select 1 option)

- Astereognosis
- Auditory agnosia
- Dressing apraxia
- Focal epileptic fits
- Perseveration

Answer Question

Correct

Explanation

Frontal lobe brain damage is classically associated with personality change and deterioration in intellect, but perseveration may also occur.

The lesion for astereognosis and acalculia would be in the parietal lobe and dressing apraxia in the non-dominant parietal lobe.

Focal epileptic fits and auditory agnosia are characteristically associated with temporal lobe damage.

Apraxia may result from lesions in the temporoparietal cortex, dominant frontal cortex and corpus callosum.

Question

Frontal lobe brain damage is associated with which of the following?

Your Answer

- Astereognosis
- Auditory agnosia
- Dressing apraxia
- Focal epileptic fits
- ✓ Perseveration - Correct ✔

Next

Question

A 22-year-old woman presents with a left sided postural tremor, a shuffling gait, dysarthric speech, ataxia and difficulty swallowing. She reports a family history of liver problems and tremor.

Which is the most appropriate test to make a diagnosis?

(Please select 1 option)

- Serum caeruloplasmin
- CT head scan
- Urine copper
- Genetic testing
- Serum copper

Answer Question

normal length of life, however without treatment Wilson's disease is usually fatal by the age of 40 years.

None of the other tests listed are as diagnostic as caeruloplasmin for Wilson's disease.

Question

A 22-year-old woman presents with a left sided postural tremor, a shuffling gait, dysarthric speech, ataxia and difficulty swallowing. She reports a family history of liver problems and tremor.

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Your Answer

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- CT head scan
- Urine copper
- Genetic testing
- ✓ Serum copper - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

The features described above should make you suspicious of Wilson's disease, an autosomal recessive disease linked to the q14-21 region on chromosome 13. Mutations within the ATP7B gene result in disruption of an ATPase within hepatocytes which is responsible for the movement of copper across intracellular membranes. This results in hepatic retention of copper, and low serum levels.

A high index of suspicion is required to make the diagnosis of Wilson's disease. The age of onset can be between 6-20 years - in children it usually presents with liver dysfunction, whereas in young adults neuropsychiatric features typically dominate.

The most common early neurological sign is an asymmetrical tremor, which can be resting, postural or kinetic. Other symptoms are dysarthria, excess salivations, ataxia and personality change. There can also be choreiform movements and pseudobulbar palsy. Kayser-Fleischer rings (a greenish gold or brown ring on the cornea) is present in up to 90% of symptomatic patients, but is not pathognomonic,

There is no single test diagnostic of Wilson's disease. However, low serum caeruloplasmin (<0.1 g/L) is highly suggestive of the diagnosis in the presence of characteristic clinical features. Elevated urinary excretion of copper and increased hepatic parenchymal copper concentration are supportive. Liver biopsy classically shows steatosis, glycogenated nuclei, focal hepatocellular necrosis, fibrosis and cirrhosis. MRI of the brain commonly shows increased density in the basal ganglia.

Once a diagnosis of Wilson's disease is made, screening of first degree relatives (with genetic testing) should be done.

Treatment of Wilson's disease aims to reduce body copper levels, and prevent it re-accumulating. Hepatotoxic drugs, alcohol and foods high in copper (liver, chocolate, shellfish etc.) should be avoided. Penicillamine is used to chelate copper, and excrete it in the urine. Adverse effects, such as skin disorders and bone marrow suppression, mean that one third of patients have to switch to totreintine or zinc. Life-long monitoring of biochemical and clinical features can help guide treatment. Liver transplant is usually reserved for patients with fulminant hepatic failure or those unresponsive to standard treatment. Early treatment allows a normal length of life, however without treatment Wilson's disease is usually fatal by the age of 40 years.

None of the other tests listed are as diagnostic as caeruloplasmin for Wilson's disease.

Question

Next

Question

A 72-year-old male presents with weakness and reduced mobility.
On examination he has a slow gait with reduced arm swing and a tremor is noticed in the left arm.
Which of the following is the typical frequency of the rest tremor in Parkinson's disease?

(Please select 1 option)

- 2 Hz
- 4 Hz
- 8 Hz
- 10 Hz
- 12 Hz

Answer Question

Incorrect

Explanation

The tremor of Parkinson's disease is a rest tremor with low to moderate frequency 3 to 6 HZ.
Initially the tremor is usually one-sided. As the disease progresses the tremor becomes bilateral and increases in severity.
Although the classical tremor of Parkinson's disease is a rest tremor, over time an action tremor may develop. Furthermore it may increase in severity with levodopa.

Question

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- 8 Hz
- 10 Hz
- 12 Hz - Incorrect answer selected ✖

Next

Question

Against which of the following is the specific antibody found in neuromyelitis optica?

(Please select 1 option)

- Aquaporin 4
- Glial fibrillary acidic protein
- Myelin basic protein
- Oligoclonal bands
- Transthyretin

Answer Question

Incorrect

Explanation

Neuromyelitis optica is a demyelinating disease involving the optic nerves and spinal cord but sparing the brain. The specific test for this is the NMO antibody which is against aquaporin 4.
Myelin basic protein is elevated in demyelinating disease and is non-specific.
Oligoclonal bands are elevated in inflammatory responses and again are non-specific.
Glial fibrillary acidic protein is used to stain glial cells in immunohistochemistry.
Transthyretin mutations are seen in amyloidosis.

Question

Against which of the following is the specific antibody found in neuromyelitis optica?

Your Answer

- Aquaporin 4 - This is the correct answer ✔
- Glial fibrillary acidic protein
- Myelin basic protein
- Oligoclonal bands
- ✓ Transthyretin - Incorrect answer selected ✖

Next

Question

A 21-year-old female presented with a sudden onset of left sided head and neck pain.
Twenty four hours later she presents with sudden onset of right hemiparesis, facial weakness and homonymous hemianopia and left Horner's syndrome.
A CT brain showed a left middle cerebral artery territory infarction.
Which of the following is the most likely diagnosis?

(Please select 1 option)

- Antiphospholipid syndrome
- Cardiac embolism
- Left carotid artery dissection
- Migraine
- Systemic vasculitis

Answer Question

If the diagnosis were systemic vasculitis you would expect to be told of signs elsewhere.

Question

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- Left carotid artery dissection - This is the correct answer ✔
- Migraine
- ✓ Systemic vasculitis - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

The two commonest causes of young onset stroke (less than 40 years) are cardioembolism and carotid artery dissection.

Seventy-five percent of carotid dissections affect the internal carotid artery (that is, extracranially), and may be related to neck trauma or manipulation, although the cause is often difficult to identify.

The classic triad of symptoms of carotid dissection are

- unilateral (ipsilateral) headache
- ipsilateral Horner's syndrome and
- contralateral hemisphere signs (aphasia, neglect, visual disturbance, hemiparesis).

The Horner's syndrome is caused by compression of the ascending sympathetic supply within the carotid sheath, and results in ptosis and miosis. Anhydrosis is classically not present as the sympathetic supply to the sweat glands is along the external carotid plexus and is therefore spared.

Management is aimed at preventing cerebral infarction, and is similar to that of acute stroke. Stenting can be used if there is ongoing ischaemia.

Migrainous stroke usually affects the posterior circulation (posterior cerebral artery territory is the commonest).

A thrombotic event resulting from cardioembolism or antiphospholipid syndrome would usually only affect intracranial vessels and therefore a Horner's syndrome would be unusual.

If the diagnosis were systemic vasculitis you would expect to be told of signs elsewhere.

Question

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Twenty four hours later she presents with sudden onset of right hemiparesis, facial weakness and homonymous hemianopia and left Horner's syndrome.

A CT brain showed a left middle cerebral artery territory infarction.

Which of the following is the most likely diagnosis?

Next

Question

A 90-year-old lady attends the Emergency department with a dense stroke affecting her left arm and leg.

She is hemiplegic and confused. A CT scan confirms that there is a right CVA. Carotid scanning shows stenosis of 75% on the right and 90% on the left.

What is the best course of action?

(Please select 1 option)

- Admit but no surgical intervention
- Bilateral carotid endarterectomy
- Discharge and GP follow up
- Urgent carotid endarterectomy on the left
- Urgent carotid endarterectomy on the right

Answer Question

Incorrect

Explanation

This patient has a symptomatic carotid stenosis on the right that would be appropriate for surgery if this were a TIA or resolving stroke.

Unfortunately, with dense strokes, if there is no recovery, the benefits are greatly reduced due to end-organ damage.

Revascularisation would have the risk of reperfusion haemorrhage.

The benefit of endarterectomy is prevention of future stroke.

Question

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What is the best course of action?

Your Answer

- Admit but no surgical intervention - This is the correct answer ✔
- Bilateral carotid endarterectomy
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- Urgent carotid endarterectomy on the left
- ✓ Urgent carotid endarterectomy on the right - Incorrect answer selected ✖

Next

Question

A 63-year-old male is admitted with acute onset unsteadiness of gait, dizziness and dysphagia. Examination revealed a right-sided Horner's syndrome, nystagmus, loss of pain and temperature sensation on the left side of the trunk and in the left arm and leg, and gait ataxia. What is the most likely diagnosis?

(Please select 1 option)

- Leaking posterior communicating artery aneurysm
- Left sided acoustic neuroma
- Posterior inferior cerebellar artery occlusion
- Right sided pontine infarct
- Spontaneous left sided cerebellar haemorrhage

Answer Question

Incorrect

Explanation

This is Wallenberg's syndrome/lateral medullary syndrome and is due to occlusion of the posterior inferior cerebellar artery.

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Next

Question

A 40-year-old man has been in a road traffic accident. His Glasgow coma scale (GCS) is 8. Which of the following could describe his condition?

(Please select 1 option)

- A man lying still, eyes open and quiet. On questioning he appears confused. He is able to raise his eyebrows on command but cannot move his arms or legs at all. An MRI has shown damage to his spinal cord at C3.
- A man lying still, eyes shut and groaning. Not responding to voice. On firm nail bed pressure he opens his eyes and withdraws his hand.
- A man lying still, eyes shut, not making any noise. On command he opens his eyes and raises his hands but still makes no sound.
- A man writhing around, eyes open and calling out obscenities. He smells strongly of alcohol. He variably obeys verbal commands.
- A man writhing around, eyes open and screaming. Not responding to voice or following commands. On firm nail bed pressure he pushes your hand away.

Answer Question

The fifth option is incorrect. GCS would be E = 4, V = 2, M = 5.

Question

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- ✓ A man writhing around, eyes open and screaming. Not responding to voice or following commands. On firm nail bed pressure he pushes your hand away. -
  Incorrect answer selected ✖

Rate this question

Next

Explanation

The Glasgow coma scale (GCS) can be useful as a predictor of outcome and a way to measure and monitor patients with reduced consciousness.

It is made up of three components: eye opening, best verbal response and best motor response. Each of these is scored, as shown below.

Eye opening:

Spontaneously	4
To speech	3
To painful stimulus	2
No response	1

Best verbal response:

Orientated	5
Disorientated	4
Inappropriate words	3
Incomprehensible sounds	2
No response	1

Best motor response:

Obeys verbal commands	6
Localises painful stimuli	5
Withdrawal to pain	4
Flexion to pain	3
Extension to pain	2
No response	1

The GCS defines coma as E = 2, V = 2, M = 4 or less.

The GCS is meaningless unless it is broken down into its components.

It is important to note that the GCS is unreliable and should not be applied to patients who are

Next

Best motor response:

Obeys verbal commands	6
Localises painful stimuli	5
Withdrawal to pain	4
Flexion to pain	3
Extension to pain	2
No response	1

The GCS defines coma as E = 2, V = 2, M = 4 or less.

The GCS is meaningless unless it is broken down into its components.

It is important to note that the GCS is unreliable and should not be applied to patients who are inebriated, intubated or who have a therapeutic or traumatic paralysis.

The first option is not the correct answer. This man may well have a high C-spine lesion so the GCS score is slightly trickier to work out. He would score 4 for eyes and 4 for verbalisation. He would score 6 for motor as he is able to raise his eyebrows on command - he is unable to move his limbs due to paralysis rather than depressed consciousness.

The second option is the correct answer. GCS would be E = 2, V = 2, M = 4.

The third option is not the correct answer since the GCS is E = 3, V = 1, M = 6.

The fourth option is incorrect. This man sounds as though he may be drunk making the GCS unreliable. From the description, taking his best verbal and motor skills his GCS is E = 4, V = 4-5 (depending on the context and content of the obscenities), M = 6.

The fifth option is incorrect. GCS would be E = 4, V = 2, M = 5.

Question

A 40-year-old man has been in a road traffic accident. His Glasgow coma scale (GCS) is 8. Which of the following could describe his condition?

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Next

Question

A 70-year-old man presents with difficulty speaking.

He has a history of diabetes, hypertension, hypercholesterolaemia, chronic obstructive pulmonary disease. He is currently on aspirin, simvastatin, amlodipine and hydrochlorothiazide. On examination the patient is awake, his blood pressure is 150/70 mmHg. His pulse is irregularly irregular.

He has 4/5 strength in the right arm and leg and 5/5 strength on the left. When asked to point to the window he does this correctly. When told to raise his arms and place his hands out he is seen to have a pronator drift on the right. He is shown a pen and asked what it is. He responds fluently but makes some paraphasic errors. He is asked to use it appropriately and begins to write on a piece of paper. When asked to repeat 'Today is a sunny day', he is unable to do so.

Which of the following terms best describes these signs?

(Please select 1 option)

- Anomic aphasia
- Broca's aphasia
- Conduction aphasia
- Transcortical motor aphasia
- Transcortical sensory aphasia

Answer Question

He has a history of diabetes, hypertension, hypercholesterolaemia, chronic obstructive pulmonary disease. He is currently on aspirin, simvastatin, amlodipine and hydrochlorothiazide. On examination the patient is awake, his blood pressure is 150/70 mmHg. His pulse is irregularly irregular.

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Your Answer

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- Broca's aphasia
- Conduction aphasia - This is the correct answer ✔
- Transcortical motor aphasia
- Transcortical sensory aphasia - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

In Broca's or non-fluent or expressive aphasia the patient is unable to name objects with poor comprehension and repetition. It localises to the Broca's area in the left posterior inferior frontal gyrus.

In transcortical motor aphasia, which localises to the anterior superior frontal lobe, the patient is has good comprehension and repetition but has halting, effortful speech. Patients also have impaired writing skills.

Transcortical sensory aphasia is characterised by impaired auditory comprehension with intact repetition and fluent speech, and is caused by damage to the temporal lobes. It differs from Wernicke's aphasia in that patients still have intact repetition, and exhibit cholalia (the compulsive repetition of words). Improvement may be seen with speech therapy.

Anomic aphasia (also known as nominal aphasia) results in word finding difficulties. On closer examination there may also be repetition problems and comprehension problems but these are typically mild compared to other aphasia syndromes.

This scenario describes conduction aphasia. It is characterised by frequent speech errors, impaired repetition, reduced phonological short-term memory and naming difficulties. In contrast to other forms of dysphasia, speech output is otherwise fluent and grammatically correct. Comprehension is intact. It is thought to be caused by left temporo-parietal region damage.

Reference:

1. Boatman D, et al. Transcortical sensory aphasia: revisited and revised. *Brain.* 2000;123:1634-42.
2. Buchsbaum BR, et al. Conduction aphasia, sensory-motor integration, and phonological short-term memory - an aggregate analysis of lesion and fMRI data. *Brain Lang.* 2011;119:119-28.

Question

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Next

Question

A 65-year-old male presented to the ER with sudden onset difficulty in speaking. There was no weakness of arms or legs. He was conscious and could follow commands. The man complained of difficulty also in swallowing and chewing. There was no diplopia or vertigo.

On examination, the tongue was deviated to the right but there was no fasciculation. Deep tendon jerks were normal and plantar response was bilateral flexor. Although he could not open his mouth on command, his son noticed that he was opening his mouth for yawning.

What is the most likely diagnosis in this case?

(Please select 1 option)

- Bulbar palsy
- Frontal lobe syndrome
- Gerstmann syndrome
- Opercular syndrome
- Psychogenic mutism

Answer Question

This man has presented with symptoms and signs limited to bulbar and masticatory muscles, especially for voluntary actions. Involuntary movement of these muscles, like yawning, was preserved. Also, there are no long tract signs like extensor plantar or increased DTR. This is known as opercular syndrome.

This is not bulbar palsy as involuntary movements are preserved, like yawning. In bulbar palsy, all movements will be lost. Also, chewing movements (Vth nerve) and facial movements (VIIth nerve) will not be affected in bulbar palsy.

The frontal lobe syndrome comprises a group of disorders. The clinical features vary widely, but some common features include abulia, personality changes, memory disorders and apathy.

In Gerstmann syndrome, there is mainly higher cortical dysfunction like finger anomia, right-left confusion and acalculia. It does not have such prominent bulbar motor signs.

Psychogenic syndromes can sometimes mimic organic disorders. But usually, psychogenic syndromes defy any known neurological pattern. Also, organic syndromes must be ruled out first before labelling a case as psychogenic.

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Next

Question

Which of the following would be the result of a spinal lesion at the level of C8?

(Please select 1 option)

- A reduced brachioradialis reflex
- Inability to abduct the shoulder
- Loss of sensation over the lateral aspect of the arm
- Weakness of finger flexion
- Winging of the scapula

Answer Question

Incorrect

Explanation

Weakness of finger flexion would be the result of a spinal lesion at the level of C8.
Brachioradialis is the "supinator" reflex and it is mediated by C5/6.
Deltoid is supplied by C5/6.
Loss of sensation would occur over the medial aspect of the arm; forearm and hand are affected. Lateral aspect of arm is C5.
Winging of the scapula is caused by paralysis of the long thoracic nerve to serratus anterior (C5, 6, 7).

Question

Which of the following would be the result of a spinal lesion at the level of C8?

Your Answer

- A reduced brachioradialis reflex
- Inability to abduct the shoulder
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- Weakness of finger flexion - This is the correct answer ✔
- ✓ Winging of the scapula - Incorrect answer selected ✖

Next

Question

A 15-year-old boy comes to the dermatology clinic as his parents are concerned about some changes they have noticed in his skin. He is from a travelling community, and as such his parents have previously shunned medical services.

On examination you notice that he has a number of facial and periungual fibromata. He also has a number of hypomelanotic areas (at least four) on examination of his skin. You also notice gingival fibromata and pitting of his tooth enamel on examination of his mouth.

On which chromosome is the abnormality associated with this disease likely to be found?

(Please select 1 option)

- Chromosome 2
- Chromosome 6
- Chromosome 9
- Chromosome 11
- Chromosome 12

Answer Question

Incorrect

Explanation

This boy has tuberous sclerosis, which is inherited in autosomal dominant fashion, with responsible defects having been identified on both chromosome 9 and chromosome 16. These chromosomes carry codes for hamartin and tuberin, protein gene products which are responsible for regulation of cell growth.

Most of the tumours which are produced in tuberous sclerosis are hamartomas, and various phenotypes of the disease occur, with some parents of patients having much more subtle features than those seen in their children.

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- Chromosome 12 - Incorrect answer selected ✘

Next

Question

A 72-year-old male presented with a homonymous quadrantanopia.
Which of the following conditions is most likely to cause such a presentation?

(Please select 1 option)

- A lesion of the occipital cortex
- A lesion of the optic chiasma
- Bilateral diabetic retinopathy
- Chloroquine poisoning
- Tobacco amblyopia

Answer Question

Incorrect

Explanation

Unilateral occipital lobe lesions (left or right) cause contralateral hemianopsia or quadrantanopsia, visual agnosia, visual illusions and elementary visual hallucinations.

Left occipital lobe lesions cause these symptoms and alexia and colour agnosia.

Right occipital lobe lesions cause impaired visual orientation and topographical memory in addition.

Bioccipital lesions are rare, but cause cortical blindness, altitudinal hemianopsia, impaired colour perception, Anton syndrome and prosopagnosia.

A lesion of the optic chiasm would cause a bitemporal hemianopia.

Diabetic retinopathy can rarely cause an 'apparent quadrantic hemianopia' because the distribution of the retinal changes may just correspond to quadrantic hemianopia - but this is not the most likely.

Tobacco amblyopia causes symmetric central or centrocaecal scotomas.

Chloroquine poisoning causes symmetric bilateral scotomas.

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Next

Question

A 30-year-old female presents with weight gain, some hair loss and a tremor six months after commencing single drug treatment.
Which one of the following drugs is most likely to be responsible for her symptoms?

(Please select 1 option)

- Carbamazepine
- Lamotrigine
- Phenytoin
- Sodium valproate
- Topiramate

Answer Question

- Hirsutism
- Gingival hypertrophy
- Hypocalcaemia.

Question

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- Sodium valproate - This is the correct answer ✔
- ✓ Topiramate - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

Sodium valproate is associated with:

- Weight gain
- Tremor
- Hair loss
- Teratogenicity
- Polycystic ovary disease.

Lamotrigine is associated with skin rash (and Stevens-Johnson syndrome in severe cases).
Topiramate is associated with:

- Renal stones
- Weight loss
- Cognitive impairment
- Tingling in extremities.

Phenytoin is associated with:

- Peripheral neuropathy
- Cerebellum syndrome
- Acne
- Hirsutism
- Gingival hypertrophy
- Hypocalcaemia.

Question

A 30-year-old female presents with weight gain, some hair loss and a tremor six months

Next

Question

A 47-year-old man is admitted to the Emergency department after collapsing following a cricket match in his village. He was apparently hit on the head with the ball whilst batting, but got up afterwards.

During the following 30 minutes he became increasingly confused, drowsy and then unresponsive, slumped in a chair. On examination his BP is elevated at 180/110 mmHg, with a pulse of 58. His GCS is 6. He is intubated and ventilated.

Which of the following is the most appropriate treatment?

(Please select 1 option)

- IV acetazolamide
- IV alteplase
- IV furosemide
- IV heparin
- IV mannitol

Answer Question

Correct

Explanation

The history is classical for an extradural haemorrhage, and the clinical picture is consistent with raised intracranial pressure.

As such the initial treatment of choice is IV mannitol; it leads to reduced intracranial pressure and improves cerebral blood flow.

Hyperventilation is also considered to further reduce intracranial pressure whilst awaiting neurosurgical intervention.

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- IV heparin
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Next

Question

A 45-year-old man has a history of progressive weakness for five weeks. He had particular difficulty getting out of the bath.

On examination there was severe truncal and proximal limb weakness, without wasting or fasciculation.

Tendon reflexes, plantar responses and sensation were all normal.

The vital capacity was 1.8L.

What is the most likely diagnosis?

(Please select 1 option)

- Cervical myelitis
- Guillain-Barre syndrome
- Polio
- Polymyositis
- Syringobulbia

Answer Question

Incorrect

Explanation

The presentation of myopathy is characterised by proximal weakness with normal reflexes and sensation and the absence of fasciculations.

Polymyositis is the commonest cause of inflammatory muscle disease in people under 50-years-old (inclusion body myositis is the commonest in those over 50-years-old).

Question

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- Guillain-Barre syndrome
- Polio
- Polymyositis - This is the correct answer ✔
- ✓ Syringobulbia - Incorrect answer selected ✖

Next

A 72-year-old man is brought to the Emergency department by his wife. He became agitated and confused whilst out shopping. He is really very upset and complains that he has no recollection about what has happened that day and has no idea at all how he suddenly got to the supermarket with his wife.

He has a history of hypertension for which he takes ramipril, and he takes aspirin 75 mg on the advice of his doctor, but has no other significant past medical history.

On examination is BP is well controlled at 135/75 mmHg, his pulse is 70 and regular. Neurological examination is normal and he behaves appropriately when asked to perform set tasks.

Investigations show:

Haemoglobin	135 g/L	(135-180)
White cell count	7.0 $\times 10^9$/L	(4-11)
Platelets	190 $\times 10^9$/L	(150-400)
Sodium	139 mmol/L	(135-146)
Potassium	4.3 mmol/L	(3.5-5)
Creatinine	108 µmol/L	(79-118)
CT head	Normal	

Which of the following is the most appropriate therapy for him?

(Please select 1 option)

- Clopidogrel
- Dipyridamole SR and aspirin in combination
- Fluoxetine
- Reassurance
- Sodium valproate

Answer Question

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- Dipyridamole SR and aspirin in combination
- Fluoxetine
- Reassurance - This is the correct answer ✔
- ✓ Sodium valproate - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

This man's history is typical of that for transient global amnesia.

The cause of transient global amnesia is unknown but it may be related to a migrainous phenomenon or transient ischaemia.

It is claimed that the condition may be associated with neuronal loss in the hippocampal area or abnormal metabolism by neurones in this area leading to build up of lactate, but definitive proof does not exist.

No specific therapy for the condition is required; specifically no increased use of anti-platelet agents is needed.

Question

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Next

Question

A 35-year-old woman has noticed increased clumsiness and tremor.

She has recently broken up with her partner because he found her increasingly argumentative. She has no past medical history and takes no prescribed or recreational drugs.

There is a family history of liver cirrhosis in her grandfather, who drank four bottles of whisky per week. She reports drinking less than four units per week.

What is the likely cause for her tremor?

(Please select 1 option)

- Alcohol abuse
- Huntington's disease
- Lewy body dementia
- Multiple sclerosis
- Wilson's disease

Answer Question

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Your Answer

- Alcohol abuse
- Huntington's disease
- Lewy body dementia
- Multiple sclerosis
- ✓ Wilson's disease - Correct ✔

Rate this question

Next

Correct

Explanation

Wilson's disease is an autosomal recessive condition which causes build up of copper in the body. Copper accumulates in the liver and brain. This results in hepatitis, liver failure or cirrhosis. Accumulation in the brain can result in behavioural changes, depression, seizures, parkinsonism, however the initial sign is usually increased clumsiness.

This woman's tremor, clumsiness and behavioural change could be put down to alcohol abuse. Given the family history of cirrhosis it would be important to rule out Wilson's disease before accusing her of alcohol problems.

Huntington's disease is a neurodegenerative genetic disorder that is autosomal dominant. The features are of choreiform movements, problems with coordination and walking, behavioural and psychiatric problems. The disease leads eventually to dementia and premature death.

Lewy body dementia is a mixture of Alzheimer's disease with Parkinson's disease. The main features are fluctuating cognition and alertness from hour to hour, visual hallucinations (usually of animal or human, and the patient may have insight into these hallucinations) and motor features of Parkinson's disease.

Multiple sclerosis would present in this age group and sex. It is due to autoimmune mediated demyelination. To make the diagnosis there must be two separate attacks separated in time and space (that is, affecting two different nerves and on two separate occasions).

The commonest signs and symptoms are

- Optic neuritis
- Sensory loss
- Spinal cord symptoms with spasticity
- Autonomic dysfunction of bladder and bowel
- Constitutional symptoms such as fatigue and depression.

Question

A 35-year-old woman has noticed increased clumsiness and tremor.

She has recently broken up with her partner because he found her increasingly argumentative. She has no past medical history and takes no prescribed or recreational

Next

Question

A 35-year-old male presents with a 12 month history of involuntary movements of his limbs. Examination revealed generalised chorea but otherwise no neurological abnormalities. Involvement of which of the following structures is likely to cause this presentation?

(Please select 1 option)

- Caudate nucleus
- Hippocampus
- Lateral geniculate nucleus
- Red nucleus
- Substantia nigra

Answer Question

Incorrect

Explanation

Caudate nucleus pathology is associated with chorea (for example, in Huntington's disease).
Hippocampus pathology is associated with short term memory impairment (for example, Alzheimer's disease).
Lateral geniculate nucleus pathology causes a visual field defect.
Red nucleus is associated with tremor, which is present both at rest and during action (for example, multiple sclerosis tremor).
Substantia nigra pathology is associated with Parkinson's disease.

Question

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Examination revealed generalised chorea but otherwise no neurological abnormalities.
Involvement of which of the following structures is likely to cause this presentation?

Your Answer

- Caudate nucleus - This is the correct answer ✔
- Hippocampus
- Lateral geniculate nucleus
- Red nucleus
- ✓ Substantia nigra - Incorrect answer selected ✖

Next

Question

A 67-year-old man has drunk 8 units of alcohol a day for most of his adult life.
He has worsening symptoms of poor memory, a wide-based gait and urinary incontinence for ten months.
What is the most likely diagnosis?

(Please select 1 option)

- HIV encephalitis
- Meningovascular syphilis
- Normal pressure hydrocephalus
- Syringomyelia
- Wernicke-Korsakoff syndrome

Answer Question

Incorrect

Explanation

The triad of memory loss, gait difficulties and urinary incontinence will lead towards the diagnosis of normal pressure hydrocephalus.
In this scenario, the alcohol is a distractor.

Question

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What is the most likely diagnosis?

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- Normal pressure hydrocephalus - This is the correct answer ✔
- Syringomyelia
- ✓ Wernicke-Korsakoff syndrome - Incorrect answer selected ✖

Next

Question

A 17-year-old female presents with three headaches over a six month period. She describes the headaches as severe, right-sided and lasting for twelve hours and associated with nausea and photophobia. Each is preceded by spots before her eyes.

What is the most appropriate initial treatment for this patient?

(Please select 1 option)

- Diclofenac at the onset of the next attack
- Ergotamine suppository at the onset of the next attack
- Paracetamol plus metoclopramide at the onset of the next attack
- Prophylaxis with propranolol
- Sumatriptan at the onset of the next attack

Answer Question

Explanation

This history is consistent with a migraine.

NICE guidelines state that an oral triptan and an NSAID or paracetamol should be used for the acute treatment of migraine. If these are not tolerated or ineffective, non-oral preparations of metoclopramide, prochlorperazine, NSAIDs or triptans can be used.

Prophylactic topiramate or propranolol can be used if the attacks are numerous or debilitating. Topiramate is associated with foetal malformations, and therefore it should be offered in conjunction with appropriate contraception.

Reference:

NICE. Headaches (CG150).

Question

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What is the most appropriate initial treatment for this patient?

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- Paracetamol plus metoclopramide at the onset of the next attack
- Prophylaxis with propranolol
- ✓ Sumatriptan at the onset of the next attack - Correct ✔

Next

Question

Which of the following statements regarding central pontine myelinolysis is correct?

(Please select 1 option)

- Consciousness is preserved characteristically.
- MR imaging shows diagnostic features in the majority of patients.
- The cause has been linked to over-rapid correction of hyponatraemic states.
- The condition is confined to malnourished alcoholic patients.
- The pathological changes are confined to the pons.

Answer Question

Incorrect

Explanation

Central pontine myelinolysis is a common consequence of over-rapid correction of hyponatraemia.
Pathological changes are not confined to the pons (despite the name of the condition).
Magnetic resonance imaging (MRI) usually shows changes within the pons, however the appearances are not diagnostic.
Consciousness is usually impaired.
It can occur in malnourished alcoholic patients (but it is not confined to them).

Question

Which of the following statements regarding central pontine myelinolysis is correct?

Your Answer

- Consciousness is preserved characteristically.
- MR imaging shows diagnostic features in the majority of patients.
- The cause has been linked to over-rapid correction of hyponatraemic states. - This is the correct answer ✔
- The condition is confined to malnourished alcoholic patients.
- ✓ The pathological changes are confined to the pons. - Incorrect answer selected ✖

Next

Question

A 75-year-old female presents with an acute stroke and is noted to have a partial left homonymous hemianopia, a mild left hemiparesis and left hemisensory inattention. Where on the right is the most likely area of infarction?

(Please select 1 option)

- Frontal lobe
- Medial temporal lobe
- Occipital lobe
- Parietal lobe
- Thalamus

Answer Question

there is not usually hemiparesis or inattention.

Reference:

Mattle H, Mumenthaler M, (eds.) *Neurology.* 4th ed. Stuttgart: Thieme Verlag; 2004.

Question

A 75-year-old female presents with an acute stroke and is noted to have a partial left homonymous hemianopia, a mild left hemiparesis and left hemisensory inattention.

Where on the right is the most likely area of infarction?

Your Answer

- Frontal lobe
- Medial temporal lobe
- Occipital lobe
- Parietal lobe - This is the correct answer ✔
- ✓ Thalamus - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

A unilateral parietal lobe lesion, left or right, causes:

- contralateral hemihypesthesia
- mild hemiparesis
- parietal ataxia
- homonymous hemianiopia
- inferior quadrantanopia, and
- unilateral impairment of optokinetic nystagmus.

A left (usually dominant) parietal lesion causes the above signs in addition to sensory aphasia, Gerstmann syndrome (dysgraphia, dyscalculia, finger agnosia, left-right disorientation), bilateral apraxia, and tactile agnosia.

A right (usually non-dominant) parietal lesion also causes left extinction phenomenon, left visual neglect, neglect of the left side of the body, anosognosia, impaired spatial processing, and dressing apraxia.

Biparietal lesions result in markedly impaired orientation and spatial processing and ataxia.

An occipital lobe lesion usually causes contralateral homonymous hemianopia or quadrantanopsia. It does not typically cause hemiparesis or inattention.

Frontal lesions do not usually cause visual defects.

Temporal lobe lesions classically cause an homonymous superior quadrantanopsia. Again, there is not usually hemiparesis or inattention.

Reference:

Mattle H, Mumenthaler M, (eds.) *Neurology.* 4th ed. Stuttgart: Thieme Verlag; 2004.

Question

A 75-year-old female presents with an acute stroke and is noted to have a partial left homonymous hemianopia, a mild left hemiparesis and left hemisensory inattention.

Where on the right is the most likely area of infarction?

Next

Question

A 54-year-old man being seen in the neurology clinic for a tremor is noted to have a shuffling gait.
Examination reveals difficulty with vertical gaze and an AMTS of 6/10.
What is the most likely diagnosis?

(Please select 1 option)

- Corticobasal degeneration
- Idiopathic benign essential tremor
- Parkinson's disease
- Progressive supranuclear palsy (PSP)
- Wilson's disease

Answer Question

Incorrect

Explanation

Progressive supranuclear palsy (PSP) is correct. The triad of parkinsonism, vertical gaze palsy and cognitive impairment suggest this diagnosis.

Progressive supranuclear palsy is characterised by features of parkinsonism, difficulty with vertical gaze due to supranuclear paralysis of upward and downward gaze and cognitive impairment. It is also known as Steele-Richardson-Olszewski syndrome, is progressive like Parkinson's disease, but does not respond to L-dopa.

Corticobasal degeneration is incorrect as it does not cause vertical gaze disturbance.

Idiopathic benign essential tremor is incorrect as there is more than a tremor.

Parkinson's disease is incorrect as there is more than parkinsonism.

As vertical gaze is affected in this scenario, Wilson's disease is incorrect.

Question

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Examination reveals difficulty with vertical gaze and an AMTS of 6/10.

What is the most likely diagnosis?

Your Answer

- Corticobasal degeneration
- Idiopathic benign essential tremor
- Parkinson's disease
- Progressive supranuclear palsy (PSP) - This is the correct answer ✔

Next

Question

A 35-year-old man presents to the Emergency Department complaining of severe pain in his lower back after lifting a heavy box at work. The pain radiates to his right buttock and thigh. He has had no urinary symptoms.

On examination he can straight leg raise to 90 degrees on the left side but only to 30 degrees on the right. Sciatic stretch test is positive.

He has difficulty plantarflexing his right ankle and has abnormal sensation on the plantar aspect of the foot. His right ankle reflex is absent but all other reflexes are normal. There is no other sensory disturbance.

Which of the following is the likely diagnosis?

(Please select 1 option)

- Cauda equina syndrome
- L3/L4 disc prolapse
- L4/L5 disc prolapse
- L5/S1 disc prolapse
- Scheuermann's disease

Answer Question

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Which of the following is the likely diagnosis?

Your Answer

- Cauda equina syndrome
- L3/L4 disc prolapse
- L4/L5 disc prolapse
- L5/S1 disc prolapse - This is the correct answer ✔
- ✓ Scheuermann's disease - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

A L5/S1 disc prolapse affects the S1 nerve root causing:

- Sensory loss to the posterior calf and the plantar surface of the foot
- Motor loss to gastrocnemius and soleus, and
- Loss of ankle jerk.

Cauda equina syndrome causes:

- Loss of anal tone, with bladder/bowel dysfunction (usually incontinence)
- Saddle anaesthesia
- Absent ankle jerks with downgoing plantars, and
- Bilateral weakness throughout the legs, predominantly in L5-S4 distribution.

L3/4 disc prolapse affects the L4 nerve root, causing:

- Pain in the anterior thigh
- Quadriceps weakness
- Reduced knee jerk, and
- Loss of sensation over the thigh.

L4/5 disc prolapse affects the L5 nerve root, causing:

- Pain over lateral aspect of thigh and leg
- Loss of sensation to lateral aspect of leg and dorsum of foot
- Weakness of dorsiflexion ('foot drop'), and
- Reflexes often unaffected.

Scheuermann's disease is a form of kyphosis that typically begins during teenage years and is characterised by small 3 adjacent anterior vertebral bodies.

Question

Next

Question

A 60-year-old male is referred with episodes of severe vertigo which may last up to four hours and are associated with vomiting and uncomfortable pressure in the right ear.

On examination during an attack he is noted to have right horizontal nystagmus together with mild right-sided sensorineural deafness.

Which one of the following is the most likely diagnosis?

(Please select 1 option)

- Acoustic neuroma
- Benign positional vertigo
- Labyrinthitis
- Ménière's disease
- Vertebrobasilar ischaemic attacks

Answer Question

Vertebrobasilar ischaemic attacks last minutes and typically the vertigo is a mild swaying or swimming sensation.

Further Reading:

1. GP Notebook. Medical treatment for Ménière's disease.
2. Patient.info. Ménière's Disease.

Question

A 60-year-old male is referred with episodes of severe vertigo which may last up to four hours and are associated with vomiting and uncomfortable pressure in the right ear.

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Your Answer

- Acoustic neuroma
- Benign positional vertigo
- Labyrinthitis
- Ménière's disease - This is the correct answer ✔
- ✓ Vertebrobasilar ischaemic attacks - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

This is a typical history of Ménière's disease. The attacks are paroxysmal, last for hours and consist of:

- Vertigo
- Vomiting
- Pressure within the ear, and
- Deafness.

After many attacks the patient may develop irreversible sensorineural deafness (of low frequency).Tinnitus is present ,often, but may not occur in the early stages,so the classic triad ,of tinnitus vertigo and deafness isn't always diagnostically reliable.

Prochlorperazine or cinnarizine usually helps vomiting, and restriction of salt and fluid may hasten resolution. Occasionally diuretics may be used but there is little evidence for efficacy.

Vertigo is uncommonly associated with unilateral hearing loss caused by acoustic neuroma.

In benign positional vertigo the episodes of vertigo last seconds and are precipitated by movement.

Labyrinthitis is characterised by acute disabling vertigo, usually preceded by an upper respiratory tract infection and is very rarely episodic.

Vertebrobasilar ischaemic attacks last minutes and typically the vertigo is a mild swaying or swimming sensation.

Further Reading:

1. GP Notebook. Medical treatment for Ménière's disease.
2. Patient.info. Ménière's Disease.

Question

A 60-year-old male is referred with episodes of severe vertigo which may last up to four hours and are associated with vomiting and uncomfortable pressure in the right ear.

On examination during an attack he is noted to have right horizontal nystagmus together

Next

Question

A 79-year-old male is admitted with acute confusion and is agitated and aggressive to staff.

His relatives who accompany him assert that he had been entirely self-caring, does not drink alcohol and was taking no previous medication. He was diagnosed with a urinary tract infection and commenced antibiotics but remained agitated and distressed.

Which one of the following treatments is the most appropriate for his agitation?

(Please select 1 option)

- Chlorpromazine
- Diazepam
- Haloperidol
- Temazepam
- Trazodone

Answer Question

The most likely diagnosis in this case is acute delirium, caused by the urinary tract infection. There is no suggestion of underlying dementia from the information given to you by the patient's family.

The NICE guidelines on delirium were last updated in 2010. They recommend initially using verbal and non-verbal techniques to de-escalate the situation when the patient is distressed. If these are unsuccessful or inappropriate, and the patient is considered to be a risk to themselves or others, then they recommend using short-term (1 week or less) haloperidol or olanzapine, started at the lowest appropriate dose and titrated cautiously.

Delirium risk is thought to be increased with the use of benzodiazepines, so you should avoid new prescriptions of these (and consider reducing if patients are on them long-term). They can exacerbate mental status changes, and cause oversedation.

There has been some suggestion that trazodone, a 5-HT receptor antagonist, might be beneficial in treating delirium but there is a lack of randomised evidence and it is not recommended by NICE.

References & Further Reading:

Treating delirium

Question

A 79-year-old male is admitted with acute confusion and is agitated and aggressive to staff.

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Your Answer

- Chlorpromazine
- Diazepam
- Haloperidol - This is the correct answer ✔

Next

Question

Optic ataxia refers to difficulty in which of the following?

(Please select 1 option)

- Controlling hand-eye coordination
- Moving the eyes
- Colour vision
- Facial recognition
- Shifting gaze

Answer Question

Incorrect

Explanation

Examining for optic ataxia can be done by asking the patient to reach out and touch an object. Unlike cerebellar problems there is no tremor. The patient clearly grabs in the wrong part of space and does not attempt to correct unlike cerebellar lesions.

Optic apraxia is the term used to describe difficultly shifting gaze. Both optic ataxia and optic apraxia together with simultagnosia are referred to as Balint's syndrome.

Achromatopsia describes a difficultly with colour vision.

Prosopagnosia describes an inability to recognise faces, which is controlled by the fusiform gyrus in the temporal lobe.

Question

Optic ataxia refers to difficulty in which of the following?

Your Answer

- Controlling hand-eye coordination - This is the correct answer ✔
- Moving the eyes
- Colour vision
- Facial recognition
- ✓ Shifting gaze - Incorrect answer selected ✖

Next

Question

A 72-year-old man presents with Parkinson's disease.
Which of the following is a likely mechanism underlying the neurodegeneration seen in this condition?

(Please select 1 option)

- Aberrant fusion of 2 genes
- Impaired protein degradation
- Overexpression of cellular oncogene
- Post-translational modification
- Telomere shortening

Answer Question

Incorrect

Explanation

Mutations in either the parkin gene or UCHL1 lead to impaired protein degradation.
The other genetic abnormalities concern other diseases, not Parkinson's.
Impaired protein degradation is also seen in other neurodegenerative conditions.

Further Reading:

Hague SM, Klaffke S, Bandmann O. Neurodegenerative disorders: Parkinson's disease and Huntington's disease. *J Neurol Neurosurg Psychiatry.* 2005;76:1058-1063.

Question

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Next

Question

A 50-year-old man is admitted to hospital unconscious, and smelling of alcohol.
One hour after admission, he becomes suddenly sweaty with a regular tachycardia of 110 bpm and a BP of 100/50 mmHg.
What is the diagnosis?

(Please select 1 option)

- Alcohol withdrawal
- Hepatic encephalopathy
- Hypoglycaemia
- Subdural haematoma
- Wernicke's encephalopathy

Answer Question

Explanation

This history may make you suspect this gentleman abuses alcohol. Alcohol is a common cause of hypoglycaemia, and can be rapidly life-threatening if not recognised. Common initial symptoms are tachycardia and sweating. BM should be checked in all patients who become acutely unwell.

Hypoglycaemia does not tend to cause hypotension, but you can sometimes seen a mild increase in blood pressure. However, patients who abuse alcohol often are relatively hypotensive as they are often relatively dehydrated and are thin due to minimal food intake.

The classic triad of Wernicke's encephalopathy is ataxia, ophthalmoplegia and confusion. You are not given any of this information. It would also not commonly be associated with a rapid deterioration with sweating, tachycardia or hypotension.

It would be unusual for alcohol withdrawal to develop this soon after admission if the gentleman was admitted smelling of alcohol. You would expect more cerebral agitation and coarse tremors, with seizures if allowed to progress.

If a subdural haematoma is large enough to cause a reduction in consciousness you would expect to be told of focal neurological signs (e.g. difference in pupil size). You also tend to get Cushing's reflex (bradycardia and hypertension) rather than tachycardia and hypotension.

Hepatic encephalopathy develops in those with established liver failure, so you would expect to be told there were signs of chronic liver disease in the patient if this were the diagnosis.

Question

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One hour after admission, he becomes suddenly sweaty with a regular tachycardia of 110 bpm and a BP of 100/50 mmHg.

What is the diagnosis?

Your Answer

- Alcohol withdrawal
- Hepatic encephalopathy
- Hypoglycaemia - This is the correct answer ✔

Next

Question

A 32-year-old woman, who is on the combined oral contraceptive pill and who is a smoker, presents with a history of pain and swelling in her right calf, starting two days earlier.

On the morning of admission, she developed sudden onset of weakness on her right side.

On examination she has a dense hemiplegia, with weakness of her right hand and upper motor neuron signs. There is evidence of a deep vein thrombosis of her right calf.

What is the most likely diagnosis?

(Please select 1 option)

- Berry aneurysm
- Cerebral tumour with hypercoagulable state
- Haemorrhagic stroke
- Paradoxical embolism
- Pulmonary embolism

Answer Question

Incorrect

Explanation

This patient has a history suggestive of deep vein thrombosis with calf pain and swelling and the risk of the combined oral contraceptive pill.

The sudden onset of a right-sided hemiplegia suggests that the embolus, whilst passing through the heart, has paradoxically crossed via an atrial septal defect (ASD) or ventricular septal defect (VSD) to the systemic side of the circulation giving rise to an embolic cerebrovascular accident (CVA).

Question

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- Berry aneurysm
- Cerebral tumour with hypercoagulable state
- Haemorrhagic stroke
- Paradoxical embolism - This is the correct answer ✔
- ✓ Pulmonary embolism - Incorrect answer selected ✖

Next

Question

A previously well 92-year-old patient with a history of hypertension presents to the Emergency department with a right sided hemiplegia and dysphasia.

An urgent CT carried out 1.5 hours after the onset of symptoms shows a cerebral infarction affecting the left hemisphere.

Up to how many hours after the onset of symptoms can alteplase be given in the treatment of this patient?

(Please select 1 option)

- 3 hours
- 4.5 hours
- 6 hours
- 9 hours
- Alteplase is contraindicated as the patient is aged over 80 years

Answer Question

Incorrect

Explanation

According to NICE guidelines on the diagnosis and initial management of stroke and transient ischaemic attacks, thrombolysis with alteplase can be given up to 4.5 hours from the known onset of symptoms as long as a haemorrhagic stroke is excluded and there are no contraindications to thrombolysis.

It should be remembered that the benefits of thrombolysis diminish with time.

Reference:

1. NICE. Alteplase for treating acute ischaemic stroke (TA264).
2. NICE. Stroke and transient ischaemic attack in over 16s (CG68).

Question

A previously well 92-year-old patient with a history of hypertension presents to the Emergency department with a right sided hemiplegia and dysphasia.

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- 3 hours
- 4.5 hours - This is the correct answer ✔
- 6 hours
- 9 hours

Next

Question

The following patients have suffered an acute ischaemic stroke.
Which should be considered for neurosurgical intervention?

(Please select 1 option)

- A 50-year-old patient with infarction of 60% of the MCA territory
- A 55-year-old patient with a cerebellar infarction but no hydrocephalus
- A 59-year-old patient presenting with ataxia who has a small pontine infarction
- A 64-year-old patient with infarction of 80% of the middle cerebral artery (MCA) territory
- Neurosurgery is not indicated in ischaemic stroke

Answer Question

Incorrect

Explanation

Current clinical guidelines recommend that patients who are under 60 years of age with large cerebral infarctions arising in the MCA territory should be considered for decompressive hemicraniectomy.

Eligibility is based on

- Clinical and radiological evidence of a stroke affecting this territory,
- Radiological evidence that more than 50% or 145 cm^3 of the MCA territory is involved and
- Being classified as having a moderate to severe stroke according to the National Institute of Health stroke scale.

Decompressive hemicraniectomy involves removing part of the skull in order to reduce intracranial pressure and should be carried out within 48 hours of the index event.

The other indications for neurosurgical intervention to be considered in acute ischaemic stroke are a massive cerebellar infarction or evidence of hydrocephalus or brainstem compression.

Question

The following patients have suffered an acute ischaemic stroke.

Which should be considered for neurosurgical intervention?

Your Answer

- A 50-year-old patient with infarction of 60% of the MCA territory - This is the correct answer ✔
- A 55-year-old patient with a cerebellar infarction but no hydrocephalus
- A 59-year-old patient presenting with ataxia who has a small pontine infarction

Next

Question

A 16-year-old boy presented to the ER with seizures. An emergency CT scan revealed a calcified ring in the right parietal cortex. The on-call neurologist recommended starting oral antiepileptic drugs (AED) after stabilization. However, the boy's parents said that he has a metallic heart valve and is on regular warfarin 7.5 mg/day.

Which is the best oral AED in this situation?

(Please select 1 option)

- Levetiracetam
- Carbamazepine
- Phenytoin
- Phenobarbital
- Valproate

Answer Question

Incorrect

Explanation

The boy is receiving warfarin. Warfarin and other oral anticoagulants are notorious for drug interactions and anti-epileptics must be prescribed with caution. The interaction can alter drug action of both AED as well as anti-coagulants. Levetiracetam is a drug with least interactions and is safest here.

Carbamazepine increases metabolism of warfarin and reduces its blood levels so the anticoagulant efficacy may be decreased.

The interaction of warfarin with phenytoin is complex. It is unpredictable and may involve an increase or decrease of activity of warfarin.

This is also an enzyme inducer; it will decrease blood levels of warfarin.

Valproate inhibits warfarin metabolism and increases blood levels and there may be bleeding.

References and Further Reading:

Perucca E. Clinically relevant drug interactions with antiepileptic drugs. Br J Clin Pharmacol. 2006; 61(3): 246-55

Question

A 16-year-old boy presented to the ER with seizures. An emergency CT scan revealed a calcified ring in the right parietal cortex. The on-call neurologist recommended starting oral antiepileptic drugs (AED) after stabilization. However, the boy's parents said that he has a metallic heart valve and is on regular warfarin 7.5 mg/day.

Which is the best oral AED in this situation?

Your Answer

- Levetiracetam - This is the correct answer ✔
- Carbamazepine
- Phenytoin

Next

Question

A 40-year-old man is admitted with a one day history of increasing drowsiness.

He had a diarrhoeal illness two weeks ago from which he made a full recovery. His wife says that over the past three days he had developed double vision and had begun to 'walk like he was drunk'.

On examination he has mild proximal weakness and brisk symmetrical reflexes. Sensation is intact and plantars are down going.

Which of the following is the most likely diagnosis?

(Please select 1 option)

- Bickerstaff's encephalitis
- Miller-Fisher variant Guillain-Barré syndrome
- Multiple sclerosis
- Wallenberg's syndrome
- Weber's syndrome

Answer Question

Bickerstaff's encephalitis is usually preceded by an infection, typically *Campylobacter jejuni*. It is associated with autoantibodies against gangliosides, typically anti-GQ1b IgG, in the serum.

Bickerstaff's encephalitis affects the brainstem, this may be seen on MRI with hyperintensities on T2 weighted images. It causes drowsiness, ophthalmoparesis, ataxia and brisk reflexes. The drowsiness and brisk reflexes can be used to differentiate it from Miller-Fisher.

Bickerstaff's encephalitis is the answer. This is a rare immune disorder affecting the brainstem. It is usually preceded by an infection, typically *Campylobacter jejuni*.

It is associated with autoantibodies against gangliosides, typically anti-GQ1b IgG, in the serum. It causes drowsiness, ophthalmoparesis, ataxia and brisk reflexes. The drowsiness and brisk reflexes can be used to differentiate it from Miller-Fisher.

It may be seen on MRI as hyperintensities in the brain stem on T2 weighted images.

Miller-Fisher variant Guillain-Barré syndrome is not the answer as it is not associated with drowsiness and typically causes reduced or absent reflexes.

Multiple sclerosis (MS) is not the answer. The history is very acute for MS and there is no association with diarrhoea. MS is not typically associated with drowsiness.

Wallenberg's syndrome is not the answer. This is most commonly caused by infarction of the lateral medulla. It causes ipsilateral Horner's syndrome, loss of facial pin-prick and temperature sensation, with preserved light touch and corneal reflex. There is contralateral loss of pain and temperature sense in the limbs and trunk.

Weber's syndrome is not the answer. This is a lesion of the cerebral peduncle and causes an ipsilateral third nerve lesion and contralateral hemiparesis.

Question

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On examination he has mild proximal weakness and brisk symmetrical reflexes. Sensation is intact and plantars are down going.

Which of the following is the most likely diagnosis?

Your Answer

Bickerstaff's encephalitis - This is the correct answer ✔

Next

Question

Which of the following is caused by a lesion of the parietal lobe?

(Please select 1 option)

- Bitemporal hemianopia
- Homonymous inferior quadrantanopia
- Perseveration
- Primitive reflexes
- Wernicke's (receptive) aphasia

Answer Question

- Cortical blindness (blindness due to damage to the visual cortex and may present as Anton syndrome where there is blindness but the patient is unaware or denies blindness)
- Homonymous hemianopia
- Visual agnosia (seeing but not perceiving objects - it is different to neglect since in agnosia the objects are seen and followed but cannot be named).

Question

Which of the following is caused by a lesion of the parietal lobe?

Your Answer

- Bitemporal hemianopia
- Homonymous inferior quadrantanopia - This is the correct answer ✔
- Perseveration
- Primitive reflexes
- ✓ Wernicke's (receptive) aphasia - Incorrect answer selected ✖

Rate this question

Next

Explanation

Lesions of the frontal lobe include

- Difficulties with task sequencing and executive skills
- Expressive aphasia (receptive aphasia, a temporal lobe lesion)
- Primitive reflexes
- Perseveration (repeatedly asking the same question or performing the same task)
- Anosmia
- Changes in personality.

Lesions of the parietal lobe include

- Apraxias
- Neglect
- Astereognosis (unable to recognise an object by feeling it)
- Visual field defects (typically homonymous inferior quadrantanopia).

They may also cause acalculia (inability to perform mental arithmetic).
Lesions of the temporal lobe cause

- Visual field defects (typically homonymous superior quadrantanopia)
- Wernicke's (receptive) aphasia
- Auditory agnosia
- Memory impairment.

Occipital lobe lesions include

- Cortical blindness (blindness due to damage to the visual cortex and may present as Anton syndrome where there is blindness but the patient is unaware or denies blindness)
- Homonymous hemianopia
- Visual agnosia (seeing but not perceiving objects - it is different to neglect since in agnosia the objects are seen and followed but cannot be named).

Next

Question

Causes of a small pupil include which of the following?

(Please select 1 option)

- Carbon monoxide poisoning
- Ethylene glycol poisoning
- Holmes-Adie pupil
- Pontine haemorrhage
- Third nerve palsy

Answer Question

Explanation

Causes of small pupils include:

- Horner's syndrome
- Old age
- Pontine haemorrhage
- Argyll Robertson pupil
- Drugs, and
- Poisons (opiates, organophosphates).

Causes of dilated pupils include:

- Holmes-Adie (myotonic) pupil
- Third nerve palsy
- Drugs, and
- Poisons (atropine, CO, ethylene glycol).

Question

Causes of a small pupil include which of the following?

Your Answer

- Carbon monoxide poisoning
- Ethylene glycol poisoning
- Holmes-Adie pupil
- Pontine haemorrhage - This is the correct answer ✔
- ✓ Third nerve palsy - Incorrect answer selected ✘

Next

Question

Which of the following is true of the anticonvulsant levetiracetam?

(Please select 1 option)

- Acts via the gamma-aminobutyric acid (GABA) receptor
- Is associated with increased plasma concentrations of sodium valproate
- Is associated with induction of hepatic cytochrome p450 enzymes
- Is used as monotherapy for the treatment of generalised convulsions
- Is well absorbed via the oral route

Answer Question

Correct

Explanation

Levetiracetam (Keppra) is an adjunctive treatment for partial seizures with or without secondary generalisation. Its mechanism of action is unknown.

It is rapidly absorbed orally, it does not affect hepatic enzymes but dose reduction is required in renal failure.

The drug appears to be well tolerated with few side effects.

Question

Which of the following is true of the anticonvulsant levetiracetam?

Your Answer

- Acts via the gamma-aminobutyric acid (GABA) receptor
- Is associated with increased plasma concentrations of sodium valproate
- Is associated with induction of hepatic cytochrome p450 enzymes
- Is used as monotherapy for the treatment of generalised convulsions
- ✓ Is well absorbed via the oral route - Correct ✔

Rate this question

Finish

Question

A 18-year-old man is referred with a six month history of daily headache which is mostly frontal in location and occasionally associated with nausea. He has been taking paracetamol 3 g/day, aspirin 300 mg thrice daily and codeine 40 mg thrice daily, which has only a temporary effect.

He has a two year history of depression, treated with paroxetine. No abnormalities were found on examination.

What is the most likely diagnosis?

(Please select 1 option)

- Analgesic misuse headache
- Cerebral tumor
- Cluster headache
- Headache due to depression
- Migraine

Answer Question

Incorrect

Explanation

The two commonest causes of chronic daily headache are tension type headache and analgesic misuse headache.

The latter is the most likely diagnosis for this patient's symptoms.

It usually occurs as a result of chronic use of analgesics such as codeine phosphate and paracetamol.

Typically the headache is relieved with the analgesics just to return in the next hours.

Treatment is abrupt withdrawal of the offending agent. Withdrawal symptoms are likely to occur, including worsening headache, nausea, agitation and sleep disturbance. These usually settle within seven days, and headaches should stop within approximately three weeks.

Question

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He has a two year history of depression, treated with paroxetine. No abnormalities were found on examination.

What is the most likely diagnosis?

Your Answer

- Analgesic misuse headache - This is the correct answer ✔
- Cerebral tumor
- Cluster headache

Next

Question

Psychiatric illness rather than an organic brain disorder is suggested by which of the following?

(Please select 1 option)

- A family history of major psychiatric illness
- Clouding of consciousness
- Impaired short term memory
- No previous history of psychiatric illness
- Onset for the first time at the age of 55 years

Answer Question

Incorrect

Explanation

This question tries to establish typical features of psychiatric disease such as depression/schizophrenia rather than organic brain disease, for example, dementia.
Loss of short term memory and an older age are more typical of organic brain disease.
However a family history is especially associated with depressive illness and schizophrenia.

Question

Psychiatric illness rather than an organic brain disorder is suggested by which of the following?

Your Answer

- A family history of major psychiatric illness - This is the correct answer ✔
- Clouding of consciousness
- Impaired short term memory
- No previous history of psychiatric illness
- ✓ Onset for the first time at the age of 55 years - Incorrect answer selected ✖

Rate this question

Next

Question

An 18-year-old presents with her third 'funny turn'.
She was witnessed smacking her lips and making repetitive chewing movements. She recalls a rising epigastric sensation preceding this, but was unaware of what she was doing.
Which of the following would you suspect?

(Please select 1 option)

- Absence seizures
- Frontal lobe epilepsy
- Migraine
- Temporal lobe epilepsy
- Transient ischaemic attack

Answer Question

Incorrect

Explanation

This is a classic description of temporal lobe epilepsy. It can present with gastric rising and repetitive mouth movements.

The commonest finding is hippocampal sclerosis and an MRI is an appropriate investigation. Spread of the seizure activity to the contralateral temporal lobe impairs memory of the event in the complex partial form of temporal lobe epilepsy.

Absence seizures is incorrect as there are repetitive movements involved.

Frontal lobe epilepsy is incorrect as it does not tend to involve repetitive mouth movements or gastric rising.

Migraine is incorrect as there is no headache and there is memory loss.

Transient ischaemic attack is incorrect as there is not a sudden onset of focal neurology.

Question

An 18-year-old presents with her third 'funny turn'.

She was witnessed smacking her lips and making repetitive chewing movements. She recalls a rising epigastric sensation preceding this, but was unaware of what she was doing.

Which of the following would you suspect?

Your Answer

- Absence seizures
- Frontal lobe epilepsy
- Migraine
- Temporal lobe epilepsy - This is the correct answer ✔

Next

Question

A 56-year-old woman presents with problematical tremor which has deteriorated over the last three months and she notes that it is exacerbated by changes in position.

She has a past history of asthma for which she is taking inhaled salbutamol and one year ago she underwent liver transplantation for primary biliary cirrhosis for which she takes cyclosporin.

On examination she seems quite well but has a noticeable coarse tremor of her outstretched hands. There are no other abnormalities noticeable on neurological examination.

How should this patient be managed?

(Please select 1 option)

- Add benzhexol
- L-dopa
- Propranolol
- Reduce dose cyclosporin
- Reduce dose salbutamol

Answer Question

Explanation

Cyclosporin is well known to cause coarse tremor. In the first instance the dose should be reduced. Usually the neurological side effects of cyclosporin are dose dependent.

The tremor with salbutamol tends not to be coarse as described in this case, being approximately 10-12 Hz.

Propranolol can be used as a treatment for some forms of tremor.

L-dopa is used as a treatment for Parkinson's disease, which is associated with a pill rolling tremor. Benzhexol is also used as for Parkinson's.

Question

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- ✓ Reduce dose salbutamol - Incorrect answer selected ✖

Next

Question

Which of the following is true of myasthenia gravis (MG)?

(Please select 1 option)

- Electrical recordings of single motor unit activity commonly reveal variation in the latency of the various muscle fibre responses (jitter)
- Neurotransmitter released at the motor end plate is greatly reduced
- Repetitive stimulation of a motor nerve produces a reduction in the amplitude of the fifth response compared with the first in 98% of cases (electrodecremental test)
- Subjective improvement in muscle strength following edrophonium is diagnostic of the condition
- There is a strong association with anti-noradrenergic receptor antibodies

Answer Question

Explanation

This is a difficult question.

Anti-acetylcholine (Ach) receptor antibodies are typically found in myasthenia gravis (MG) resulting in reduced ACh receptor numbers but sufficient neurotransmitter is released. This leads to fatiguable weakness.

Single fibre electromyography (EMG) is the most sensitive test for myasthenia gravis. It simultaneously records the variability in potentials of two muscle fibres innervated by an individual axon: jitter. Although abnormal jitter is not specific for MG and may occur in polymyositis and ALS, a large degree of jitter with minimal other abnormalities is suggestive of the diagnosis. Jitter is the most sensitive emg index in MG but is not specific of the condition. The nerve conductions and electromyogram (EMG) studies are usually normal in myasthenia gravis, but the repetitive stimulation of a nerve may demonstrate decrements of the muscle action potential (far less than 98%). An increase in decrement on stimulation at 3Hz is detectable in some patients.

The Tensilon (edrophonium) challenge test can be used to diagnose MG, or distinguish it from cholinergic crisis. Edrophonium given at increasing doses should produce improvement in muscle strength within a minute. It does this by blocking the breakdown of acetylcholine by cholinesterase and temporarily increases the level of acetylcholine at the neuromuscular junction. However, a positive response is not specific and may occur in amyotrophic lateral sclerosis. There is a risk of bradycardia, asystole and heart block and atropine should therefore be available. Airway support should be used as respiratory weakness can be exacerbated after the edrophonium wears off. Although improved muscle strength after edrophonium is seen, it is not diagnostic but depends more on the clinical presentation and presence of AChR ab.

Question

Which of the following is true of myasthenia gravis (MG)?

Your Answer

- Electrical recordings of single motor unit activity commonly reveal variation in the latency of the various muscle fibre responses (jitter) -
  This is the correct answer ✔
- Neurotransmitter released at the motor end plate is greatly reduced

Next

Question

A 19-year-old girl presents at the antenatal clinic.

She is approximately six weeks pregnant and the pregnancy was unplanned. She has a two year history of grand mal epilepsy for which she takes carbamazepine. She has had no fits for approximately six months. She wants to continue with her pregnancy if it is safe to do so.

She is worried about the anticonvulsant therapy and its effects on the baby. She asks how she should be managed.

Which of the following management plans is the most appropriate in this case?

(Please select 1 option)

- Advise termination due to drug teratogenicity
- Continue with carbamazepine
- Stop carbamazepine until the second trimester
- Switch therapy to phenytoin
- Switch therapy to sodium valproate

Answer Question

Explanation

The patient and fetus are at far more risk from uncontrolled seizures than from any potential teratogenic effect of the therapy.

In pregnancy total plasma concentrations of anticonvulsants fall, so the dose may need to be increased.

The potential teratogenic effects (particularly neural tube defects) of carbamazepine do need to be explained and in an effort to reduce this risk she should receive folate supplements.

Screening with alpha fetoprotein (AFP) and second trimester ultrasound are required. Vitamin K should be given to the mother prior to delivery.

There is no point in switching therapies as this could precipitate seizures in an otherwise stable patient.

Similarly both phenytoin and valproate are associated with teratogenic effects.

Further Reading:

Patient.info. Epilepsy and Pregnancy.

Question

A 19-year-old girl presents at the antenatal clinic.

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Which of the following management plans is the most appropriate in this case?

Your Answer

- Advise termination due to drug teratogenicity
- Continue with carbamazepine - This is the correct answer ✔
- Stop carbamazepine until the second trimester

Next

Question

A 40-year-old man presents with a two year history of intermittent strictly unilateral headaches.

The pain is excruciatingly severe. It is located around the orbital region. The headache usually lasts 45-60 minutes. It usually occurs in the early hours of the morning.

There is associated ptosis and lacrimation on the side of the headache.

Which of the following is the most likely diagnosis?

(Please select 1 option)

- Cluster headaches
- Giant cell arteritis
- Migraine
- Tension type headache
- Trigeminal neuralgia

Answer Question

Explanation

Cluster headache has three important features:

- Trigeminal distribution pain
- Ipsilateral cranial autonomic features and
- The striking tendency to circadian and circannual periodicity.

It is commoner in men (5:1).
It is associated with:

- Lacrimation
- Rhinorrhoea
- Conjuctival injection
- Ptosis and
- Miosis.

The common age of onset is the third or fourth decade of life.

Question

A 40-year-old man presents with a two year history of intermittent strictly unilateral headaches.
The pain is excruciatingly severe. It is located around the orbital region. The headache usually lasts 45-60 minutes. It usually occurs in the early hours of the morning.
There is associated ptosis and lacrimation on the side of the headache.
Which of the following is the most likely diagnosis?

Your Answer

- Cluster headaches - This is the correct answer ✔
- Giant cell arteritis

Next

Question

A 70-year-old man presents with difficulty speaking.

He has a history of diabetes, hypertension, hypercholesterolaemia, chronic obstructive pulmonary disease. He is currently on aspirin, simvastatin, amlodipine and hydrochlorothiazide. On examination the patient is awake, his blood pressure is 150/70 mmHg. His pulse is irregularly irregular.

He has 4/5 strength in the right arm and leg and 5/5 strength on the left. When asked to point to the window he does this correctly. When told to raise his arms and place his hands out he is seen to have a pronator drift on the right. He is shown a pen and asked what it is. He is unable to identify it by name. He is asked to use it appropriately and begins to write on a piece of paper. When asked to repeat 'Today is a sunny day', he is able to do so.

What type of dysphasia is this consistent with?

(Please select 1 option)

- Anomic aphasia
- Broca's aphasia
- Conduction aphasia
- Transcortical motor aphasia
- Transcortical sensory aphasia

Answer Question

Anomic aphasia or nominal aphasia results in word finding difficulties. On closer examination there may also be repetition problems and comprehension problems but these are typically mild compared to other aphasia syndromes.

In Broca's or non-fluent or expressive aphasia the patient is unable to name objects with poor comprehension and repetition. It localises to the Broca's area in the left posterior inferior frontal gyrus.

An injury to the anterior superior frontal lobe results in transcortical motor aphasia with good comprehension but poor verbal output with the exception of echolalia or repetition. Writing is usually also impaired. Repetition is also spared as the arcuate fasciculus is not involved.

Conduction aphasia has poor repetition and naming but intact comprehension and fluent verbal output.

It is different to the transcortical sensory and motor aphasias in that there is intact comprehension and fluency which are not seen in each of the transcortical aphasias respectively.

Question

A 70-year-old man presents with difficulty speaking.

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What type of dysphasia is this consistent with?

Your Answer

- Anomic aphasia - This is the correct answer ✔
- Broca's aphasia

Next

Question

A 32-year-old female presents with headaches. She has a severe frontal and occipital headache which is present as soon as she wakes in the mornings. She had given birth to a baby boy one month previously and has not been feeling well since.

Examination revealed bilateral blurring of the optic discs with a pupil sparing third nerve palsy on the right.

What is the most likely diagnosis?

(Please select 1 option)

- Brainstem CVA
- Herpes simplex encephalitis
- Meningococcal meningitis
- Sagittal sinus thrombosis
- Sphenoidal wing meningioma

Answer Question

Patients with a hypercoagulable state (pregnancy) and papilloedema with neurological signs should be investigated for cerebral venous thrombosis.

The superior sagittal sinus, which drains the upper part of the cerebral hemispheres, can become thrombosed (usually as an extension of cortical vein thrombosis). Whilst anterior occlusion is usually asymptomatic, posterior occlusion can present with raised intracranial pressure (headache, vomiting), and involvement of the upper hemispheres (paraplegia). In addition, there can be seizures and papilloedema. There can also be a disorder of the oculomotor nerve by affecting the oculomotor (Edinger-Westphal) nuclei. The territory of the affected sinus usually shows congestive oedema, which can progress to haemorrhagic venous infarction.

The treatment of cerebral venous thrombosis depends on the underlying aetiology. If primary, as in this case, anticoagulants should be given (full-dose heparin then warfarin). Secondary thrombosis is usually secondary to infection, which should be treated or drained if possible. Dexamethasone can be used to reduce cerebral oedema.

The other conditions described here are all less likely in this setting.

Question

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Examination revealed bilateral blurring of the optic discs with a pupil sparing third nerve palsy on the right.

What is the most likely diagnosis?

Your Answer

- Brainstem CVA
- Herpes simplex encephalitis
- Meningococcal meningitis
- Sagittal sinus thrombosis - This is the correct answer ✔

Next

Question

A 55-year-old man with alcohol dependency presents with a seizure which is attributed to alcohol withdrawal.
Which one of the following statements regarding these seizures is correct?

(Please select 1 option)

- Long term diazepam therapy is indicated
- Long term therapy with phenytoin is indicated
- Seizures are likely to be accompanied by hallucinations
- Seizures may be termed "alcoholic blackouts"
- Seizures typically occur within 48 hours of alcohol withdrawal

Answer Question

Correct

Explanation

Patients with a history of drug abuse are at high risk of developing seizures.
Such seizures occur characteristically within 48 hours of alcohol discontinuation (usually in the morning).
Long term therapy with antiepileptic treatment is not indicated in those patients.
CT brain is indicated in patients with suspected head injury and/or abnormal clotting screen, in order to exclude a subdural haematoma.

Question

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Your Answer

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- Seizures are likely to be accompanied by hallucinations
- Seizures may be termed "alcoholic blackouts"
- ✓ Seizures typically occur within 48 hours of alcohol withdrawal - Correct ✔

Next

Question

The Achilles reflex is supplied by which of the following?

(Please select 1 option)

- L5
- L5/S1
- L4/L5
- S1/S2
- S2-S4

Answer Question

Incorrect

Explanation

The Achilles reflex or ankle jerk can be absent from disc herniation at L5/S1 due to S1 impingement. It is supplied by the sciatic nerve. It tests both the S1 and S2 nerve roots, although some texts state the S1 nerve root only.

The L5 reflex is tested by tapping the medial hamstrings, but is typically cumbersome to do and not tested. It is the asymmetry which is important as it is not necessarily present.

S2-4 reflex is part of the anocutaneous reflex or anal wink.

Question

The Achilles reflex is supplied by which of the following?

Your Answer

- L5
- L5/S1
- L4/L5
- S1/S2 - This is the correct answer ✔
- S2-S4 - Incorrect answer selected ✖

Next

Question

A 22-year-old man suffers a deep laceration to the forearm resulting in transection of the median nerve.
Following this injury, the nerve will undergo which of the following pathological processes?

(Please select 1 option)

- Chronic inflammation
- Coagulative necrosis
- Fibrinoid necrosis
- Segmental demyelination
- Wallerian degeneration

Answer Question

Correct

Explanation

Wallerian degeneration is degeneration of the portion of the nerve distal to the injury. It occurs following axonal injury in both the peripheral and central nervous systems and usually begins within 24-36 hours of injury.

Coagulative necrosis is cell death following ischaemia or infarction. It is characterised by a 'ghostly' appearance of affected cells unders light microscopy.

Fibrinoid necrosis is a form of necrosis in which there is an accumulation of material in the affected tissue with a staining pattern reminiscent of fibrin. It is associated with Henoch-Schönlein purpura, malignant hypertension, and hyperacute transplant rejection.

Segmental demyelination is a feature seen in axons in the central nervous system with multiple sclerosis.

Question

A 22-year-old man suffers a deep laceration to the forearm resulting in transection of the median nerve.

Following this injury, the nerve will undergo which of the following pathological processes?

Your Answer

- Chronic inflammation
- Coagulative necrosis
- Fibrinoid necrosis
- Segmental demyelination
- ✓ Wallerian degeneration - Correct ✔

Finish

Explanation

Wilson's disease is a rare disorder of copper metabolism which is inherited as an autosomal recessive disease.
It is associated with:

- extrapyramidal features (tremor, parkinsonism, dystonia)
- dysarthria
- psychiatric features
- cirrhosis, and
- a deposit of brownish-green pigment around the margin of the cornea (Kayser-Fleischer ring).

Variant Creutzfeldt-Jakob disease is characterised by myoclonus and rapid onset dementia.

Question

A 15-year-old boy presents with tremor of both hands. Over the previous months he has developed a mild dysarthria.
He has a history of behavioural problems of a depressive/psychotic nature.
What is the most likely diagnosis?

Your Answer

- Alzheimer's disease
- Huntington's disease
- Neuroacanthocytosis
- Variant Creutzfeldt-Jakob disease
- ✓ Wilson's disease - Correct ✔

Next