Multiple Choice Questions

Paediatric emergence delirium

1. Emergence delirium:
   (a) Is characterized by marked irritation and dissociation that are not responsive to consolation.
   (b) Is a state of giddiness and uncontrollable laughter.
   (c) Is likely to be transient.
   (d) Occurs intermittently.
   (e) Is self-limited.

2. Appropriate statements regarding measurement scales for emergence delirium include:
   (a) The Watcha scale is easy to use routinely.
   (b) The Watcha scale measures the degree of emergence delirium.
   (c) The Paediatric Anaesthesia Emergence Delirium scale is easy to use routinely.
   (d) The Paediatric Anaesthesia Emergence Delirium scale is used to detect emergence delirium.
   (e) Thrashing is of high magnitude on the Cravero scale.

3. Risk factors for emergence delirium are likely to include:
   (a) Inadequate pain management.
   (b) Desflurane.
   (c) Delayed emergence.
   (d) Toddlers.
   (e) Preoperative anxiety.

4. Preventative measures for emergence delirium are likely to include:
   (a) Intraoperative use of analgesics such as fentanyl.
   (b) Administration of a bolus of propofol at the end of surgery.
   (c) Preoperative analgesia.
   (d) Sevoflurane anaesthesia.
   (e) Isoflurane anaesthesia.

Illega substances in anaesthetic and intensive care practices

5. A 25-year-old body-builder who suffers from depression arrives in the emergency department after a suspected overdose of gamma hydroxybutyrate. He has a blood pressure of 100/76 mm Hg, pulse of 48 beats min\(^{-1}\), small reactive pupils, Glasgow Coma Score of 3, temperature of 36.5°C and glucose level of 5.1 mmol litre\(^{-1}\). Before arrival, paramedics administer diazepam for abnormal movements. Appropriate statements include:
   (a) Activated charcoal should be administered via a nasogastric tube after his airway has been secured.
   (b) Diazepam was mistakenly given for myoclonic jerks and should be reversed with flumazenil.
   (c) With such a clear history and normal glucose, further investigations are unnecessary.
   (d) Without induction agents, laryngoscopy is likely to be successful.
   (e) With this degree of muscle mass and probability of rhabdomyolysis, succinylcholine is contraindicated.

6. A 40-year-old man with abdominal striae, body mass index of 35 kg m\(^{-2}\) and blood pressure of 144/92 mm Hg presents for elective Achilles tendon repair. Other than appendicectomy at the age of 10 years, he admits to intermittent ingestion and cyclical abstinence of anabolic steroids for 15 years. Appropriate statements include:
   (a) Left ventricular hypertrophy and severe diastolic dysfunction are likely to be present.
   (b) Provided the electrocardiogram is normal, anaesthesia and surgery may proceed without further cardiological investigations.
   (c) A laryngeal mask airway is likely to be suitable for this patient.
   (d) Owing to the possibility of compartment syndrome, thromboprophylaxis is likely to be postponed.
   (e) Resistance to non-depolarizing muscle relaxants is likely to occur.

7. A pyrexial 21-year-old student is suspected to have ingested ecstasy and a copious quantity of water. On examination in the emergency department she is agitated, delirious and hyperreflexic. Appropriate statements include:
   (a) Intravenous lorazepam may be given safely.
   (b) If the corrected QT interval on the electrocardiogram is greater than 450 ms, sodium bicarbonate is indicated.
During sodium bicarbonate therapy there is a high risk of central pontine myelinolysis.

Dantrolene is indicated when her temperature rises above 39.0°C.

In this situation there is strong evidence for urinary alkalization to manage rhabdomyolysis.

Appropriate statements regarding body packers include:

(a) Body packers are at higher risk of significant symptoms than body stuffers.
(b) In a patient who does not normally consume cocaine, a positive urinary test for this substance requires urgent surgical referral.
(c) Packers with symptoms and signs of heroin toxicity are safely managed with whole-bowel irrigation and a naloxone infusion in a critical care unit.
(d) In mildly symptomatic patients, endoscopic retrieval is indicated.
(e) Provided retained packages are intact, asymptomatic patients are safely discharged into the care of the police.

Anaesthesia for complex airway surgery in children

Laryngomalacia is a cause of upper airway obstruction in infants. It is:

(a) The commonest congenital cause of upper airway obstruction.
(b) Characterized by biphasic stridor.
(c) Characterized by inspiratory stridor in the first 2 weeks of life.
(d) A condition that is likely to require aryepiglottoplasty in infants with severe symptoms.
(e) Likely to be associated with a second cause of obstruction.

Appropriate statements with regard to the causes of upper airway obstruction in infants and children include:

(a) Subglottic cysts are likely to present with biphasic stridor.
(b) Respiratory papillomatosis is confined to the larynx.
(c) The typical presentation of respiratory papillomatosis is likely to be between the ages of 2 and 5 years.
(d) Subglottic haemangioma present at birth with biphasic stridor.
(e) Subglottic haemangiomas are likely to be treated by tracheostomy when they occupy 30% of the diameter of the airway.

In the Hagen–Poiseuille formula:

(a) Turbulent flow is proportional to $r^4$.
(b) Doubling the radius doubles the flow.
(c) $P_1 - P_2$ is the pressure difference between the mouth and the trachea.
(d) The symbol $n$ represents the density of gas.
(e) The symbol $l$ represents the distance gas travels.

Appropriate statements regarding anaesthesia for an infant having surgery in the airway include:

(a) Surgical access is likely to be more important than effective ventilation.
(b) Spontaneous ventilation using a volatile agent is likely to be used.
(c) Anticholinergic drugs are unlikely to be administered because of their effect on the cardiovascular system.
(d) Subglottic jet ventilation is likely to be used with safety.
(e) Topical epinephrine is likely to be avoided owing to the risk of arrhythmias.

Acute management of aneurysmal subarachnoid haemorrhage

Appropriate statements relating to the diagnosis of subarachnoid haemorrhage (SAH) include:

(a) Non-contrast computer tomography (CT) scanning has low sensitivity for detecting subarachnoid blood.
(b) Non-contrast CT scanning is useful for the diagnosis of complications of SAH such as cerebral oedema and hydrocephalus.
(c) After four-vessel digital subtraction angiography (DSA) has confirmed the diagnosis, the role of CT angiography is to provide additional anatomical information.
(d) Magnetic resonance imaging is likely to be the first-line diagnostic investigation.
(e) In patients with a high index of suspicion of SAH but a normal CT scan, a lumbar puncture should be performed.

The acute management of a patient with suspected SAH is likely to include:

(a) Reduction of systolic blood pressure when it is greater than 160 mm Hg (mean arterial pressure <100 mm Hg) before securing the ruptured aneurysm.
(b) Reduction of systolic blood pressure below 100 mm Hg in those at high risk of rebleeding.
(c) Intubation and controlled ventilation in unconscious patients.
(d) Maintaining $P_{aO_2}$ > 13 kPa and $P_{aCO_2}$ between 4.5 and 5.0 kPa.
(e) Referral to a neuroscience centre.

Appropriate statements regarding the management of patients with aneurysmal SAH include:

(a) Surgical clipping is likely to be reserved for aneurysms with a wide neck or those arising from the middle cerebral artery.
Delayed cerebral ischaemia is the main cause of death and disability after SAH. The risk of rebleeding is greatest in the first 7 days. SAH of poor clinical grade or large subarachnoid blood load is associated with an increased risk of hydrocephalus. Prophylactic anticonvulsants should be prescribed routinely.

16. Appropriate statements in relation to delayed cerebral ischaemia (DCI) and vasospasm include:

(a) The risk of DCI and vasospasm is greatest within the first 2 days.
(b) DCI is defined as a neurological deterioration from any cause.
(c) Vasospasm is diagnosed with certainty by transcranial Doppler ultrasonography.
(d) After coming to a diagnosis of SAH, oral nimodipine is started and continued for 3 months.
(e) Statins are most likely to be started to minimize the risk of vasospasm.

Radiation safety for anaesthetists

17. Linear energy transfer (LET) of ionizing radiation is likely to:

(a) Be measured in kiloelectronvolts (keV) per micrometre (μm) of medium.
(b) Be high with X-rays.
(c) Be low with α particles.
(d) Cause effects by direct action when it is at a high level.
(e) Lead to the generation of destructive free radicals when it is at a high level.

18. When exposed to ionizing radiation:

(a) Nerve cells are more vulnerable than haemopoietic cells.
(b) Gut cells are less vulnerable than haemopoietic cells.
(c) Gastrointestinal symptoms are immediate when the dose is 0.5 Gy.
(d) Death occurs in 100% of cases within 2 weeks after exposure to 10–20 Gy.
(e) Death occurs due to central nervous system failure after exposure to at least 20 Gy.

19. Radiation exposure during fluoroscopy is likely to be reduced by:

(a) Beam collimation.
(b) Continuous fluoroscopy rather than pulsed fluoroscopy.
(c) Magnification.
(d) Use of a laser cross to guide imaging.
(e) Moving the body part for imaging closer to the source.

20. The lifetime risk of cancer is likely to be:

(a) One in a million after chest X-ray.
(b) Greater after skull X-ray than after chest X-ray.
(c) Lower after skull X-ray than after chest X-ray.
(d) Increased in children who are exposed to ionizing radiation in utero.
(e) Lower after chest computed tomography than after chest X-ray.

Post-natal neurological problems

21. Appropriate statements regarding regional anaesthesia and nerve damage include:

(a) A dense epidural block is likely to assist in minimizing nerve injury.
(b) In the lithotomy position, the medial side of a woman’s legs should rest against the stirrups.
(c) Cauda equina syndrome has a clear dermatomal distribution.
(d) The incidence of nerve damage in obstetric patients is approximately 1%.
(e) The incidence of nerve damage after a regional block is approximately 1:2500.

22. Appropriate statements regarding regional anaesthetic technique include:

(a) Landmarks are likely to be accurate when determining the correct vertebral level.
(b) The presence of coagulopathy is likely to influence insertion and removal of an epidural catheter.
(c) An epidural is unlikely to be inserted when the platelet count is less than 70 000/mm³.
(d) Nerve damage is more common after spinal block than epidural block.
(e) Needle-induced paraesthesia is unlikely to be associated with nerve trauma.

23. Appropriate statements concerning the causes and consequences of nerve injury include:

(a) A quarter of nerve damage is likely to take 2 years to recover.
(b) Proprioception is expected to be lost before pain sensation.
(c) In the first few weeks after injury, electrophysiological studies are unlikely to be beneficial.
(d) Of all cranial nerves, the oculomotor nerve is most likely to be involved in low-pressure palsy.
(e) The dermatome for the obturator nerve covers the medial thigh.
24. Appropriate statements regarding presentation of nerve injury include:

(a) Femoral nerve injury is likely to present with the inability to climb stairs.
(b) Lumbosacral compression at the pelvic brim is likely to lead to bilateral foot drop rather than unilateral foot drop.

(c) Sensory motor deficit with back pain requires prompt investigation.
(d) Anterior cord syndrome is unlikely to occur as a result of neuraxial anaesthesia.
(e) Adhesive arachnoiditis is likely to present with clear symptoms for diagnosis.

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