

SELF ASSESSMENT QUESTIONS

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The following MCQ questions assess your knowledge about issues covered in Update in Anaesthesia. Write your answers on a sheet of paper, and then check the answers and comments on page 65.

1. *A low alveolar PO₂ may be caused by*

- a) shivering
- b) breathing a hypoxic mixture of gases
- c) a decreased minute volume
- d) ventilation/perfusion mismatch
- e) uncomplicated cardiac failure

2. *Blood in the following vessels usually has an oxygen haemoglobin saturation greater than 90%*

- a) pulmonary artery
- b) aorta
- c) inferior vena cava
- d) pulmonary veins
- e) halfway along the pulmonary capillary

3. *Oxygen consumption*

- a) is increased in malignant hyperpyrexia
- b) is increased under general anaesthesia
- c) in health, is critically dependent on oxygen delivery
- d) is approximately 2L/min in the resting adult
- e) when increased, causes a decrease in the mixed venous PO₂ (assume oxygen delivery remains constant)

4. *Oxygen stores*

- a) are increased slightly by pre-oxygenation
- b) are large because oxygen is so important for cellular function
- c) depend in part on blood volume and haemoglobin concentration

- d) are large in pregnant women compared to non-pregnant women
- e) can be accurately assessed with a pulse oximeter

5. *The following commonly contribute to poor oxygenation during general anaesthesia*

- a) hyperventilation
- b) atelectasis
- c) ventilation/perfusion mismatch
- d) hypersensitive chemoreceptors
- e) increased metabolic rate

6. *40% oxygen via a facemask is appropriate oxygen therapy for a patient with*

- a) a shunt equivalent to 40% of cardiac output due to pneumonia
- b) a reduced minute volume due to opioid analgesia
- c) complete upper airway obstruction
- d) hypovolaemic shock
- e) ischaemic heart disease following uncomplicated major surgery

7. *Pre-oxygenation*

- a) can be started in the ward prior to coming to theatre
- b) as part of a rapid sequence induction occurs following induction of anaesthesia but before intubation of the trachea
- c) causes a significant increase in the oxygen bound to haemoglobin in the blood
- d) should take place through an anaesthetic circuit and a high oxygen flow rate and the mask held just off the face
- e) allows for acceptable oxygenation during 10 minutes of apnoea

8. *The PO₂*

- a) in the trachea while breathing air is about 150 mmHg

- b) in the arterial blood while breathing air is about 100 mmHg (13 kPa)
- c) in the alveoli can exceed 600 mmHg when breathing 100% oxygen
- d) of venous blood may fall when cardiac output is very low
- e) in the mitochondria in the brain is higher than in venous blood
- 9) ***After recent significant head injury with loss of consciousness and a period of decreased GCS, suitable anaesthetic techniques for fixation of fractured elbow include:***
- a) local anaesthetic block
- b) spontaneous ventilation with 2% halothane
- c) intravenous ketamine
- d) ventilation with a low concentration of whatever volatile agent is available to you (eg 0.5% halothane)
- e) avoidance of suxamethonium
- 10) ***Difficult intubation is associated with:***
- a) a short thick neck
- b) limited mouth opening
- c) dental abscess
- d) limited neck movements
- e) a Mallampati grade 1.
- 11) ***Strategies that can be used in patients likely to be a difficult intubation include:***
- a) regional anaesthesia
- b) inhalational induction and spontaneous ventilation with a volatile agent
- c) paralysis with alcuronium or pancuronium after intravenous thiopentone.
- d) awake intubation
- e) cautious intravenous anaesthesia using ketamine.
- 12) ***Interscalene block***
- a) is good for hand surgery
- b) is likely to work when paraesthesia or twitches occur over the shoulder.
- c) is useful for operations on the shoulder or upper arm
- d) can be used to reduce dislocated shoulder
- e) frequently blocks the phrenic nerve
- 13) ***A fit occurring in association with placement of a major local anaesthetic block***
- a) may be due to direct injection of local anaesthetic into a blood vessel
- b) may be because too big a dose of local anaesthetic has been given
- c) should be managed by giving oxygen and maintaining the airway
- d) if the fit does not stop may be treated with thiopentone or diazepam
- e) may be associated with cardiac arrhythmias or arrest
- 14) ***Pre-oxygenation in pregnant women is especially important because:***
- a) intubation may be difficult
- b) they have a reduced lung volume (decreased FRC-functional residual capacity)
- c) they use up oxygen faster than non pregnant patients
- d) can be achieved by breathing oxygen for 3 minutes with a tight fitting face mask.
- e) can be achieved by performing 3 vital capacity breaths of 100% oxygen
- 15) ***Agents which may be given at the time of induction of general anaesthesia for Caesarean section when there is pre-eclampsia include:***
- a) thiopentone
- b) etomidate
- c) magnesium sulphate
- d) alfentanil
- e) ketamine
- 16) ***A pregnant patient complains of difficulty breathing and tingling in the arms soon after a spinal with heavy bupivacaine for Caesarean section. Actions to perform include:***
- a) place the patient head down
- b) give oxygen and be ready to control the airway
- c) speed the iv infusion up
- d) place a pillow under the head and shoulders
- e) leave the room to continue scrubbing up for surgery.
- 17) ***Contraindications to the use of NSAIDs (non-steroidal anti-inflammatory drugs) for the control of pain include:***
- a) renal failure
- b) all asthmatic patients
- c) patients actively bleeding
- d) old and frail patients
- e) patients with peptic ulcer

18) Concerning pain relief in children:

- a) they have no need for pain relief
- b) morphine is too dangerous to give
- c) NSAIDs should not be used
- d) paracetamol is too weak to be useful
- e) local anaesthetic blocks are useful

19) Features of an anaphylactic reaction

include:

- a) low blood pressure
- b) diarrhoea
- c) wheezing
- d) flushed appearance
- e) swelling around the face and airway

20) Treatment of an anaphylactic reaction

includes:

- a) adrenaline
- b) steroids

- c) iv fluids
- d) antihistamine
- e) antibiotics

21) Causes of a fast pulse (greater than 100) include:

- a) pain
- b) ketamine
- c) hypovolaemic shock
- d) atropine
- e) fever

22) Causes of a slow pulse (less than 50 beats per minute) include:

- a) hypoxia
- b) neostigmine
- c) cervical dilatation
- d) vasovagal episodes
- e) may be normal in very fit people