

Tutorial of the Week 157

Multiple Choice Quiz October 2009

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Test your knowledge from the following tutorials:

<u>Category</u>	<u>Title</u>
General Anaesthesia	Anaesthesia & the parathyroid gland Intra-operative hypotension Pheochromocytoma One Lung Ventilation Obstructive Sleep Apnoea
Paediatric Anaesthesia	Anaesthesia for children with Down's syndrome Anaesthesia for paediatric eye surgery
Basic Sciences	Respiratory Physiology Interpretation of the chest radiograph 1-3
Regional anaesthesia	Nerve stimulation for peripheral nerve blockade Subclavian Perivascular Block

There are 25 questions with 4 parts. Answers are either true or false.

Answers will be published on the WFSA TOTW site

Tutorial of the Week Quiz Questions

October 2009

1. Down's Syndrome is associated with the following problems:
 - a. Atlanto axial subluxation
 - b. Obstructive Sleep Apnoea
 - c. Microglossia
 - d. Supraglottic Stenosis

2. The following cardiac abnormalities are associated with Down's Syndrome patients:
 - a. Patent Ductus Arteriosus
 - b. Atrioventricular Septal Defects
 - c. Ventricular Septal defects
 - d. Aortic regurgitation

3. In a patient presenting for parathyroidectomy;
 - a. is usually performed for parathyroid gland carcinoma
 - b. hypocalcaemia can be a problem pre operatively
 - c. damage to the recurrent laryngeal nerves can occur leading to stridor
 - d. parathyroid hormone over production leads to hypercalcaemia

4. The following conditions are associated with congenital cataracts;
 - a. Sturge Weber syndrome
 - b. Crouzon's syndrome
 - c. Neurofibromatosis
 - d. Goldenhar syndrome

5. Concerning paediatric ophthalmic surgery;
 - a. the oculocardiac reflex can be stimulated leading to a profound tachycardia
 - b. the efferent arc of the oculocardiac reflex is via the ophthalmic part of the trigeminal nerve and the afferent part via the vagus nerve
 - c. administering a IV 10 mcg / kg dose of glycopyrrolate will attenuate the oculocardiac reflex
 - d. stimulation of the oculocardiac reflex is associated with a higher incidence of post operative nausea and vomiting

6. When considering the anaesthetic implications for conditions with raised intraocular pressure:
 - a. suxamethonium does not significantly raise the IOP
 - b. propofol does reduce the IOP by up to 3 – 7 mmHG
 - c. Ketamine does significantly reduce the IOP by up to 30%
 - d. Halothane does not affect the IOP

7. With regard to a patient undergoing a left pneumonectomy:
 - a. the predicted post operative FEV1 can be calculated by the formula $ppo\ FEV1 = FEV1 \times (19-y)/19$ y being number of segments to be removed
 - b. they would be considered to be high risk if unable to perform >25 shuttles and desaturate > 4%
 - c. a right sided double lumen tube such as a Carlens tube should be used to isolate the remaining lung
 - d. hypoxia secondary to shunt will improve by clamping the pulmonary artery to the side being resected

8. Hypoxia occurring during one lung ventilation for a Video Assisted Thoracoscopic procedure:
 - a. Is contributed to by pulmonary shunting causing ventilation perfusion mismatch
 - b. can be secondary to atelectasis of the dependant lung
 - c. can be managed by applying CPAP to the non dependant lung
 - d. is not worsened by employing large tidal volumes, a slow ventilation rate and no PEEP ventilation strategy

9. With regard to phaeochromocytomas:
 - a. they are always inherited with other endocrine conditions
 - b. they predominantly secrete adrenaline
 - c. they are highly vascular solid tumours
 - d. they present more commonly in women between the 3rd and 5th decades

10. The management of phaeochromocytomas includes:
 - a. optimal treatment of hypertension with preoperative alpha blockade leading to a consistent BP of < 160/90 and orthostatic hypotension
 - b. reversal of hypertension induced myocardial ischaemia
 - c. reverse the reduced intravascular volume and high haematocrit
 - d. if a noradrenaline secreting tumour, beta blockade is always required to counteract tachycardia

11. Periods of cardiovascular instability associated with surgery for phaeochromocytomas can be:
 - a. associated with intubation, surgical incision and tumour manipulation
 - b. triggered by drugs such as ephedrine and suxamethonium
 - c. controlled by drugs such as phentolamine and esmolol
 - d. prevented by a working thoracic epidural

12. Severe intraoperative hypotension under general anaesthetic can;
 - a. be caused by an embolus such as air
 - b. be precipitated by hypovolaemia from diarrhoea and vomiting
 - c. be caused by vagal stimulation
 - d. never be secondary to intravenous induction agents

13. Obstructive sleep apnoea is:
 - a. commonly associated with obese male patients with a collar circumference of >40 cm
 - b. a combination of periods of apnoeas and hyponoeas exceeding 10 seconds from intermittent airway obstruction leading to periods of desaturation and arousal
 - c. not associated with the development of pulmonary hypertension only systemic hypertension
 - d. not associated with an increased incidence of difficult intubation

14. Preoperative preparation for patients suspected of suffering from obstructive sleep apnoea;
 - a. includes the use of screening questionnaires such as Meyer Briggs
 - b. includes referral for polysomnography
 - c. requires the avoidance of sedative drugs such as lorazepam
 - d. includes the avoidance of regional techniques

15. When performing a subclavian perivascular block of the arm:
 - a. the middle trunk of the brachial plexus is frequently missed due to being positioned behind the subclavian artery
 - b. the intercostobrachial nerve supplying the inner aspect of the arm does not form part of the brachial plexus therefore requires supplementation
 - c. pupil constriction on the side of the block does not occur
 - d. bilateral blocks are safe to perform

16. Concerning the anatomy and physiology of the lungs:
 - a. gas exchange occurs only in the last 5 generations of bronchi division in the "Respiratory Zone"
 - b. anatomical dead space occurs in the first 17 generations of bronchi division and is approximately 500ml in an adult patient
 - c. surfactant is a phospholipid which acts to keep the alveoli open by increasing surface tension and therefore decreases compliance
 - d. on a chest X ray the carina divides at the level of T6

17. With regard to measured lung volumes:
 - a. the functional residual capacity FRC is the total volume of the expiratory reserve volume ERV, the tidal volume TV and the residual volume RV and is 30 ml/kg
 - b. the Vital capacity is the sum of the Inspiratory capacity IC and the expiratory reserve volume ERV
 - c. the inspiratory reserve volume is the volume of gas inspired over normal tidal inspiration and is 45ml/kg
 - d. the Functional residual capacity is reduced in the elderly , obese, emphysematous and pregnant patients

18. Measurement of the Functional residual capacity in a patient with emphysema:
 - a. is possible using a spirometer
 - b. is accurate using the helium dilution technique
 - c. is inaccurate using body plethysmography
 - d. shows an increase in the predicted volume of 30ml/kg

19. Concerning "Dead Space" associated with tidal respiration;
 - a. physiological dead space is the total of both anatomical and alveolar dead space
 - b. alveolar dead space is increased in conditions such as pneumonia, pulmonary embolus and pulmonary oedema where alveoli are ventilated but not perfused leading to shunting and hypoxia
 - c. Fowlers method is used to measure physiological dead space which is about 150ml
 - d. PEEP can be used to prevent further increases in dead space due to atelectasis

20. When using a nerve stimulator for performing regional nerve blockade:
 - a. an adequate current (Rheobase) and the appropriate length of time this current is applied (chronaxie) is important to initiate a successful sensory response
 - b. myelinated nerves such as A delta motor nerves have a shorter chronaxie time
 - c. the current generated is not constant and ranges between 0.2 mA and 5 mA
 - d. the needle is the cathode or positive part of the nerve stimulator

21. In using nerve stimulation of a peripheral nerve to perform a block:
 - a. an threshold current of $< 0.2\text{mA}$ is acceptable to inject the local anaesthetic as the needle position is optimally close to the nerve to be blocked
 - b. needle placement at a threshold current of $< 0.2\text{ mA}$ is likely to be at risk of intraneural placement
 - c. non insulated needles concentrate the current at the tip of the needle ensuring more accurate placement of the local anaesthetic and a more successful block
 - d. the settings used are pulse duration of 0.1 msec, frequency of 2 Hz and starting current of 1 mA

22. In the interpretation of a chest radiograph the following are true:
 - a. bones appear black, air appears grey and blood and fat appear white due to different degrees of X ray absorption by the tissues
 - b. Anterior – Posterior films are not affected by rotation and are advantageous in intensive care patients as they expose the patient to a lower amount of radiation

- c. The adequacy of penetration of the film three lower thoracic vertebrae and the left lower lobe pulmonary vessels should be visible through the cardiac silhouette
 - d. The left lung is divided into 3 lobes by the oblique and horizontal fissures
23. When looking for abnormalities on a chest X ray:
- a. the left hemidiaphragm is outlined on both sides if there is free intraperitoneal gas such as after a bowel perforation
 - b. sternal fractures require both AP and lateral views as they can be missed with just frontal view
 - c. hiatus herniae are seen by looking for a fluid/gas shadow behind the heart
 - d. axillary lymphadenopathy cannot be identified if the soft tissues
24. When assessing whether the following tubes are correctly placed using a chest X ray :
- a. endotracheal tubes should sit > 5cm above the carina
 - b. endobronchial intubation and lung collapse can be secondary to neck flexion or extension
 - c. the tip of a tracheostomy tube should sit 3 - 5 cm above the carina
 - d. naso gastric tubes should pass laterally at the level of the carina to avoid endobronchial placement
25. In deciding whether a central line is correctly positioned on a CXR:
- a. for right sided lines the tip should sit within the right brachiocephalic vein above the superior vena cava
 - b. the tip should be within the superior vena cava at the level of the carina
 - c. left sided internal jugular lines are shorter than right to allow for passage through the left brachiocephalic vein
 - d. Peres formula can be used to calculate the length that the central line should be from the skin for the tip to sit at the level of the pleural reflection