Self-assessment

This section is designed to test your knowledge of selected topics in this issue of the journal. The correct answers are given on the next page.

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MULTIPLE CHOICE QUESTIONS

1 An update of systemic analgesics in children

Which of the following are true regarding the pharmacology of oxycodone?

A. The target concentration of 45–50 μg/L is needed for postoperative pain relief
B. Undergoes a high first pass metabolism
C. Metabolized by the hepatic cytochrome P450 system
D. The metabolites contribute to the analgesic effect of oxycodone
E. Doses and drug intervals need to be adjusted in renal impairment

2 Paediatric day case surgery

Which of the following are risk factors for developing apnoea in the immediate postoperative period in ex-premature neonates undergoing day surgery?

A. Regional anaesthesia
B. Degree of prematurity at birth
C. Post conceptual age at time of surgery
D. Previous postoperative apnoea
E. Anaemia

3 Peripheral and local anaesthetic techniques for paediatric surgery

Which of the following are true regarding penile block in a child posted for circumcision?

A. The dorsal nerves of the penis are branches of the pudendal nerve
B. The local anaesthetic is deposited superficial to Scarpa's fascia
C. Addition of adrenaline is useful in prolonging the duration of the block
D. The ventral aspect of the base of the penis should also be infiltrated for a successful block
E. Using ultrasound is recommended to improve efficacy of the block

4 Pain assessment in children

Which of the following are true about the self reporting pain assessment tools in children?

A. Self-reporting tools are considered to be the gold standard in pain assessment
B. There is plenty of evidence supporting the validity of self reporting pain assessment tools in clinical practice
C. Can be used in children who are 3 years and older
D. The revised faces pain scale is useful in children from 6 months onwards
E. Multiple-sized Poker Chip is a self reporting pain assessing tool

SINGLE BEST ANSWER

5 SBA

A 2-month-old child is posted for a urological procedure under spinal anaesthesia. This child is fit and well now but was born premature at 34 weeks. How does the performance and complications of spinal anaesthesia in this child compare to that in an adult?

A. The spinal interspace level at which spinal anaesthetic can be safely performed is similar to adults
B. The child may need supporting the haemodynamic changes if not administered fluids prior to the block
C. Former premature infants have an almost absent autonomic response to spinal anaesthetics.
D. The dose of local anaesthetic, on a per kilogram basis, may be smaller than that in adults
E. The risk of post-dural puncture headache is similar to that of adults

6 SBA

A 3-year-old fit and well boy underwent adenotonsillectomy. In the immediate recovery he is dissociated, irritated, crying and thrashing. Which of the following are true about the causes, diagnosis and management of this child?

A. Sevoflurane anaesthesia would reduce the incidence of this behaviour
B. Preoperative anxiety is a risk factor for this state
C. This behaviour is unlikely after a painless procedure
D. Midazolam may be administered to control the situation
E. Intravenous ketamine at the end of the procedure would have worsened the behaviour

ANSWERS

1. Correct answers: A, C, E

2. Correct answers: B, C, D, E

3. Correct answers: A, D

4. Correct answers: A, C, E

5. Correct Answer: C. Spinal anaesthesia is a safe and effective way to provide anaesthesia for lower abdominal, urological and lower extremity procedures. In neonates, the spinal cord terminates at the vertebral level as low as L3 while, in adults, the spinal cord terminates at L1. As a result, spinal anaesthetics should only be performed at or below the L4/L5 interspace level in neonates and infants. Neonates and infants rarely exhibit haemodynamic changes after spinal blockade even without prior fluid administration. It has also been reported that former premature infants have an almost absent autonomic response to spinal anaesthetics. High sympathetic blockade has little effect in infants because of the parasympathetic dominance in this age group. Bupivacaine 0.5% 0.8 mg/kg (range 0.5–1 mg/kg) is commonly injected, with the dose decreasing on a mg/kg basis as the age of the patient increases. The dose of local anaesthetic, on a per kilogram basis, may be larger because of the relatively large spinal canal and larger volume of cerebrospinal fluid on a per kilogram basis

Overall, failure rates are reported to be low, 1–5%, depending on the study reported. Post-dural puncture headache in neonates and infants is thought to be very low, but the exact incidence is unknown following spinal blockade. However, the incidence in children 2–15 years of age is probably similar to adult populations, less than 5% overall.

6. Correct Answer: B. This child is most likely to suffer postoperative emergence delirium (ED). ED is a transient state of irritation and disassociation after anaesthesia, and may involve crying, kicking or thrashing. The incidence is unknown as there is not a definite threshold for diagnosis. However, with the increasing use of short-acting volatile agents (sevoflurane and desflurane) and short-acting opioids, emergence issues are not unusual. It is more likely to occur in the 2–5 year age range especially after painful procedures, although it can occur after non-painful procedures. Preoperative anxiety is a risk factor and children who are more emotional or impulsive are more prone to ED postoperatively.

Although self-limiting, ketamine (0.25 mg/kg IV at end of procedure), clonidine (2–3 mg/kg IV) and fentanyl (1 mg/kg IV 10 min before end of procedure) have been shown to reduce ED, as has propofol given either as TIVA or as a bolus (1 mg/kg) before wake up. Midazolam appears to have no beneficial effect.