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Dexmedetomidine: a review , update, and future considerations of paediatric perioperative and periprocedural applications and limitations.

M. Mahmoud and K.P. Mason

BJA 115 (2): 171-82

Wither dexmedetomidine?

J. Cravero, B. Anderson and A. Wolf

Paediatric Anaesthesia 25 (9) : 867-870

The significant contributions to the literature regarding dexmedetomidine are reviewed comprehensively in the August BJA article. The evidence surrounding its use and safety profile as a preoperative anxiolytic, for airway, neurosurgical, cardiac, dental and regional applications are discussed. Precautions to be considered when using dexmedetomidine, with a focus on its haemodynamic effects, renal and neurological safety are covered. The authors conclude that data regarding the 'off-label' perioperative use of dexmedetomidine are promising but still limited. This article has 127 references regarding the drug, and may serve as a good springboard for more detailed reading.

The editorial in the September issue of Paediatric Anaesthesia, discusses the pharmacology, safety and effectiveness of dexmedetomidine. Caution is advocated - 'can the drug be that good and useful in so many diverse areas?'. The main unanswered questions regarding where dexmedetomidine sits in the armamentarium of anaesthesia are posed. The same issue has four original articles on dexmedetomidine.

Pain after surgery in children: clinical recommendations

S. Walker

Curr Opin Anaesthesiol , 28:571-576

In this review article, the author has identified all material published since January 2014 relating to post-operative pain and analgesia in children with implications for clinical recommendations. Four topics are discussed in detail namely pain at home, opioid- related adverse events, evidence for the safety and efficacy of regional anaesthesia and persistent post-surgical pain in children and adolescents.

Paediatric neuroanaesthesia

A. Clebone

Current Opinion in Anaesthiol , 28: 494-497

In this review article from October 2015, the US-based author looks at a series of recent studies that have changed aspects of the practice of paediatric neuroanaesthesia. While recent focus has been on the neuroapoptotic effects of volatile anaesthetics and NMDA antagonists, the author discusses recent evidence pointing to the cognitive impairment resulting from impaired cerebral perfusion. The results of the recent papers by Rhondali et al (2015) and Michelet et al (2015) are discussed, demonstrating a minimum mean arterial pressure of 35 mm Hg or within 20% of baseline is needed to ensure cerebral perfusion in healthy full term neonates.

The paper goes on to discuss craniosynostosis, which has been the subject of extensive recent study, both relating to decreasing blood loss and optimizing postoperative outcomes. The role of transexamic acid and fresh frozen plasma on blood loss and clinical outcomes are discussed. The role of an algorithm to predict postoperative care by Goobie et al (2015) is covered, alongside problems with venous air emboli in those with congenital heart disease. Perioperative imaging, and the significant radiation burden of repeated CT scans is discussed and can be reduced by 80% using 'ultra low dose' protocols according to one study quoted by the author.

Further Reading

Rhondali O, Pouyau A, Mahr A *et al*. Sevoflurane anaesthesia and brain perfusion.

Paediatri Anaesth 2015; 25:180-085

Michelet D, Arslan O, Hilly, J, *et al*. Introperative changes in blood pressure associated with cerebral desaturation in infants*. Paediatr Anaesth* 2015; 25:681-388

Goobie S, Zurakowski D, Proctor M, *et al*. Predictors of clinically significant postoperative events after open craniosynostosis surgery. *Anaesthesiology* 2015; 122:1021-1032

Peripheral nerve catheters in children: an analysis of safety and practice patterns from the Paediatric Regional Anaesthesia Network (PRAN)

B. Walker, J. Long, s. De Oliveira *et al*

BJA 115(3): 457-62

An observational , multi-centre study of 2074 peripheral nerve catheters entered onto the PRAN database. Each centre completed online details of peripheral nerve catheters inserted, including patients characteristics, anatomic location and localisation techniques, drugs used and complications. Most catheters were in the lower extremity with femoral catheter being the most commonly sited. The median patients age and weight were 13 years and 52.5 kg respectively. A total of 251 (12.1%) complications were recorded, most commonly minor in severity, including catheter malfunction, block failure, infection and vascular puncture. There were no recorded cases of persistent neurological complications, serious infection, or local anaesthetic systemic toxicity. Those with catheters for a median of 4.5 days were more likely to develop infections that those left in for a median of three days.

Paternalism and consent: has the law finally caught up with the profession?

K McCombe and D. Bogod

Anaesthesia, 70: 1013-1019

An editorial on the significance of the recent judgement of the Supreme Court in the case of Montgomery v Lanarkshire Health Boards. The Supreme Court have disambiguated case law, finally and conclusively replacing Bolams' test as the legal standard for consent in UK law. The author argues this is not a landmark case and the judgement simply represents the alignment of the law with the professional standards set by the General Medical Council. Significant cases in history are discussed giving a bit of interesting background to where we find ourselves today regarding consent.

Low incidence of pulmonary aspiration in children allowed intake of clear fluids until called to the operating suite

H Andersson, B Zaren, P Frykholm

Paediatric Anaesthesia 25: 770-777

Over a five year period the authors looked at 10 015 children undergoing elective surgery retrospectively and recorded incidence of pulmonary aspiration. Their institution (Uppsala University Hospital, Sweden) operates a liberal fasting guideline whereby children are allowed clear fluids until called to theatre. There were three cases of aspiration (0.03%), and fourteen patients (0.14%) showed transient symptoms of respiratory distress and were treated as suspected aspiration. No case required cancellation of the surgical procedure, ventilatory support or intensive care. The authors concede that it is difficult to diagnose aspiration retrospectively and the children did not receive fluids in most cases up to thirty minutes before induction of anaesthesia. Compliance to the fasting regime was variable with children often fasting for longer than recommended. It is difficult to extrapolate whether the incidence of pulmonary aspiration was higher in their patients compared to other studies due to different definitions of pulmonary aspiration and changing anaesthetic practices. Nevertheless, the many advantages of avoiding dehydration and lack of clinically significant morbidity suggests there may be reasons to question the '2-hour rule' for clear fluids.