



Preoperative fasting in children: review of existing guidelines and recent developments

Frykholm, P et al. British Journal of Anaesthesia, 120(3), 469–474 (2018)

This paper provides a concise review of current literature on preoperative fasting in children, including the physiological rationale.

The key points presented are:

- Pulmonary aspiration in adults is rare, but can be associated with devastating consequences.
- Pulmonary aspiration in children is rare, morbidity or mortality have NOT been reported.
- Rate of gastric emptying in children is quick, although highly variable.
- Current fasting recommendations are most commonly 6-4-2.
- Children are often fasted for longer than instructed.
- Prolonged fasting has negative metabolic consequences.

The author concludes that the evidence supports a reduction in paediatric fasting times for clear fluids prior to elective surgery in paediatric hospitals. To what degree remains controversial.

Reviewed by: Bae Corlette

Perioperative steroid use for tonsillectomy and its association with reoperation for post-tonsillectomy hemorrhage: a retrospective cohort study

Miyamoto, Y et al. Anesthesia & Analgesia, 126(3):806-814, 2018

This is a retrospective cohort study of 6149 patients having tonsillectomy with or without adenoidectomy or grommets. A hospital-based claims database over a period of 6 years and including patients treated at 68 hospitals were analysed for reoperation for bleeding on postoperative days 1-14. Half the study cohort were children.

There was no significant difference in the rate of reoperation between patients receiving steroids on the day of surgery and those who did not. This applied to both adult and paediatric subgroups. Increasing patient age and perhaps unsurprisingly increased anaesthetic time for the initial surgery were associated with an increased reoperation rate. Patients given steroids were also more likely to have received NSAIDs in the perioperative period.

In this Japanese study, only 13.7% of patients received steroids intraoperatively, and 30.2% in the immediate postoperative period which would appear to differ from our local practice. However, in this cohort steroids were more likely to be given to older patients with an infective indication for tonsillectomy who were also administered NSAIDs – a possibly higher risk group for a post tonsillectomy bleed.

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Take Home Message

Steroids have been shown to reduce postoperative complications after tonsillectomies such as nausea and vomiting, pain and delayed recovery. The results of this study support the safety of steroids in this setting with regards to post-tonsillectomy bleeding.

Reviewed by: Stephanie Aplin

SmartTots Update Regarding Anesthetic Neurotoxicity in the Developing Brain

Beverly Orser et al, April 2018, *Anesthesia and Analgesia* 126(4):1393-1395.

This special article is a relevant update and summary of the current issues in the field of anaesthetic neurotoxicity. This group of authors highlight well the issues facing paediatric anaesthetists since the FDA released their statement in 2016. The warning states that 'repeated or lengthy use of general anaesthetic and sedation drugs during surgeries in children younger than 3 years or pregnant women during their third trimester may affect the development of children's brains'. The evidence though from human studies that informed the FDA warning is far less compelling and unfortunately 'no single randomised controlled clinical trial will provide the answer to this central question because of various confounding factors'. Of note the General Anaesthesia Compared to Spinal Anaesthesia trial suggests that a short exposure to a general anaesthetic drug does not cause persistent cognitive impairment. More definitive answers will be available when primary outcomes at the age of 5 are reported later in 2018. The authors remark on the other factors that must be taken into consideration such as hypotension and hypoxia when attributing neurotoxicity to anaesthetic agents.

Take home messages

The authors rightly point out that general anaesthesia is an essential component of paediatric care. The most recent evidence suggests that a single brief exposure to a general anaesthetic does not cause overt neurocognitive deficits in human infants. However, it is still TOO early to conclude whether anaesthetic drugs administered early in life causes harm. This is a good opportunity for us to educate our surgical colleagues about this issue as well.

Reviewed by: Su May Koh

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Clinical Evidence of Any Effect of Anesthesia on the Developing Brain

A Davidson and L Sun, April 2018, *Anesthesiology* 128(4):840-853.

There has been a steady stream of articles on the potential neurotoxicity issue since the FDA set the cat amongst the pigeons a year or so back. Some articles are just expert bias, others are well considered and balanced. This review of the human evidence by two of the leaders in the field is an example of the latter. Touching on all of the difficulties of generating new knowledge in this area, it goes through all of the relevant studies methodically. It is thorough, and worth reading and highlights the weaknesses in the human evidence for neurotoxicity, whilst not dismissing the much stronger preclinical data. As a one stop read to understand the current evidence base for this topic, you can't go wrong.

Reviewed by: Justin Skowno

Pediatric trauma transfusion and cognitive aids.

Anna Clebone. *Current Opinion in Anesthesiology* April 2018, 31:201-206

Adult current practice and emerging trends around transfusions relating to trauma and, by inference, massive blood loss from surgical practice are reviewed with reference to paediatric practice.

This review promises much from the title but delivers little new information. This is no fault of the author, rather a reflection of the paucity of paediatric-specific research in the field of trauma transfusion.

However, there are some useful take-home messages:

1. Keep them warm: there is a 10% decrease in clotting factors for every degree drop from normothermia
2. Use a 1:1:1 ratio of packed red blood cells to FFP to platelets
3. Massive Transfusion Protocols may be better in a "human factors" format – an example is shown in the article
4. Deliberate hypotension may be hazardous in children (children's baseline BPs are already close to the limits of cerebral autoregulation)
5. Tranexamic acid decreases mortality for blast and penetrating trauma in children – more studies are needed in blunt trauma
6. Factor VIIa reduces blood product administration – at the expense of thrombotic complications in children – Thromboelastography may be able to tell us who would best benefit from FVIIa in the future.

Reviewed by Chris Smit

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Systematic review of benefits or harms of routine anaesthetist inserted throat packs in adults: practice recommendations for inserting and counting throat packs

Athanassoglou et al, *Anaesthesia* 2018, 73, 612-618.

This article is as applicable to paediatric as to adult anaesthesia practice and deserves a good read if one has the time. The simple conclusion is that there is no indication for routine insertion of throat packs by anaesthetists, and that specific consideration should be given to each case. Two useful protocols are offered, and the very strong suggestion made to include the throat pack in the surgical count for the very good reason that this is what a swab count is for. The authors also point out the consistent absence of evidence of throat pack utility, and the clear demonstration of harm, including death. This is locally relevant following an incident in Australia recently. In paediatrics, with uncuffed endotracheal tubes still being used, and general anaesthesia for dental procedures being more common, we probably use throat packs more frequently; but the article's basic message still applies. In particular, in paediatrics we often induce and intubate patients in the induction room rather than in theatre, it is therefore even more vital that our surgeons and scrub nurses are aware of the throat packs that we insert. Importantly, this article and the protocols are supported by the Difficult Airway Society (DAS - UK), the British Association of Oral and Maxillofacial Surgery (BAOMS) and the British Association of Otorhinolaryngology, Head and Neck Surgery (ENT-UK), and not just a group of anaesthetists.

Reviewed by Justin Skowno

Edited by Catherine Olweny and Su May Koh

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