

Hot Topic Question

Do you give patients oral carbohydrate containing clear fluids in the preoperative period? (non diabetic patients)

- Yes
- No

Text

There are aspects of the use of preoperative carbohydrate containing oral fluids that are of interest to the paediatric anaesthetist.

Firstly the timing of the preoperative fluid fast and the risk of aspiration.

Gastric pH and residual gastric volume have been used as surrogate measures in order to attempt to establish the risk of pulmonary aspiration. Some such studies have concluded that one hour of clear fluid fasting does not alter gastric pH or residual volume significantly when compared with two hours of clear fluid fasting. It is not always clear what the nature of the clear fluid consumed in these studies is.

Splinter et al looked at the effect of preoperative apple juice on gastric contents, thirst and hunger in 80 healthy children of ages between 5 and 10 years. This group found that 3ml/kg of apple juice decreased gastric volume (measured by aspiration of gastric contents) and that their patients reported feeling less thirsty and hungry. The juice had been taken 2.6 \pm 0.4 hours preoperatively. In a further study the same group looked at different volumes of apple juice given 2.5 hours before surgery. They found that there were no significant differences in gastric volumes and pH after 0, 6 or 10 ml/kg of juice.

A more recent small study by Schmidt et al compared gastric emptying after ingestion of 3 and 7 ml/kg of carbohydrate clear fluid (raspberry syrup diluted with tap water) using MRI in healthy volunteer children between 6 and 14 years of age. They found that gastric content volume assessed by MRI was within the range of the baseline (baseline being the level after an overnight fast) 1 hour after intake of 3ml/kg.

Secondly could the addition of carbohydrate to clear fluid improve the perioperative experience of paediatric patients without introducing any additional risk.

The advent of enhanced recovery has led to significant changes in established practice in adult anaesthesia. One aspect of enhanced recovery programmes has been the use carbohydrate containing drinks taken preoperatively. Reported favourable outcomes include e.g. a quicker recovery of bowel function and less of a catabolic response to surgery.

A Cochrane review looked at preoperative carbohydrate treatment in adult patients and found it was associated with a small reduction in length of hospital stay when compared with placebo or fasting in adult patients undergoing elective surgery. It was found that preoperative carbohydrate treatment did not increase or decrease postoperative complication rates when compared with

placebo or fasting. The authors commented that the quality of the evidence ranged from very low to very high and that this was a very heterogenous group of studies.

Aspects of enhanced recovery are being incorporated into practice in paediatric centres but as yet there is very little published to describe the features of enhanced recovery that are being introduced into paediatric practice and their effects on outcomes.

The policy at one UK tertiary centre has been recently reviewed with the objective of reducing the clear fluid fasting time for patients coming through the preadmission ward to 1 hour. Nurses offer patients a glucose containing drink on arrival. Drinks may be selected from a range of commercially available drinks held on the ward. Red coloured drinks are not offered at the request of gastroenterologists who find the presence of red fluid in the gastrointestinal tract unhelpful when conducting endoscopy of the GI tract.

Certain patients are excluded i.e. those who are at high risk of aspiration or delayed gastric emptying e.g. those with documented or suspected GORD or renal failure.

References

The effect of preoperative apple juice on gastric contents, thirst, and hunger in children

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William M. Splinter, James A. Stewart, John G. Muir

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Gastric pH and residual volume after 1 and 2 h fasting time for clear fluids in children

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Schmidt AR et al

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