

# Review: evidence is lacking that adults given fluids 1.5 to 3 hours preoperatively have greater risks of aspiration or regurgitation than those given a standard fast

Brady M, Kinn S, Stuart P. Preoperative fasting for adults to prevent perioperative complications. *Cochrane Database Syst Rev* 2003;(4):CD004423 (latest version 27 Aug 2003).

**Q** In adults, what are the effects of different preoperative fasting regimens (duration, type, and volume of permitted intake) on perioperative complications and patient wellbeing?

## METHODS



**Data sources:** Medline (1966 to August 2003), CINAHL (1982 to August 2003), the Cochrane Central Register of Controlled Trials (second quarter, 2003), and the UK National Research Register (August 2003); bibliographies of relevant studies and conference proceedings; and experts.



**Study selection and assessment:** randomised controlled trials (RCTs) or quasi-RCTs that compared the effects of different preoperative fasting regimens in terms of duration of fast, type of permitted intake, and volume of permitted intake before general anaesthesia; included adults  $\geq 18$  years of age; and reported postoperative complications. Studies of healthy patients having general anaesthesia or those at high risk of regurgitation or aspiration during anaesthesia (ie, patients who were pregnant, postpartum, obese, elderly, or had gastric disorders) were included. A standard fast was defined as nil by mouth from midnight before morning surgery and a small breakfast early in the morning before afternoon surgery. Intake of a small amount of fluid (10–30 ml) to assist intake of oral medication was permitted. Studies were assessed for methodologic quality (randomisation method, allocation concealment, blinding, a priori sample size calculation, and whether analysis was by intention to treat).



**Outcomes:** perioperative complications including aspiration; regurgitation; related morbidity (eg, aspiration pneumonia) or death; volume, pH, or volume and pH of gastric contents; thirst; hunger; pain; nausea; vomiting; and anxiety.

## MAIN RESULTS

22 trials (38 randomised controlled comparisons,  $n = 2270$ ) met the selection criteria. 15 trials reported patients' experience of the fasting process (ie, thirst, hunger, pain, nausea, vomiting, and anxiety). Most trials focused on generally healthy patients not thought to be at increased risk of regurgitation or aspiration during anaesthesia, although 3 trials included patients considered to be at a higher risk (obese patients in 1 trial and postpartum women in 2 trials). Trials primarily examined patients having elective surgery.

Few trials reported outcomes of aspiration, regurgitation, or related morbidity; intraoperative gastric volume and pH were more common outcomes. 6 trials compared a shortened fluid fast (fluids given 1.5 to 3 h preoperatively) with a standard fast, and none reported any aspiration or regurgitation. 24 comparisons examined a shortened fluid fast *v* a standard fast and found no differences in volume or pH of gastric contents. Fluids permitted preoperatively included water, coffee, fruit juice, clear fluids, and other drinks. In 9 comparisons, patients given a drink of water preoperatively ( $n = 319$ ) had a lower volume of intraoperative gastric contents than those who had a

standard fast ( $n = 292$ ) (weighted mean difference  $-6.16$  ml, 95% CI  $-9.41$  to  $-2.91$ ). 24 comparisons examined different volumes of preoperative intake (ie, low, medium, high, or unlimited) versus a standard fast and found no differences in perioperative outcomes.

## CONCLUSION

Evidence is lacking that adults given fluids 1.5 to 3 hours preoperatively have a greater risk of aspiration or regurgitation than those who have a standard fast.

## Commentary

Brady *et al* are to be commended on their comprehensive review of preoperative fasting to prevent perioperative complications because research on this subject poses several challenges. Most of the identified RCTs had small sample sizes (usually  $< 100$  patients per trial), and the methodological quality of some trials was inadequate. The authors' primary objectives were to systematically identify, appraise, and synthesise reliable evidence from research on different preoperative fasting regimens (length of the fast and the form and volume of intake allowed) in terms of patient safety and comfort in different adult populations. They met their objective of clarifying the evidence related to the different preoperative fasting regimens and their effects on patient comfort (eg, thirst). However, Brady *et al* were unable to synthesise the evidence from different adult populations because most studies focused on healthy or non-pregnant adults, or adults having elective surgery. Most studies reported outcomes of gastric content volume and pH rather than more clinically significant outcomes, such as perioperative morbidity, in assessing various preoperative fasting regimens. Brady *et al* declared that the critical values at which patients have an increased risk of aspiration related complications are unclear and have not been validated. They also note that it would be unethical to conduct a trial that could place patients at risk of aspiration.

This review will be helpful to nurses in preoperative and operating room settings because it supports existing anaesthesiology guidelines.<sup>1,2</sup> The review relates to the use of clear fluids up to 1.5 hours preoperatively for healthy adults having elective surgical procedures. However, this patient group is not considered to be at a higher risk of the perioperative complications of regurgitation and aspiration. The authors noted that few studies focus on at risk populations. This limits their ability to make recommendations for at risk groups, including patients with obstetric conditions, diabetes or morbid obesity, gastro-oesophageal reflux, and those having emergency surgery who have not had a preoperative fast. Brady *et al* note that future studies need to examine the preoperative fasting needs of these patient groups that are of concern.

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1 American Society of Anesthesiologists. Practice guidelines for preoperative fasting and the use of pharmacologic agents to reduce the risk of pulmonary aspiration: application to healthy patients undergoing elective procedures. *Anesthesiology* 1999;90:896–905.

2 Canadian Anesthesiologists' Society. Guidelines to the practice of anaesthesia. Revised edition, 2003 (accessed 13 February 2004) [http://www.cas.ca/members/sign\\_in/guidelines/practice\\_of\\_anesthesia/](http://www.cas.ca/members/sign_in/guidelines/practice_of_anesthesia/)

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