Preoperative Fasting: Closing the Gap Between Theory and Practice

Nessa Fitzgerald, BSc in General Nursing, TCD



Patients should not be subjected to extensive fasting regimes. Despite this, traditional practices persist... 99

Abstract

Prolonged preoperative fasting is experienced internationally, as healthcare professionals struggle to discard the traditional practice of "NPO" after midnight and implement new guidelines advocating shorter fasting times for patients. This literature review aims to address the continued practice of prolonged preoperative fasting and to provide a synopsis of the most up-to-date literature.

The researched literature included in-depth discussion of current guidelines and actual clinical practice, nursing and other healthcare professional perspectives, patient perspectives, and evidencebased practices. The author feels that further research examining the gap between preoperative fasting guidelines and actual practice would benefit the development of effective measures for change.

Introduction

Preoperative fasting requires all patients to fast absolutely from food and fluids for a specified minimum amount of time prior to anaesthesia. It is a necessary precaution to decrease the risk of pulmonary aspiration. It is an age-old tradition that began when Mendelson reported incidents of pulmonary aspiration during obstetric anaesthesia¹. During anaesthesia, a patient's cough and gag reflex are affected, increasing the risk of pulmonary aspiration with potentially fatal consequences².

New evidence-based practices, which advocate shorter fasting times while ensuring no increase in patient risk, have been met with a reluctance by healthcare professionals to discard the trusted traditional practice³. The author developed an interest in the issue of prolonged preoperative fasting during work in various surgical specialities. It seems that, regardless of the speciality or the institution, prolonged fasting times can occur. To examine the gap between theory and practice, a review of the literature was completed. Literature in the English language was compiled using the electronic databases CINAHL, PUBMED and COCHRANE, searching using the following key words: preprocedural fasting, preoperative fasting, patient anxiety and nursing use of evidence– based practice. Initially, it was hoped to limit the search to the past five years. However, it became evident that inclusion of guidelines from 1994 and literature published thereafter was necessary to ensure a comprehensive review. Inclusion of several older articles was deemed necessary to provide a historical overview of the topic.

The literature reviewed reflects the international multidisciplinary issue of prolonged preoperative fasting. Articles from across the globe were retrieved from nursing, anaesthetic and surgical journals, showing the prevalence of prolonged fasting and the determination to bring about change. From critically reading articles it became apparent that extensive fasting continues despite current research and guidelines. The findings will be discussed and critiqued under several headings: current guidelines and actual practices, nursing and other healthcare professional perspectives, patient perspectives and evidence–based practice.

Current guidelines and actual clinical practice

The literature revealed that the American Society of Anaesthesiologists (ASA) guidelines on preoperative fasting are the gold-standard reference for recommended safe fasting times⁴. Recommendations made for adults undergoing surgery who are otherwise considered healthy are as follows: patients should abstain from food for at least 6 hours and from clear fluids for at least 2 hours prior to surgery. Several national guidelines have been developed which draw on these guidelines^{5,6}.

Several quantitative studies have been carried out to determine whether shorter fasting times affect stomach volume and pH, thus posing a risk of pulmonary aspiration. One study investigated this by assigning participants to groups, each of which would receive 150 ml of fluid at different times preoperatively⁸. Stomach volume and pH were measured upon induction. Findings suggested that the gastric volumes and pH of all participants were comparable, regardless of the length of fasting. A similar study was conducted on patients who received unlimited amounts of clear fluid up to 3 hours preoperatively⁹. Further research was undertaken by the same author to determine if 300 ml of clear fluid preoperatively would affect the gastric volume and pH of obese patients¹⁰. Neither study found a significant difference between those who received fluids and those who did not.

A systematic review of the literature regarding preoperative fasting was conducted for the Cochrane database to establish the effects of various fasting regimes^{11,12}. Review of 22 international trials revealed that there was no evidence to suggest that shortened fasting times would significantly alter the volume or pH of participants' gastric contents. In fact, it was observed that patients who received a drink of water up to two hours preoperatively had a significantly lower gastric volume than those who fasted from midnight. The stomach is never completely empty, even after an overnight fast, with a mean residual volume of 27 ml¹³. The Cochrane systematic review provides further evidence that traditional "NPO" from midnight is an out-dated, unfounded practice in need of modernisation.

In a 2002 study, participants were interviewed for 15 minutes by staff nurses to determine whether new ASA guidelines had changed preoperative fasting practices¹⁴. A semi-structured technique was used and patients' responses were compared to the ASA guidelines. The results showed average fasting times from fluids and solids of 12 and 14 hours, respectively. 97% fasted from fluids for over 6 hours, while extreme cases fasted from fluids for up to 20 hours. Disappointingly, 91% of patients claimed they received instructions to fast from midnight while only 28% reported receiving information about the reasons for fasting preoperatively. Several years later, data was compiled from two quality improvement (QI) data collection studies that had been conducted in 2000 and 2004 to monitor for improvements in practice. In both studies, patients were interviewed after surgery¹⁵. Several patients could not take part in the interviews as they complained of drowsiness, which may call into question the accuracy of the findings collected from the remaining patients. They found that from 2000 to 2004, patients' instructed fasting times from fluids had decreased by 0.11% while actual fasting from fluids saw a drop of 0.005%, from an average of 11.9 hours to 11 hours. The instructed fasting times for solids had improved from an average of 10 hours in 2000 to 9.7 hours in 2004. Actual fasting times from solids only decreased marginally from a mean of 14.5 hours to 14.2 hours in 2004. Regardless of the small changes noted, this research has shown that although progress may be slow, it is happening and can continue with the hard work of healthcare professionals using a multidisciplinary approach.

Nursing and other healthcare professional perspectives

Qualitative research regarding nurses' knowledge and perceptions of preoperative fasting identified that a lack of knowledge, ritualistic practice and unsmooth running of intra-unitary systems resulted in prolonged patient fasting¹⁶. All participants understood the importance of fasting in preventing vomiting and aspiration perioperatively. Surprisingly, when questioned about appropriate fasting times, only two of fifteen nurses expressed knowledge of the ASA guidelines while the majority overestimated the required fasting durations by two hours. Upon further questioning it was discovered that recommended fasting times as set out by the ASA are rarely adhered to and that patients on the afternoon list often endured "NPO" status for up to 12 hours.

A similar phenomenological project in America used open-ended questions aimed at interpreting nurses', patients', and anaesthetists' perceptions of preoperative fasting¹⁷. The rationale governing the need to fast was known by the majority of those surveyed: 73% of nurses correctly identified the risk of vomiting and aspiration as the main safety concern. However, healthcare professionals admitted that leaving patients fasting from midnight was common practice as part of an effort to avoid patient non-compliance and surgical rescheduling issues. Interestingly, only 13% of nurses could correctly refer to the guidelines set out by the ASA in 1999. Recommendations for change include staff education and changes in hospital policy regarding acceptable fasting times.

Patient perspective

Nurses spend the most time with patients and are ideally placed to observe both the physical and psychosocial effects of preoperative fasting, including irritability, confusion and the social isolation of missing meal times³. Prolonged fasting increases the risk of developing hypoglycaemia, dehydration, electrolyte imbalances, headache and confusion¹⁸. In patients with poor preoperative nutrition, recovery may be complicated by poor wound healing, increased risk of pressure sores and increased likelihood of experiencing nausea and vomiting postoperatively when fasted excessively^{19, 20}.

Nurses and anaesthetists believe that patients lack sufficient knowledge regarding the rationale for preoperative fasting, resulting in confusion about the fasting lengths and contributing to issues of non-compliance¹⁷. Further evidence supporting the existence of this belief comes from a qualitative study, which found that the belief that patients will not understand or comply with fasting instructions often leads to longer fasting times²¹. Anaesthetists and surgeons feared that patients might get confused and consume solid food if they were told they could ingest clear fluid for longer²¹.

A more comprehensive quantitative research study focusing exclusively on patients' knowledge and understanding of preoperative fasting required 100 elective day surgery patients to complete a short questionnaire before discharge²². 63% of patients reported having been seen by the anaesthetist at the pre-assessment clinic and the remaining were seen before surgery. In addition, the majority of participants reported receiving information from nursing staff and 90% had received written information. Despite this, the average fasting times were greater than those recommended in the ASA guidelines, with an average fasting time from solids of 10.8 hours and 6.5 hours from fluids. In an attempt to explain these prolonged fasting times, a question was included specifically to access participants' comprehension of the reasons for fasting before surgery. Disappointingly, only 22% provided a correct response. This may have been due to the fact that, for a response to be considered correct, participants had to allude specifically to the risk of pulmonary aspiration. Encouragingly, actual compliance was high and 65% agreed that following fasting instructions was important. The results of this study suggest that improvements in patient education are necessary. It is reasonable to conclude that more research needs to be compiled about how healthcare professionals can improve patient education, conveying the importance of adhering to fasting instructions without causing unfounded fear and anxiety about the risk involved.

Evidence-based practice

An Bord Altranais demands that nurses provide the highest standard of patient care by overseeing the implementation of evidence-based fasting practices²³. The evidence provided suggests it is advisable that patients should not be subjected to extensive fasting regimes. Despite this, traditional practices persist due to preconceived ideas about patient knowledge, changes in theatre lists, and lack of knowledge about up-to-date research and guidelines. Nurses are at the forefront of patient care and have a responsibility to ensure best practices are followed. Many nurses feel that their awareness of current research is inadequate, blaming a lack of physical access to the research¹⁶. Nurses can only advocate for the patients' best interests when they are aware of current best practices and recommendations²⁴.

Action research is a practical and user-friendly research method for nurses²⁵. Identification of excessive preoperative fasting as a problem and isolation of probable contributing factors, including lack of knowledge and changes to theatre lists, was the first stage in an action research project aimed at making improvements in preoperative fasting procedures in a UK hospital³. A primary guantitative study was designed to test the extent of the problem in the chosen orthopaedic ward. A convenience sample of 110 patients was included in the study, which required the patients' nurse to complete a questionnaire gathering data about average fasting times endured. The study confirmed that prolonged preoperative fasting was occurring, triggering the development of a double-approach action plan. Anaesthetists were required to prescribe the shortest possible fasting times while the researchers implemented an education programme on preoperative fasting to nursing staff. A guestionnaire at the end of these sessions assessed the level of nursing knowledge. Posters and information packs were placed on the ward for easy reference. On completion of the educational programme and implementation of the changes by the anaesthetists, a repeat of the initial questionnaire, with minor additions, was completed using another convenience sample of 106 orthopaedic patients to determine whether fasting times had been reduced. The results showed that mean fasting time was reduced by 5.4 hours, bringing the average patient fasting times down to 6.54 hours, more in line with the new ASA guidelines. Action research, as proven by the success of this action project, is an accredited method of implementing health innovations²⁶. This action project was successful in facilitating improvements in preoperative fasting practices, developing nursing knowledge, and encouraging enhanced communication between disciplines.

The findings of two separate hospital-based audits revealed that patients were subjected to prolonged preoperative fasting^{27,28}. The first, conducted on a sample of 140 orthopaedic patients, revealed the possibility of changes in the order of the operating

list as the main barrier faced. A trial of 10 patients was devised in response, allowing all patients to drink at 6am and then allocating individualised fasting regimes after all preoperative checks were complete²⁷. Personalised fasting times were estimated by the nurse in charge of the operating list and communicated to the ward nurses. Patients were allowed fluids up to two hours before the estimated surgical slot. However, the duration of some operations was underestimated, resulting in seven of the ten patients fasting from fluids for an average 3.5 hours. The second audit focused on the impact of improved communication between staff and patients regarding fasting times. The results showed a decrease in fasting times after improvements in communication and education²⁸. The results of these trials prove that through

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continued auditing, change in preoperative fasting practices can occur.

Conclusion

The literature examined demonstrates the relevance of preoperative fasting as a topic for discussion. In order to fulfill An Bord Altranais' goal of implementing the most current evidence-based nursing practices in Irish hospitals, the nurse needs to discover a mechanism of introducing the preoperative fasting recommendations made by the ASA. By ensuring a thorough historical and scientific understanding of the rationale behind preoperative fasting, the nurse can prevent patient harm by decreasing anxiety, discomfort, hunger, and thirst.

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