What are the benefits and the pitfalls of preoperative fasting?

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Preoperative fasting has been a traditional practice for many years to reduce the risk of aspiration while the patient is under general anaesthetic and to eliminate the risk of postoperative nausea and vomiting. Although it is generally accepted that fasting is beneficial, the fasting regimens that patients undergo are not dependent on the individual patient or the timing of their operation.

It has become established practice that patients scheduled for morning surgery should fast from midnight the previous night, or after a ‘light’ breakfast at about 6am if they are due to have surgery in the afternoon.

The rationale behind preoperative fasting is that it prevents aspiration of gastric contents and reduces the risk of regurgitation, nausea and vomiting while the patient is under or recovering from general anaesthetic (Jester and Williams, 1999; Strunin, 1993). It is generally considered to be beneficial and features in most preoperative care and general anaesthesia texts.

**Why should patients fast?**

Preoperative fasting is important for surgical reasons, especially if the surgery is on the bowel or stomach. During laparoscopy carbon dioxide is used to inflate the abdomen, which increases pressure in the abdominal cavity and therefore on the stomach. This may cause gastric contents to be forced back up the oesophagus.

Fasting is also important because the drugs used to induce anaesthesia can cause nausea and muscle relaxation. If patients have not fasted adequately, large gastric contents may cause them to experience nausea postoperatively. If the nausea results in vomiting it will cause unnecessary discomfort and may prolong recovery.

**Fasting period**

Individual health care professionals – often nurses – are generally responsible for deciding on a patient’s period of fasting, as they have access to the patient’s medical and physiological history, knowledge of the type of surgery they are to undergo and the occupational knowledge to make this clinical decision.

Among those who have tried to set an optimum fasting time, there is a consensus that clear fluids can be ingested safely up to two or three hours before surgery (Splinter and Schreiner, 1999; Phillips et al, 1993). Opinions on when solids or milky fluids (containing fat, which is slower to digest) can be ingested varies from four to eight hours. The American Society of Anesthesiologists (1999) recommends solids or milky drinks should not be taken for six hours preoperatively.

Current research suggests the optimum preoperative fasting time is four to six hours for solid food and milk or milk products, four hours for breast milk and two hours for clear fluids (Pandit et al, 2000; American Society Of Anesthesiologists, 1999).

**Potential problems**

Smith (1997) found that fasting patients for longer than the optimum period can be detrimental to their health. However, Green et al (1996) and Jester and Williams (1999) confirm that this is common practice. Furthermore, Green et al (1996) and Hung (1992) suggest that excessive fasting will not produce the optimum gastric environment but may cause dehydration, electrolyte imbalance, malnutrition, nausea, hypothermia, fatigue and irritability. Splinter and Schreiner (1999) state that due to their reduced body size children can become dehydrated, develop an electrolyte imbalance, feel nauseous and experience irritability and fatigue very quickly.

Hausel et al (2001) found that alleviating thirst, hunger and anxiety before elective surgery improved patients’ comfort and postoperative recovery. They suggest that patients could have other fat-free drinks in addition to water for up to two hours before surgery.

Patients who have fasted for more than eight hours may find it difficult to eat and drink normally postoperatively. They may also become nauseous and vomit due to excessive fasting. Hung (1992) points out that the dangers associated with prolonged preoperative fasting, such as dehydration and malnutrition, mean it can even contribute to postanaesthetic morbidity and mortality. Hung believes the ability to relieve thirst preoperatively is a basic human right and suggests that it is not unreasonable for patients to expect a glass of water or cup of tea four hours before elective surgery. Hausel et al (2001) also found that carbohydrate-enriched drinks given 90 minutes before surgery pass out of the stomach before surgery without affecting the pH balance, while improving the patient’s well-being and reducing the postoperative recovery period.

**Guidelines on preoperative fasting**

The American Society of Anesthesiologists (1999) produced guidelines that suggest a full assessment of the patient’s medical history and physiological state as well as a physical examination should be carried out immediately before they are taken for surgery. This was found to...
reduce the occurrence of perioperative pulmonary aspiration of gastric contents due to patients’ non-compliance with preoperative fasting. Patients should be informed during the preoperative visit by the anaesthetic assistant, scrub assistant or recovery nurse about any procedure they are about to undergo. During this visit the reasons for preoperative fasting and the importance of compliance should be explained.

The Royal College of Anaesthetists (2000) found that patients who are given information about the need for preoperative fasting are not more anxious than others about the anaesthetic and surgery, and can become compliant. This information should be repeated as many times as the health care professional feels appropriate, and written down if required. Garden et al (1998) found that giving patients an information leaflet before admission for elective surgery improved preoperative communication between patients and staff.

**Anaesthetic considerations**

Preoperative fasting is a legal requirement (Hung, 1992) except during a medical emergency. Therefore, except in this instance general anaesthetic should not be given without a prescribed period of fasting.

It is important that anaesthetic assistants are aware of each patient’s history and mental state as well as the period of fasting. This information will help them to prepare the anaesthetic room for the patient. They need to know what type of operation the patient is to undergo and the period of fasting to decide whether they should prepare for a rapid-sequence induction (RSI), the objective of which is to secure the airway rapidly and prevent soiling of the lungs with gastric contents. Mijumbi (1994) suggests that if a patient has not refrained from taking solids for four to six hours and clear fluids for two hours, the operation should be delayed if possible to allow the stomach to empty. If the operation is an emergency an RSI should be performed to prevent vomiting or reflux.

Simpson and Popat (2002) describe RSI as preoxygenating the patient for three minutes then inducing the anaesthetic rapidly with an intravenous (IV) induction agent. A quick-acting muscle relaxant is administered while the anaesthetic assistant applies cricoid pressure, the tracheal tube is inserted and the cuff inflated, then cricoid pressure is released on the anaesthetist’s order. Simpson and Popat (2002) state that the patient’s airway is protected under general anaesthetic only when a cuffed tracheal tube is in place.

If patients have not taken food for over six hours and fluid for over two hours before theatre, the anaesthetic assistant should prepare IV fluid replacement to be given during surgery if they have not already been given IV fluids on the ward. Intravenous fluids are given not only to replace fluid lost through surgery but also to maintain an adequate circulatory volume and replace any deficit incurred by fasting or preparation for theatre.

Kumar (2000) suggests that one-third to one-half of the estimated fluid requirement during an operation should be given during surgery. When considering the amount and type of IV fluid to be prepared preoperatively, the expected sensitive loss, the insensitive loss and the maintenance requirements should be estimated.

Andrt (1999) states that patients who have fasted for more than eight hours are more prone to hypothermia, due to the loss of heat produced by digestion. The anaesthetic assistant should therefore make sure that patients are kept warm during surgery if they have fasted for a long period. This is particularly important for children and older people as they have relatively less body fat than healthy adults.

**Ethical and legal implications**

In addition to the clinical considerations surrounding preoperative fasting, there are a number of ethical and legal factors to take into account.

Seymour (2000) states that tradition and custom often dictate preoperative fasting regimens rather than individual patients’ needs, while Pandit and Pandit (1997) found the fasting of patients from midnight on the day of an operation is common practice in modern health care. However, the NMC Code of Professional Conduct (2000) states that patients should be treated as individuals, which means nurses should assess, plan, implement and evaluate individualised care for all. The findings of Seymour (2000) and Pandit and Pandit (1997) suggest that this is not happening. If nurses are not up-to-date with current research and practice, it is not a legal defence against misconduct. If patients are fasted for too long or have not fasted sufficiently and suffer discomfort or problems during the anaesthetic procedure as a result, this can become a legal matter.

Fasting all patients on a scheduled list from the same time to allow the most efficient use of staff and theatre in case a change of order is necessary is unethical. It can cause preoperative discomfort, postoperative nausea and increased pH levels. If nursing and medical staff liaise with ward staff in setting the order of operating lists and allow ample time for any last minute changes, unnecessary preoperative fasting need not happen.

Most patients recognise the importance of not eating or drinking on the day of an operation, but it still causes them additional worry and anxiety. This stress leads to increased protein breakdown, decreased wound healing, decreased immune response, increased risk of infection, an imbalance in fluid and electrolyte levels and delay in gastric emptying.

**Conclusion**

Despite recommendations to the contrary, patients are still being fasted for six to eight hours or even longer before planned surgery. This is not for the benefit of patients, but to fit in with theatre systems. This is unsatisfactory and does not constitute patient-led care.

The time patients need to fast before surgery can be reduced if organisation and communication are improved. Theatre staff should liaise with the surgeon, anaesthetist and ward staff to ensure that patients are fasted for the minimum time required.