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Review Article

Knowledge and Practices of Nurses on Preoperative Fasting Guidelines Care for Adult Patients: A Review

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Abstract: Preoperative fasting is the term used to describe the time before a surgical procedure during which patients are not permitted to consume any liquids or solids by mouth. Pre-operative fasting guidelines for adult patients are critical for ensuring the well-being and safety of surgical patients. Pre-operative fasting is a standard practice designed to reduce the risk of complications during surgery, such as gastric aspiration. Fasting helps to prevent complications like pulmonary aspiration pneumonia, which can occur if patients do not empty their stomachs before surgery. Fasting durations for solids, liquids, and clear fluids are typically recommended in guidelines. Fasting before surgery or medical procedures that require anesthesia is a common practice. Fasting is done to reduce the risk of aspiration, which occurs when stomach contents enter the lungs during anesthesia and can lead to serious complications. The general guidelines for preoperative fasting typically include avoiding solid food for a specific period before the procedure, as well as limiting liquid intake. Fasting durations and recommendations, on the other hand, can vary. There has been some evolution in preoperative fasting guidelines in recent years. The traditional method involved fasting for extended periods, sometimes up to 12 hours or more for solid food and 2-6 hours for clear liquids. Recent research and updated guidelines in various countries suggest that shorter fasting periods may be just as effective in preventing aspiration while also improving hydration and reducing the stress associated with prolonged fasting. Many healthcare facilities are now more relaxed about preoperative fasting, allowing clear liquids up to 2 hours before surgery and light meals up to 6 hours before the procedure. It is important to note, however, that these guidelines are subject to change, specific fasting instructions are dependent on factors such as the type of surgery, the patient's health status, and the anesthesia used.

Keywords: Preoperative, fasting, guidelines, adult, patient.

1. INTRODUCTION

Preoperative fasting is a key part of preparing a patient for undergoing sedation or anesthesia to minimize the risk of pulmonary aspiration of gastric contents. As part of caring for surgical patients, nurses in the perioperative environment must have a good understanding of both the current guidelines and underpinning evidence so that they can effectively manage preoperative patients [1]. Fasting guidelines have been proposed to minimize the risk of pulmonary aspiration and its complications and it help to provide safe surgical procedures. Also, it helps in preventing prolonged fasting and its side effects like hypoglycemia, dehydration, and electrolyte imbalance, decreasing perioperative morbidity and it can improving patient satisfaction and outcome [2]. The Royal College of Nursing guidelines state a minimum fasting period of six hours for food and two hours for clear fluids, before elective anesthesia or sedation in healthy patients [3]. There are numerous guidelines based on evidence-based practice that outline the safe duration of a fast before the induction of general anesthesia. Common practice however is to give advice that unnecessarily fasting can lead to perioperative complications [4]. The traditional practice of NPO (nothing by mouth) after midnight before surgery was a routine clinical practice for many years. Recently, various anesthesia societies like the American Society of Anesthesiologists (ASA), The Association of Anesthetists of Great Britain and Ireland

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(AAGBI), Royal College of Nursing (RCN) revised practice guidelines for preoperative fasting in healthy patients undergoing elective procedures and recommended a fasting period of 2 hours for clear fluids, 4 hours for breast milk and 6 hours for light meal/formula milk [5]. The American Society of Anesthesiologists (ASA) first published in 1999 and later updated in 2017, shortened pre-operative fasting guidelines in which they recommended that all healthy patients posted for elective surgery be allowed to have a heavy solid meal 8 h prior, a light meal (toast and clear tea) 6 h prior, and unlimited clear fluids (water, fruit juices without pulp, clear tea, black coffee, and any liquid through which a newspaper can be read easily) up to 2 h before surgery (Practice Guidelines for preoperative fasting 2017). To improve patient safety and healthcare quality, it's essential that healthcare professionals including nurses be updated about preoperative fasting guidelines and allow available evidence to guide preoperative fasting practices [6].

2. Evolution of guidelines of preoperative fasting practice

For over a century, both healthcare workers and patients have recognized that adult surgical patients undergoing general anesthesia must be fasted as one of the fundamental cornerstones of safe perioperative care. In 1848, a young girl died as a result of pulmonary aspiration after anesthesia [7]. Sir Joseph Lister described 19th-century NPO practices in 1883, differentiating between solids and liquids and allowing patients to drink "tea or beef tea" up to two to three hours before surgery. In 1946, more than fifty years later, it was revealed that vomiting brought on by labor anesthetic resulted in lung aspiration of stomach hydrochloric acid, which caused respiratory distress [8]. By the 1960s, regardless of a patient's pregnancy status, anesthesia manuals advised "NPO after midnight" for both liquids and solids. They continued to pass down the practice of NPO after midnight to succeeding generations to reduce the risk to patients [9]. Traditionally, perioperative fasting involved being nil by mouth (NBM) starting at midnight the night before surgery and continuing to fast afterward until bowel function was restored. Even though new research indicates that extended fasting has detrimental effects and delays recovery, these archaic traditions continue [10]. Before elective surgery, patients frequently fast to lower stomach volume and acidity. Before surgery, patients are expected to fast "nil by mouth" starting at midnight. Recent updates to the guidelines advise patients to abstain from clear drinks for two hours and meals for six hours [11]. Since 1990, numerous preoperative fasting recommendations have been made by anesthesiology societies to reduce the risk of pulmonary aspiration and anesthetic morbidity while simultaneously improving patient comfort. Because several of these groups have been updating their recommendations, there are currently two evidence-based preoperative fasting recommendations accessible as of 2010 [12]. Fasting standards and recommendations have been developed, the majority of which recommend a 6-hour fast for solids, 4 hours for breast milk, and 2 hours for clear fluids before elective surgery in both adults and children. This is known as the 6-4-2 rule [13].

3. Preoperative fasting guidelines for adults according to updated fasting guidelines of the American Society of Anesthesiologists (ASA 2017)

Preoperative fasting status for oral fluids recommends an intake of water up to two hours before induction of anesthesia for elective surgery is safe in healthy adults, and improves patient well-being. Other clear fluids, clear tea, and black coffee (without milk) can be taken up to two hours before induction of anesthesia in healthy adults. Tea and coffee with milk are acceptable up to six hours before induction of anesthesia. The volume of administered fluids does not appear to have an impact on patients' residual gastric volume and gastric pH when compared to a standard fasting regimen. Therefore, patients may have unlimited amounts of water and other clear fluid up to two hours before induction of anesthesia.

Preoperative fasting status for solid food recommendation A minimum preoperative fasting time of six hours is recommended for food (solids and milk). For Chewing gum and sweets, Chewing gum should not be permitted on the day of surgery. Sweets are solid food, a minimum preoperative fasting time of six hours is recommended.

For a Pharmacological recommendation Concurrent medications Regular medication taken orally should be continued preoperatively unless there is advice to the contrary. Up to 30 ml water may be given orally to help patients take their medication. Premedication Administration of premedication as currently practiced, for example, benzodiazepines does not appear to affect the fasting recommendations for water and other clear fluids. Histamine-2 Receptor Antagonists The routine use of H2 receptor antagonists is not recommended for healthy adults.

For a Delayed operation if an elective operation is delayed, consideration should be given to giving the patient a drink of water to prevent excessive thirst and dehydration.

4. Importance of preoperative fasting guidelines

Fasting before surgery reduces the risk of gastric contents being aspirated into the lungs during anesthesia induction and maintenance. Fasting guidelines have been in flux in recent years, with studies finding that taking small amounts of clear fluid two hours before surgery may help in gastric emptying [14]. Preoperative fasting guidelines balance the risk for pulmonary aspiration with that of intravascular hypovolemia and hunger, problems that are relevant in patients. Preoperative fasting guidelines help to prevent adverse effects including dehydration, ketoacidosis, lower arterial blood pressure, and patient discomfort

[15]. Preoperative fasting speeds up the recovery of the metabolic-nutritional system and cuts down on the time needed for full oral intake. The preoperative fasting protocol's application reduces the cost of hospital admission [16]. Preoperative fasting guidelines help to reduce the risk of aspiration pneumonia, improve patient satisfaction, avoid surgery delays and cancellations, and prevent dehydration and hypoglycemia from fasting [17]. Preoperative fasting guidelines help to improve anesthesia safety and decrease the frequency of complications. The guideline provided instructions for high-risk patients, as well as low-risk patients [18]. Preoperative fasting guidelines help to avoid complications caused by fasting for shorter or longer periods than recommended, an adequate and appropriate fasting period before anesthesia is required. Inadequate fasting can result in pulmonary aspiration [19].

5. Outcome of inappropriate preoperative fasting

Fasting lowers the risk of regurgitation and aspiration of stomach contents during anesthesia. Failure to fast properly increases the likelihood of these complications, which can result in serious respiratory problems and pneumonia. It is crucial to remember that extended fasting uncovers more clinical and metabolic complications that may jeopardize patients' ability to heal after surgery. Prolonged fasting is primarily intended to prevent aspiration secondary to a potential delayed or inadequate gastric emptying and respiratory complications from vomiting [20]. Inadequate fasting can reduce the effectiveness of anesthesia and raise the risk of postoperative complications like nausea, vomiting, and delayed recovery. The prolonged preoperative fasting period can cause increased insulin resistance, postoperative nausea and vomiting, postoperative anxiety, sleeplessness, and exhaustion [21]. The length of the patient's fasting period before surgery is associated with an increased risk of postoperative problems like vomiting and discomfort, as well as an extended hospital stay [22]. In addition to raising the risk of problems, prolonged fasting decreases patient participation and satisfaction, Shorter durations of solid meal restriction may be necessary, Avoid inappropriate and prolonged fasting, as it prevents patients from receiving proper nutritional therapy and puts their outcomes at risk [23]. Dehydration, hypoglycemia, ketoacidosis, and a delayed recovery are all possible side effects of a prolonged preoperative fast. Patients would shorten the time of preoperative fasting before surgery [24]. Preoperative fasting also causes metabolic stress, which results in the depletion of glycogen stores, the use of muscle protein for gluconeogenesis, and postoperative insulin resistance. Insulin resistance and subsequent hyperglycemia may be clinically significant due to their association with increased infective complications, morbidity, length of hospital stay, and mortality [25]. Prolonged preoperative fasting is associated with a variety of negative consequences, including dehydration, hypoglycemia, electrolyte imbalance, dizziness, increased postoperative nausea and vomiting, and an inappropriate stress response to surgery [26]. Prolonged fasting is associated with increased patient discomfort, decreased insulin sensitivity, altered inflammatory response, and higher surgical complication rates [27]. Prolonged fasting may cause preventable physiological and psychological complications. Anxiety, thirst, hunger, metabolic derangement, nausea, and vomiting are some of the complications [28]. Preoperative Fasting can increase insulin resistance, aggravate the metabolic response to surgical stress, and correlate with increased incidences of nausea, vomiting, dehydration, thirst, hunger, anxiety, and, as a result, elevated morbidity, mortality rates, infections, prolonged hospital stays, and healthcare expenditures [29]. Inadequate fasting before surgery occurs when a patient does not abstain from food and liquids for an adequate time before a surgical procedure. This can pose a risk during surgery because the presence of food or liquids in the stomach can cause aspiration (breathing in stomach contents), which can lead to pneumonia or other respiratory complications [30].

6. Factors affecting the implementation of preoperative fasting guidelines practices

Lack of individualized POF instructions regarding the fasting period before surgery and solid or fluid intake, taking the patient's condition into account the unavoidable delays caused by the unpredictable nature of the operating room, such as complications or emergencies that occur during surgery; the clinical team's lack of knowledge about fasting guidelines; and workload. In addition to these factors, planned operations can be canceled, or surgery in the morning can be postponed until the afternoon, resulting in patients' POF time being longer than expected [31]. An analysis of delays revealed that prior surgical procedures running longer than scheduled were the most frequent cause of a delay in starting an operation and, as a result, prolonged patient fasting time [32]. The advice nil by mouth from midnight on, normally given to patients getting ready for surgery, will still be known to many nurses. The 2-4-6 rule of two hours for clear fluids, four hours for breast milk, and six hours for solids is a summation of national and international recommendations that currently advocate significantly shorter preoperative fasting intervals. These fasting hours need to be adjusted, according to the most recent evidence [33].

7. Knowledge of Nurses Regarding Preoperative Fasting Guideline

Nurses' knowledge of preoperative fasting guidelines, is important to recognize that this is a crucial aspect of patient care and safety before surgery [34]. According to studies, nurses generally have insufficient knowledge of preoperative fasting guidelines. This suggests that these guidelines are not well understood or applied in clinical practice [35]. Nurses generally have less knowledge than junior anesthesiologists and internal medicine interns. Junior anesthesiologists typically have satisfactory knowledge [36]. Preoperative fasting is a

critical step in ensuring patient safety during surgery. Proper fasting lowers the risk of complications like aspiration pneumonia. As important members of the healthcare team, nurses must understand and follow preoperative fasting guidelines [37]. To improve nurses' understanding of preoperative fasting guidelines, hospitals, and training institutions should expand related education and training programs. This can be accomplished by organizing seminars, workshops, online courses, and other formats to keep nurses current on the latest guidelines and best practices [38]. Nurses' lack of knowledge about preoperative fasting guidelines may jeopardize patient safety. We can reduce risks and improve the overall quality of perioperative care by increasing nurses' knowledge and training opportunities [39].

8. Practice of nurses regarding preoperative fasting

Preoperative fasting is a critical aspect of perioperative care, aiming to reduce the risk of aspiration and other complications caused by the presence of food or liquid in the stomach during surgery [40]. Standard fasting guidelines typically advise patients to avoid solid foods for at least 6-8 hours before surgery and clear liquids for at least 2 hours. These guidelines are based on research and best practices to reduce the risk of aspiration [41]. Nurses play a critical role in ensuring patients follow preoperative fasting guidelines. Their responsibilities include Educating patients on the significance and requirements of preoperative fasting, Monitoring patients' adherence to fasting guidelines, and Notifying the surgical team if patients do not follow the fasting guidelines [42]. The fasting requirements may differ depending on the type of surgery, the patient's age and health status, and the anesthesia used. Nurses must be aware of these specific considerations and adjust their practices accordingly [43] Patient compliance issues, communication barriers, and a lack of awareness are all potential challenges for nurses when implementing preoperative fasting guidelines. Solutions may include enhanced patient education, improved communication channels, and regular training and updates for nurses [44].

7. CONCLUSION

To guarantee patient safety during surgery, preoperative fasting guidelines are essential. Aspiration during anesthesia can be prevented by adhering to certain guidelines, such as avoiding solid foods for 6–8 hours before surgery and consuming only clear fluids up to 2 hours prior. Following these recommendations is crucial for patients and healthcare professionals to ensure good surgical outcomes. According to the preoperative fasting guidelines for adult patients, following the recommended fasting protocols can help reduce the risk of surgery complications. To reduce the risk of aspiration and other complications, guidelines typically recommend fasting from solid foods for a specific number of hours before the procedure. However, it is important to note that individual patient factors, as well as the type of surgery performed, may influence fasting recommendations. Overall, adhering to preoperative fasting guidelines is critical for patient safety and the best surgical outcomes.

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