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Final Manuscript

Preoperative Fasting Policy Updated for Healthy Patients

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Preoperative Fasting Policy Updated for Healthy Patients

Background

Preoperative fasting (NPO), defined as eating nothing by mouth after midnight before a surgical operation, has been routine since the 1940s for most surgical procedures requiring anesthesia care (Crenshaw & Winslow, 2002). Anesthesia care refers to general, regional, or procedural sedation. The rationale behind this intervention was to prevent postoperative complications such as regurgitation, aspiration, and/or vomiting. More liberal fasting recommendations have existed since 1999; however, practice has been slow to change (Crenshaw, 2011). Patients experience discomfort due to prolonged fasting for a multitude of reasons, including low blood sugar, dehydration, and feelings of hunger (Brady et al., 2010). All of these issues may lead to patient discomfort and thirst (Bopp et al., 2011). Research has demonstrated that allowing clear liquids up to 2 hours pre-procedure is safe for healthy patients (Brady et al., 2010). For this reason, a coordinated effort is needed for this to be integrated into practice.

Advanced practice nurses are leaders who must advocate for the best evidence-based practice. It is our role as nurses to engage leadership to approve policy change for the benefit of our patients. With action, a transition from the traditional 8-hour fast of solids and liquids to a more liberal clear liquid fast can occur. We need to bring this awareness to the forefront and implement this patient-centered practice.

Literature Review

Since the practice of decreased perioperative fasting as a guideline has been endorsed for over 20 years, the literature search for evidence was limited to systematic reviews or meta-analyses of perioperative fasting in adults. Studies related to the adoption of the reduced fasting

policy or barriers to it, were also part of the search.

There is an abundance of evidence that the standard fasting requirement for 8 hours prior to an operative procedure for healthy adults is unnecessary. The last systematic review on the subject identified 22 randomized trials with over 2200 participants from 8 different countries (Brady et al., 2003). The study designs were very consistent despite differences in healthcare and locations of the studies. Interventions that were tested varied between 90 to 180 minutes of fasting compared to the 8-hour standard. There was no difference on the primary outcome measures of gastric fluid volume or decreased gastric pH. However, those undergoing a shorter fast experienced less thirst (Brady et al., 2003).

The ASA reiterated its 1999 guidelines in 2011 and 2017 for shortened fasting times among healthy patients undergoing elective surgery. The intent was to give direction for clinical practice regarding preoperative fasting to enhance quality of anesthesia care. However, practice has been slow to change. Crenshaw and Winslow (2002) stated that research and guidelines no longer support the routine use of NPO after midnight, and yet the practice persists. Their study was conducted in a 935-bed medical center in southwest United States that did not have an existing policy (Crenshaw & Winslow, 2002). The investigators were interested in the fasting instructions given, actual fast duration, and the level of hunger, thirst, and worry (Crenshaw & Winslow, 2002). Actual mean fasting times were found to be 9 hours for liquids and 14 hours for solids.

Bopp et al. (2011) focused on patient comfort and satisfaction with liberal fasting for surgery. A single center randomized controlled trial was conducted to determine the benefits of a clear liquid carbohydrate drink 2 hours prior to surgery. A total of 109 patients completed the trial with 55 in the experimental group and 54 in the control group. Thirst was determined to be

the factor contributing to preoperative patient discomfort. The addition of clear liquids 2 hours prior reduced the thirst preoperatively and was also found to significantly reduce postoperative thirst, as well.

A barrier specific to changing fasting policy was identified as “fear of the possible increased risk of aspiration” (Bosse, 2006, p 386). In 2000 an interview of 378 anesthesia providers across the United States found that 37% would not permit clear liquids 2 hours pre-procedure (Bosse, 2006). There is a process to accept change. In this situation altering perceptions and identifying motivational factors will be necessary to move forward (Bosse, 2006). Crenshaw (2011) asked the question “Will the evidence ever be put into practice?” If research has shown safety since 1999, barriers exist. This depicts the current state of health care providers still requiring patients to endure unnecessary prolonged fasting duration.

The issue is to implement fasting guidelines that have been in place for over decades. This project asked the question, “In the adult, elective surgery population, how does 2 hours of clear liquids preoperative fasting, compared to 8 hours preoperative fasting of solids and liquids, affect a patient’s sensation of thirst or discomfort over a period of a month?” It is the hope that decreasing the fasting time for clear liquids, will lead to less sensations of thirst pre-procedure. Patients that experience less sensations of thirst will experience less discomfort, anxiety, and have an overall better perioperative experience.

Methods

Larrabee’s Model for Evidenced-Based Change (EBP) was used to guide the design and implementation of this quality improvement project due to its simplicity and emphasis on assessment, identifying best evidence, designing change, implementation and maintaining the

change (Larrabee, 2009). This evidenced-based practice project was deemed exempt by the research office of the University of San Diego.

After the literature review, a policy change proposal from 8 hours of fasting to 2 hours of fasting was developed in conjunction with the owner, policy RN, chief CRNA, and key stakeholders in the organization (see Table 2). Baseline data utilizing a 4-point scale (none/slight/moderate/severe) from patients undergoing 8 hours or more of fasting was collected immediately before the scheduled elective procedure. A basic demographic survey was completed including physical status, height, and weight, time the patient started fasting, and scheduled time of surgery. The patient circled the degree of thirst they were experiencing on a 4-point scale: none, slight, moderate, or severe.

The policy was ultimately modified and approved by stakeholders after changing the fasting time from 2 to 4 hours of clear liquid fasting. Once the new policy was approved, it was implemented by the lead RN and chief CRNA. Over the next month, the same demographics and data as baseline were collected undergoing the new fasting policy.

Results

Prior to implementation, there was a stakeholder barrier to the 2 hours clear liquid fasting. Even with review of the evidence, there was no buy-in by the anesthesia team. Therefore, a compromise was reached to change the policy from 8 to 4 hours instead of 8 to 2 hours.

Baseline data was collected on 87 patients and one-month post-implementation data was available on 23 patients. The two groups had similar ASA scores and body mass index categories (See Table 2). Pre-implementation 50% experienced moderate to severe thirst compared to 48% post-implementation (see Figure 1). This was most likely due to 4 hours clear

liquid fasting, instead of 2 hours clear liquid fasting. Of note, there was a large difference in the number of persons fasting 12 or more hours. Half as many post implementation patients fasted this length of time compared to pre implementation patients. The effect of the policy change was more beneficial for scheduled surgical cases in the afternoon. They were more able to take advantage of the shorter fasting requirement since refraining from clear liquids starting in the middle of the night for the early morning cases was not practical. These patients typically fasted in the longer range.

Cost/Benefit

The cost for this EBP implementation was minimal, requiring 0.5 hours of training for 3 registered nurses, 1 physician, and 2 certified registered nurse anesthetists for a total of \$455.00. A cost of \$10 was allotted for pre- and post-implementation data collection sheets. Intangible benefits were decreased experience of thirst for patients with possible tangible benefits of return visits. Benefit was estimated to be \$3000 per month, due to revenue from a patient returning for services due to satisfaction with their experience.

Discussion/Conclusion

The barriers encountered in this EBP to changing anesthesia fasting policies to be consistent with the overwhelming literature are not new. The belief that even clear liquids are a hazard with modern day anesthesia practices, especially in the ambulatory setting, are very difficult to change. This phenomenon is not limited to the United States. A recent survey of the Anesthesia Societies in Canada, Australia and New Zealand, and Europe showed over half of respondents still insisted on fasting after midnight prior to surgery despite over 80% endorsing the statement they followed the latest clinical guidelines (Merchant et al., 2020).

Research demonstrates that allowing clear liquids 2 hours prior to surgery decreases patients' thirst and discomfort. Due potential abdominal compression during surgery and deep anesthetic sedations that are performed with an unsecured airway, this facility allowed for an incremental change in practice. This was due to experienced practitioners' concern over potential complications during deep sedation anesthesia provided for the surgical procedure. It was agreed upon by the governing body and anesthesia providers to start with clear liquids 4 hours prior to surgery. Perhaps the original EBP plan would have been more successful if the literature used to support the change to 2 hours, specifically highlighted studies with patients using deep sedation.

The practice change of enhancing a patient's preoperative and postoperative experience by decreasing thirst represents a step in the right direction. Crenshaw and Winslow (2002) said that "old habits die hard" (p. 36), but after more than 20 years of evidence and revised guidelines, it is time for practice to catch up with research. A qualitative study uncovering the issues of concern regarding resistance to changing practice in the setting would be a recommended next step to moving forward.

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Tables

Table 1

EBP Implementation Project Timeline

| PICOT Question: In the adult elective surgery population, how does 2 hours clear liquids preoperative fasting, compared to 8 hours preoperative fasting, affect patients' sensation of thirst or discomfort over one month? | | | | |
|---|---------------------------------------|----------------|--|--|
| Action item | Who | When | Data collected | Comments |
| Obtain approval from facility | Head stakeholder & governing body | Oct 2020 | Begin collecting baseline data of sensation of thirst after total fasting > 8 hours. | Current fasting instructions do not reflect current practice guidelines. |
| Obtain baseline data of sensation of thirst level | By CRNA | Jan 2021 | Collect baseline data using 4-point scale none/slight/moderate/severe. | |
| Obtain approval to implement practice change | Head stakeholder | Feb 2021 | Feb 2021 | Policy implemented. |
| Pilot project | By CRNA | Feb & Mar 2021 | Data collected will be pre-surgery thirst sensation levels based on a 4-point scale, none/slight/moderate/severe and noted complications | Data analyzed. |
| Evaluate the practice change | CRNA, Head stakeholder governing body | April 2021 | Baseline data and post implementation data | To determine if the practice change was effective. |

Table 2*Summary of Data*

| | Baseline | | Post Implementation | |
|------------------------|-----------------|------------|----------------------------|------------|
| | Quantity | Percentage | Quantity | Percentage |
| NPO DATA | | | | |
| NPO CL 2-4.5 hours | 0 | 0% | 5 | 22% |
| NPO CL 4.6-7.9 hours | 1 | 1% | 9 | 39% |
| NPO CL 8-12 hours | 50 | 57% | 5 | 22% |
| NPO CL \geq 12 hours | 36 | 41% | 4 | 17% |
| THIRST SCALE | | | | |
| None | 3 | 3% | 4 | 17% |
| Slight | 37 | 43% | 8 | 35% |
| Moderate | 37 | 43% | 11 | 48% |
| Severe | 10 | 11% | 0 | 0% |
| Total Moderate/Severe | 47 | 54% | 11 | 48% |

Figures

Figure 1

Baseline and Post-Implementation Data

