Starving for Surgery: An Integrative Review

BROOKE LANGEVIN
ADVISOR: MAUREEN J. BAKER, PHD, RN, CNL

Background
Perioperative Fasting, or NPO (nil per os) status is a widespread preprocedural order to prevent intraoperative aspiration. “NPO” refers to the time a patient is without any oral liquids or solids before a procedure. In most healthcare settings, NPO after midnight is common practice. However, numerous evidence-based studies and guidelines suggest the routine of prolonged NPO leads to numerous adverse side effects and surgical complications.

Purpose
In this integrative review, studies were synthesized and evaluated to determine the extent of perioperative fasting being implemented with adult patients undergoing elective procedures. Study findings were assessed to determine 1) effect of clear fluids pre-procedure compared to strict NPO after midnight 2) corresponding aspiration risk and patient satisfaction during hospitalization.

Methods
The Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guided this review (See Figure 1)
- Covidence, a screening and data extraction management system, was used to track and organize studies
- Included studies were published after 2012 and included: adult, elective procedures, pulmonary aspiration, patient outcomes and patient safety
- Articles published after 2012, including emergent procedures, children and/or pregnant women were excluded.
- CINahl, PubMed, and Google Scholar databases were searched for relevancy
- Studies were assessed for eligibility by a two-person review of the full-text articles.

Key Terms: NPO, Perioperative fasting, Pulmonary Aspiration Risks, Patient Comfort, Fasting, guidelines

Table 1: Significance of Articles

<table>
<thead>
<tr>
<th>Type of Study</th>
<th>Number of Studies used</th>
<th>Level of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systematic Review of Randomized controlled trials - Clinical Practice Guidelines</td>
<td>1</td>
<td>1</td>
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<tr>
<td>Single Center, prospective, Randomized Clinical trial</td>
<td>1</td>
<td>1</td>
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<tr>
<td>Meta-Analysis (11 Randomized Clinical Trials)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Three group RCT with pre- and post-test</td>
<td>1</td>
<td>II</td>
</tr>
<tr>
<td>Two Group RCT</td>
<td>1</td>
<td>II</td>
</tr>
<tr>
<td>Randomized Prospective Clinical Study</td>
<td>1</td>
<td>II</td>
</tr>
<tr>
<td>Prospective observational study</td>
<td>1</td>
<td>II</td>
</tr>
<tr>
<td>Non-randomized controlled trial</td>
<td>1</td>
<td>III</td>
</tr>
<tr>
<td>Systematic review of 27 experimental trials</td>
<td>1</td>
<td>III</td>
</tr>
<tr>
<td>Retrospective Study</td>
<td>1</td>
<td>IV</td>
</tr>
<tr>
<td>Cohort Study</td>
<td>1</td>
<td>IV</td>
</tr>
<tr>
<td>Editorial</td>
<td>2</td>
<td>V</td>
</tr>
<tr>
<td>Article Review</td>
<td>1</td>
<td>V</td>
</tr>
<tr>
<td>Cross-Sectional Study</td>
<td>4</td>
<td>V</td>
</tr>
<tr>
<td>Narrative Review</td>
<td>1</td>
<td>V</td>
</tr>
<tr>
<td>Case-Control Study</td>
<td>1</td>
<td>V</td>
</tr>
<tr>
<td>Research Article</td>
<td>1</td>
<td>V</td>
</tr>
</tbody>
</table>

Results
From the review, there were six that addressed noncompliance with ASA guidelines for perioperative fasting6,7,12,13,16,18,26. Data from the five articles concluded that most patients were fasting from 13-16 hours prior to procedure, compared to the recommended two6,7,12,13,18,26. Nine studies determined that patients experienced better overall comfort and less preoperative and postoperative thirst, nausea, vomiting, dehydration and headaches when given clear fluids and/or a liquid carbohydrate supplement up to two hours prior to procedure6,14,15,17,18,19,21,22,25. Three studies exemplified how prolonged preoperative fasting can lead to prolonged post operative recovery6,18,21,24. No studies concluded shorter NPO periods prior to elective procedures increased a patient’s aspiration risk.

Discussion
The literature showed no correlation between increased perioperative fasting time and decreased aspiration risk. In order to promote compliance with ASA guidelines, healthcare management needs to determine the reasons as to why health care personnel are not following national guidelines.

Education
Once an organization understands why protocols are not being implemented, evidence-based education should be enforced to analyze and address the benefits of perioperative intake. Nurses must be at the forefront of implementing change. Nurses need to diligently document patient status to exemplify the effects of preoperative intake. Nurses should advocate for their patients and instruct their patients to advocate for themselves. If patients are well instructed, they are more likely to remain compliant and report higher satisfaction.

Cost
Scheduling conflicts may arise as preoperative fasting time decreases. However, if the OR is running on time or behind, the gap between a patient eating and having to wait for surgery will be minimal. Every healthcare institution must consider the potential of the longer a patient goes without intake, the longer the patient is staying in the hospital to recover; ultimately costing both the patient and the hospital unnecessary funds.

Conclusions
Flexibility, adaptability, and concerns for patient’s well being are the cornerstone for practice compliance. When healthcare personnel and patients are well educated about the significance of pre-procedure intake, they may be more willing to comply with ASA guidelines. Given the frequent success of carbohydrate loading and clear fluids prior to elective procedure as well as the minimal risk of pulmonary aspiration, healthcare providers must eliminate their desire for routine and tradition and consider the evidence to ensure the medical, psychological, and financial wellbeing of the patients.

Implications
Findings of this review identify needs for future research, such as the need for more randomized controlled trials with larger sample sizes including patients from a variety of elective procedures. Co-morbidities and patient health status prior to procedure should be examined before determining a patient’s fasting period.

References

9. Tekgul, A., & Tekgul, Z. (2019). Pulmonary aspiration, healthcare providers must eliminate their desire for routine and tradition and consider the evidence to ensure the medical, psychological, and financial wellbeing of the patients

Figure 1: PRISMA Diagram

32 Studies Import for screening
58 Studies screened
27 Full-text studies assessed for eligibility
22 Studies Included
5 Studies Excluded
2 wrong patient population
1 wrong outcomes
2 too old
9 Studies Ongoing
0 Studies awaiting classification
22 Studies Included