Nothing by Mouth May Not Be the Safest Option: Annotated Bibliography

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Patil, M. C. & Prajwal, B. (2020). Ultrasonographic estimation of gastric volume in patients after overnight fasting and after ingestion of clear fluids two hours before surgery. *Anaesthesia, Pain & Intensive Care, 24*(3), 308-313.

https://doi.org/10.35975/apic.v24i3.1283

This randomized blind study illustrated that evidence-based supplementation of preoperative patients with carbohydrate liquids two hours before surgery was safe, as opposed to preoperative fasting. Surgeons instruct patients to fast for surgery the night before procedures, owing to beliefs that fasting better empties gastric contents. Higher gastric volume was observed in patients who practiced prolonged fasting. Low gastric pH, another contributor to aspiration, was increased when continuing hydration until two hours preoperatively. The authors used ultrasonography to compare the gastric contents of sixty patients, divided equally, who underwent overnight fasting or who ingested clear liquids up to two hours before surgery. The results indicated the fasting group deviated (SD) by10.5 +/- higher gastric volume than the hydration group. The gastric pH, also measured in both groups, showed statistically significant findings where the gastric pH proved lower in the fasting group by SD of 6 +/-.

Significance of this data was two-fold. Comfort and hydration of the patient was preserved in the beverage group, while safety against regurgitation was promoted. This answered the PICO question: Does allowing the patient to hydrate with clear liquids up to two hours before surgery rather than observing the practice of prolonged fasting the night prior improve post-surgical outcomes for the patient? The study shows that, previously, non-existent methods of calculating gastric content necessitated preoperative

fasting. Now that quantitative methods of obtaining accurate representations of gastric volume exist it is neither appropriate nor safe to continue to impose overnight fasting discomforts onto the patient. The nursing process is affected by allowing the nurse to advocate for clients placed on fasting precautions by using evidence-based knowledge to request pre-surgical hydration. The study did a good job at conducting a quantifiable evaluation that determined the safety of enriched clear fluids above overnight fasting prior to elective surgeries.

Şavluk, Ö. F., Kuşçu, M. A., Güzelmeriç, F., Gürcü, M. E., Erkilinç, A., Çevirme, D., Ogus, H. Koçak, T. (2017). Do preoperative oral carbohydrates improve postoperative outcomes in patients undergoing coronary artery bypass grafts? *Turkish Journal Of Medical Sciences, 47*(6), 1681-1686. https://doi.org/10.3906/sag-1703-19

The authors of this prospective randomized trial observed the relationship between postoperative metabolic needs with that of the fasting method used for 152 patients undergoing surgery for coronary artery bypass grafts (CABG). The collective was divided into four sub-groups. Three of the groups were given liquid carbohydrates at different intervals before their operation time. The fourth group, being the control group, was instructed to fast for eight hours before the procedure. Blood panels and echocardiograms were obtained the night before the surgery and compared to the same measures afterward. The authors found that hunger and dry mouth were more prevalent in the control group, while nausea and anxiety were nearly equal among all groups. However, the truly significant differences were notable in metabolic measures, ventilation needs, and intensive care unit (ICU) stay length.

Incidences of hyperglycemia with the need for increased insulin therapy was the greatest difference in the control group. Normoglycemia was characteristic of the three carbohydrate drink groups and seemed cardioprotective, thereby decreasing inotropic requirement and ICU length of stay. The nursing process would be negatively affected by the extra care requirements of the metabolically ill patient with continued fasting practices. Advocating for preoperative hydration supplements could beneficially stabilize those clients post-operatively. Based on improved outcomes in the maintenance of the patient's metabolic requirements and the patient's comfort, the authors deduced that the administration of carbohydrate liquids prior to an elective cardiac surgery should be further examined and confirmed. This study did not fully answer the PICO question because, after all the evidence was presented, the authors failed to take a definitive stance on whether or not it would be more beneficial for the preoperative cardiac patient to continue hydration prior to surgery instead of prolonged fasting.

Tsang, E., Lambert, E., & Carey, S. (2018). Fasting leads to fasting: Examining the relationships between perioperative fasting times and fasting for symptoms in patients undergoing elective abdominal surgery. *Asia Pacific Journal Clinical Nutrition, 27*(5), 968-974. https://doi.org/10.6133/apjcn.042018.04

The authors of this retrospective study used patient documentation to compare post-surgical wellbeing among abdominal surgery patients who observed the common practice of extended fasting. Tsang et al. (2018) found that the nil by mouth practice was antiquated, unsubstantiated, and also contributed to a prolonged return to oral intake post-surgically by approximately nineteen hours. This negatively impacted metabolic health as well as the patient's length of hospital stay. Of the 193 patient charts that were

included in this study, the median length of stay was 6.2 +/- 8.6 days of which 10.5% of their admission time was spent in fasting state. The authors suggest that significant clinical benefits pursuant to Enhanced Recovery After Surgery (ERAS) guidelines, which aim at improving patient post-surgical outcomes, would also be achieved by implementing evidence-based, national practice changes which standardize the guidelines in favor of hydration until two hours before an operation. Negative impacts of prolonged fasting were noted in a little over 10% of the patients spent additional time in fast due to management of gastrointestinal maladies such as postoperative nausea and vomiting, aspirate, abdominal pain, distention, and "other reasons". This study suggests that the benefits of continuing to provide oral hydration provides better comfort outcomes for patients and also indicates physiological benefits in restoring the patient's gastrointestinal capabilities after abdominal surgeries. However, the study did not fully answer the PICO question because it focused on pre and post-surgical fasting more than ERAS style pre-surgical hydration. This did not clearly define what fasting method would provide the best patient outcomes regarding returning to oral intake and hospital stay length. Pre-surgical hydration, however, positively correlated with quicker return to solids. Based on this, the nursing process would not be impacted until clearer, evidence-based guidelines are identified to implement changes to fasting guidelines.