The (In)significance of GLP-1 Receptor Agonists (e.g., Semaglutide) Extended Fasting Guidelines in Upper Extremity Surgery

Thomas Boucher, Thomas William EVASHWICK-ROGLER, Poonam Pai B H¹, John Joseph Corvi², Christoph Alexander Schroen³, Hannah Rhee², Amanda Walsh⁴, Michael R Hausman⁵, Jaehon M Kim

¹Anesthesiology, Perioperative and Pain Medicine, Mount Sinai West And Morningside Hospitals, Mount Sinai Health System, ²Mount Sinai Hospital, ³Icahn School of Medicine At Mount Sinai, ⁴Icahn School of Medicine at Mount Sinai, ⁵Mt Sinai Med Ctr

INTRODUCTION:

Glucagon-like peptide-1 receptor agonists (GLP-1 RAs) have been shown to improve glycemic control in patients with type two diabetes mellitus (DM II) and reduce weight in patients with and without DM II. [1] There has been an uptrend in public interest in using GLP-1 RAs, popularly Ozempic, for cosmetic weight loss since its first approval by the United States Food and Drug Administration in 2021. [2] It is thought that GLP-1 RAs lower glycemia and aid in weight loss by slowing gastric emptying. [3] The evidence for gastric motility slowing due to GLP-1 RA use is mixed and based on an indirect measurement via the paracetamol absorption test. [4] Due to concern for delayed gastric emptying increasing the risk of regurgitation/aspiration during anesthesia, on June 29, 2023, the American Society of Anesthesiologists (ASA) changed its recommendations for patients on GLP-1 RAs to withhold the medication for up to one week before the procedure and reconsidering the case if the patient has not followed the guidelines or evaluating for stomach contents with gastric ultrasonography. While not formally recommended by the ASA, some institutions have chosen to increase the duration of fasting protocol prior to a procedure. For example, the author's institution enforces a strict policy withholding GLP-1 RA medication for 1-2 weeks with a minimum of 18 hours of fasting from solids and at least 8 hours from clear liquids. This study aims to compare the incidence of clinically significant aspiration events in patients taking GLP-1 RAs undergoing upper extremity surgery before and after the initiation of the extended fasting guidelines. METHODS:

We conducted a retrospective cohort study using EPIC Reports to identify patients taking GLP-1 RA's who underwent surgery with five upper extremity surgeons at our institution from March 2018 until May 2024. Patients were stratified into "Pre-Initiation" and "Post-Initiation" cohorts based on the date of surgery and its relation to the adoption of the new GLP-1 RA medication holding and fasting guidelines in July 2023. Demographic data collected included age, sex, body mass index (BMI), ASA class (represented as binary, \geq 3 or not), duration of GLP-1 RA treatment (months), and indication for GLP-1 RA treatment (DM vs. weight loss only). Our primary outcome was an aspiration event that was indicated by clinical documentation or unplanned admission for respiratory distress. Our secondary outcomes were the type of anesthesia used (general vs. regional +/- sedation), time spent fasting from solids (hours), time under anesthesia (minutes), and if a gastrointestinal stimulant was administered in the perioperative period. Continuous variables were compared using a two-sided T-test. Categorical variables were compared using the Mann-Whitney test. Binary variables were evaluated using Fisher Exact Tests.

RESULTS:

96 Patients were included in the "Pre-Initiation" Cohort, and 22 were included in the "Post-Initiation" Cohort. The two cohorts did not differ demographically in mean age ("Pre-Initiation" 63.0 ± 10.8 years vs. "Post-Initiation" 60.1 ± 14.1 years; p = 0.275), sex (63.5% female vs. 68.2% female, p = 0.81), BMI (34.5 ± 6.7 vs. 31.9 ± 5.8 ; p = 0.11), ASA class ≥ 3 (62.5% vs. 50%; p = 0.34), duration of treatment prior to surgery (24.7 ± 23.4 months vs. 27.2 ± 31.7 months; p = 0.68) or indication for taking a GLP-1 RA (89.6% for DM vs. 72.7% for DM; p = 0.076) (Table 1). The proportion of patients taking individual GLP-1 RA's is shown in Figure 1. The cohorts differed in percent who underwent general anesthesia (41.7% vs. 22.7%), time spent fasting from solids (12.3 ± 4.8 hours vs. 19.8 ± 7.6 hours; p = <0.0001) (Figure 2) and time under anesthesia (78.6 ± 75.0 minutes vs. 53.6 ± 59.54 minutes; p = 0.024) (Figure 3). There were no aspiration events in either cohort. Only one patient from each cohort was treated with a gastrointestinal stimulant in the perioperative period. DISCUSSION AND CONCLUSION:

Concern for delayed gastric emptying and increasing risk of regurgitation/aspiration during general anesthesia and deep sedation is based on anecdotal reports in patients undergoing esophagogastroduodenoscopy. [5-7] Our study shows no aspiration events in patients undergoing upper extremity procedures before or after the implementation of the new GLP-1 RA medication holding and strict fasting guidelines.

