Anesthetic Management for Patients Prescribed GLP-1 Agonists

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Structured Abstract

Background

A 52-year-old female with a history of obesity, hypertension, type 2 diabetes mellitus, and gastroesophageal reflux disease (GERD) presented for a routine esophagogastroduodenoscopy (EGD) for worsening symptoms of GERD including dyspepsia and worsening nausea. The patient was taking semaglutide injections for the past few months for control of diabetes and weight loss. The patient had not eaten solids for well over 24 hours and completely nothing by mouth for 12 hours before the procedure. As the procedure began, the physician entered the esophagus and stomach to find solid food particles in the patient's stomach. The patient was then intubated for airway protection and the procedure continued without complication.

Clinical Question

In patients prescribed a GLP-1 agonist undergoing elective procedures, does the use of these medications increase the risk of aspiration of gastric contents when compared to the general population?

Evidence Based Discussion

Glucagon-like peptide-1 (GLP-1) receptor agonists (RA) have become popular medications over the last several years for the treatment of type 2 diabetes mellitus, cardiovascular risk reduction, and most recently for weight loss. There are several types of GLP-1 RA medications with various actions and half-lives, but the most popular of these is semaglutide. Semaglutide is a long-acting GLP-1 RA that selectively binds to GLP-1 receptors which increases insulin and suppresses glucagon secretion with a half-life of seven days and is a once-weekly injection. An additional mechanism of action includes inhibition of stomach peristalsis which causes delayed gastric emptying, nausea, and vomiting. This effect is particularly concerning for patients taking this medication who then need surgical procedures. Current practice guidelines for fasting include two hours for clear fluids, six hours for a light meal, and eight hours for full solid meals including fatty or friend foods. However, in patients taking a GLP-1 RA, these guidelines may not be sufficient. There have been numerous case reports of GLP-1 RA patients following fasting guidelines yet still showing retained gastric food contents. Retained gastric contents can cause pulmonary aspiration following sedation or general anesthesia which can lead to pneumonia, sepsis, extended hospital stays, and death. The American Society of Anesthesiologists (ASA) has recently published fasting guidelines for patients taking GLP-1 agonists. These guidelines include several options including treating the patient as a "full stomach" and using a rapid sequence intubation technique, holding the GLP-1 agonist for 1 week prior to the procedure, and using gastric ultrasound to identify retained gastric contents.

Translation to Practice

This case study and many more like it highlight the need for additional aspiration precautions for patient's talking GLP-1 RAs. As these drugs continue to gain popularity, anesthesia providers will care for substantially more patients on these drugs and must take great care to prevent complications. While the ASA's guidelines are supportive of this, there are still some loopholes that must be addressed. Gastric ultrasound can be a quick way to perform a bedside assessment of gastric contents. A drawback to this is having appropriate equipment and staff knowledgeable and efficient using ultrasound technology. Staff should be appropriately trained on gastric ultrasound as this is a great objective way to verify whether gastric contents are present or not. Gastric ultrasound should be part of the standard of care for patients taking GLP-1 agonists, and for any patient in general when there is any question of a possible full stomach. Additionally, a prokinetic agent could be prescribed for a week before surgery to aid in gastric emptying. The ASA suggests withholding the GLP-1 agonist for one week before surgery, but the half-life of semaglutide is seven days so this drug would need to be held for several weeks to allow the body time for metabolism and excretion of the drug. This is concerning for those taking the drug for diabetes which could result in poor glycemic control. Further research is needed to shed light on how long a GLP-1 agonist should be held before surgery to decrease risk of retained gastric contents. If the GLP-1 agonist is held for a diabetic patient, additional diabetic control should be implemented as bridge therapy until GLP-1 agonist can be safely given again. More conservative fasting guidelines should also be implemented, but current recommendations do not address this aspect. As such, further research is necessary to add fasting guidelines specific to GLP-1 agonist patients.

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At the completion of the presentation, the participants will be able to:

1. Describe the anesthetic implications related to GLP-1 agonists.

Keywords: GLP-1 agonist, glucagon-like peptide, anesthesia, semaglutide, delayed gastric emptying, pulmonary aspiration

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