

Introduction

- Obesity, affecting around 650 million adults globally, is a chronic disease linked to serious health risks such as type 2 diabetes and heart disease. While lifestyle interventions like diet and exercise are essential for obesity treatment, many patients experience suboptimal weight loss and weight regain, prompting the need for additional therapies like Anti-Obesity Medications (AOMs).
- Semaglutide, a GLP-1 receptor agonist, has gained significant attention due to its efficacy in managing both type 2 diabetes and promoting weight loss by enhancing insulin secretion and slowing gastric emptying. However, this delayed gastric emptying increases the risk of pulmonary aspiration during anesthesia, necessitating updated preoperative fasting guidelines and anesthesia management strategies.
- As the use of semaglutide rises, healthcare providers must carefully assess and adjust perioperative protocols to ensure patient safety, emphasizing the need for modified fasting recommendations and risk mitigation measures in surgical settings.

Case Reports/ Literature Review

Several case reports have documented significant risks for patients taking semaglutide during anesthesia, particularly due to its effect of delaying gastric emptying. This delay increases the risk of pulmonary aspiration, even when fasting protocols are followed.

In one case, a 42-year-old male on semaglutide for weight loss aspirated during an endoscopy after fasting for over 18 hours. Despite adhering to the fasting guidelines, the delayed gastric emptying caused by semaglutide resulted in the presence of residual gastric contents, leading to aspiration complications.

Similarly, a 66-year-old man, who had been using semaglutide for weight management, experienced delayed gastric emptying during a CT-guided procedure for renal nodule ablation, despite fasting for 9 hours. In both cases, the medication’s effect on gastric motility posed a serious perioperative risk.

Table 2: Summary of Clinical Guidelines and Findings for GLP-1 Receptor Agonists in Perioperative Management

| Study/Source                                                                    | Key Findings                                                                                                       | Guidelines                                                                                                    |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Emerging Anesthesia Risks with Semaglutide                                      | Two cases of pulmonary aspiration despite fasting; updated guidelines recommend stopping GLP-1 RAs before surgery. | Stop daily doses one day before surgery; weekly doses one week before surgery.                                |
| Relationship between Perioperative Semaglutide Use and Residual Gastric Content | Higher risk of increased residual gastric content (24.2% in users vs 5.1% in non-users).                           | Monitor for residual gastric content in semaglutide users; higher risk identified.                            |
| Semaglutide, Delayed Gastric Emptying, and Intraoperative Pulmonary Aspiration  | Case report of pulmonary aspiration despite 18-hour fasting.                                                       | Treat as full stomach; cautious anesthesia management.                                                        |
| Risk of Pulmonary Aspiration During Semaglutide Use and Anesthesia              | Case report of delayed gastric emptying and pulmonary aspiration during elective procedure.                        | Ensure preoperative medication disclosure; use preventative strategies.                                       |
| Anesthesia and Glucagon-Like Peptide-Receptor Agonists: Proceed with Caution    | Significant increase in residual gastric solids; fivefold increased risk of residual gastric contents.             | Cautious perioperative management; further research needed.                                                   |
| Comparative Effectiveness of GLP-1 Receptor Agonists                            | Systematic review found GLP-1RAs effective for glycemic control but raised safety concerns.                        | Evaluate benefits vs. gastrointestinal side effects.                                                          |
| AGA Rapid Clinical Practice Update                                              | Recommendations to pause GLP-1 RAs before endoscopy; precautions for 'full stomach' if not paused.                 | Pause daily doses on the day of procedure; weekly doses one week before.                                      |
| ASA Consensus-Based Guidance                                                    | Guidelines recommend pausing daily doses on procedure day and weekly doses a week before.                          | Pause daily doses on procedure day; weekly doses a week before.                                               |
| GLP-1 Receptor Agonist Use in Residual Gastric Content Before Anesthesia        | Significantly higher prevalence of increased residual gastric content in GLP-1 RA users (56% vs 19%).              | Current preprocedural fasting guidelines may be inadequate; consider higher aspiration risk under anesthesia. |

Discussion

- Semaglutide’s delayed gastric emptying presents significant risks during anesthesia, particularly the increased chance of pulmonary aspiration, even when standard fasting guidelines are followed. Case reports have shown aspiration complications in patients despite fasting for extended periods, highlighting the inadequacy of current preoperative protocols for GLP-1 receptor agonist users.
- The updated guidelines from the American Society of Anesthesiologists (ASA) recommend pausing semaglutide before surgery—daily doses on the day of surgery and weekly doses one week prior—to minimize these risks. When discontinuation isn’t feasible, treating patients as having a "full stomach" and using ultrasound to check for residual gastric contents are important precautions.

Conclusions

- Further research is needed to develop optimal fasting guidelines and risk mitigation strategies, as the use of semaglutide continues to grow. These updates are crucial to improving patient safety during anesthesia for semaglutide users.

References

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