

INTRODUCTION

- There has been an increased frequency of prescription of glucagon-like peptide-1 (GLP-1) agonist medications in recent years
 - This is likely to result in an increase in patients scheduled for surgery that are on these medications.
 - Potential impact of GLP-1 agonists on gastric emptying and the associated aspiration risk → Impact on peri-procedural management.
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- The evidence for preoperative management of these drugs to prevent regurgitation and pulmonary aspiration of gastric contents is sparse limited only to several case reports.

OBJECTIVES

In this study we aim to add to the current evidence base in terms of impact on aspiration and subsequent pneumonia risk among patients undergoing various surgical procedures.

METHODS

- Retrospective cohort study, deidentified Marketscan data, **2017 – 2021**
- Cohort**
- Lower extremity joint replacement, hysterectomy, appendectomy and cholecystectomy surgery
 - Preoperative use of GLP-1 agonist drugs (**dulaglutide, exenatide, liraglutide, semaglutide**)
- Analysis**
- Multivariable regression models assessed the association between preoperative GLP-1 agonist use and 1) aspiration and 2) pneumonia.
 - Aspiration (J69, J95) and pneumonia (J13-J16, J18) were identified using ICD-10 codes, which appeared in the discharge diagnosis but were not present at the time of admission.
 - Propensity score matching analysis, odds ratios and 95% CI.

No significant association between the use of GLP-1 agonists and an elevated risk of aspiration or pneumonia

Perioperative Complications		
Number of Aspirations, <i>n</i> (%)	1393 (0.2)	33 (0.3)
Multivariable Model, <i>OR (95% CI)</i> *	-	1.08 (0.76 – 1.54)
Propensity score match, <i>OR (95% CI)</i> *	-	1.38 (0.81 – 2.33)
Postoperative Pneumonia, <i>n</i> (%)	4638 (0.7)	99 (1.0)
Multivariable Model, <i>OR (95% CI)</i> *	-	0.96 (0.78 – 1.17)
Propensity score match, <i>OR (95% CI)</i> *	-	1.07 (0.8 – 1.42)

	No Preoperative GLP-1 Agonist Use	Preoperative GLP-1 Agonist Use
	686432 (98.54)	10164 (1.46)
Sociodemographic Characteristics		
Age, median (<i>IQR</i>)	48 (38, 57)	54 (46, 59)
Sex, <i>n</i> (%)		
Male	202294 (29.5)	2966 (29.2)
Female	484138 (70.5)	7198 (70.8)
Date of Procedure, <i>n</i> (%)		
2017	128050 (18.7)	1223 (12.0)
2018	181650 (26.5)	2225 (21.9)
2019	161422 (23.5)	2473 (24.3)
2020	121056 (17.6)	2294 (22.6)
2021	94254 (13.7)	1949 (19.2)

RESULTS

- We evaluated:
- n=186,975 lower extremity joint replacements
 - n=174,277 hysterectomies
 - n=116,234 appendectomies
 - n=219,110 cholecystectomy surgeries
- **preoperative use of GLP-1 agonists varied between 0.6% and 2.0%**
- **Overall aspiration risk was 0.20% (n=1,426 cases)**
- **Overall pneumonia risk was 0.68% (n=4,737)**
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- Multivariable models: preoperative GLP-1 use was not significantly associated with odds of aspiration (OR 1.08 CI 0.76-1.54 p=0.668) or pneumonia (OR 0.96 CI 0.78-1.17 p=0.668).
 - A propensity score analysis yielded similar results: aspiration OR 1.38 CI 0.81-2.33 p=0.235; pneumonia OR 1.07 CI 0.80-1.42 p=0.660.

DISCUSSION

- In this observational national dataset, **preoperative GLP-1 use appears not to be associated with odds of perioperative aspiration or pneumonia.**
 - Two **main limitations** include the use of 2021 as the most recent data and coding errors; however, we do not expect coding errors to differently affect those with and without preoperative GLP-1 use.
 - We believe that these data add to the current sparse evidence base**
- Given the very recent increases in GLP-1 agonists use continued monitoring will be prudent**