

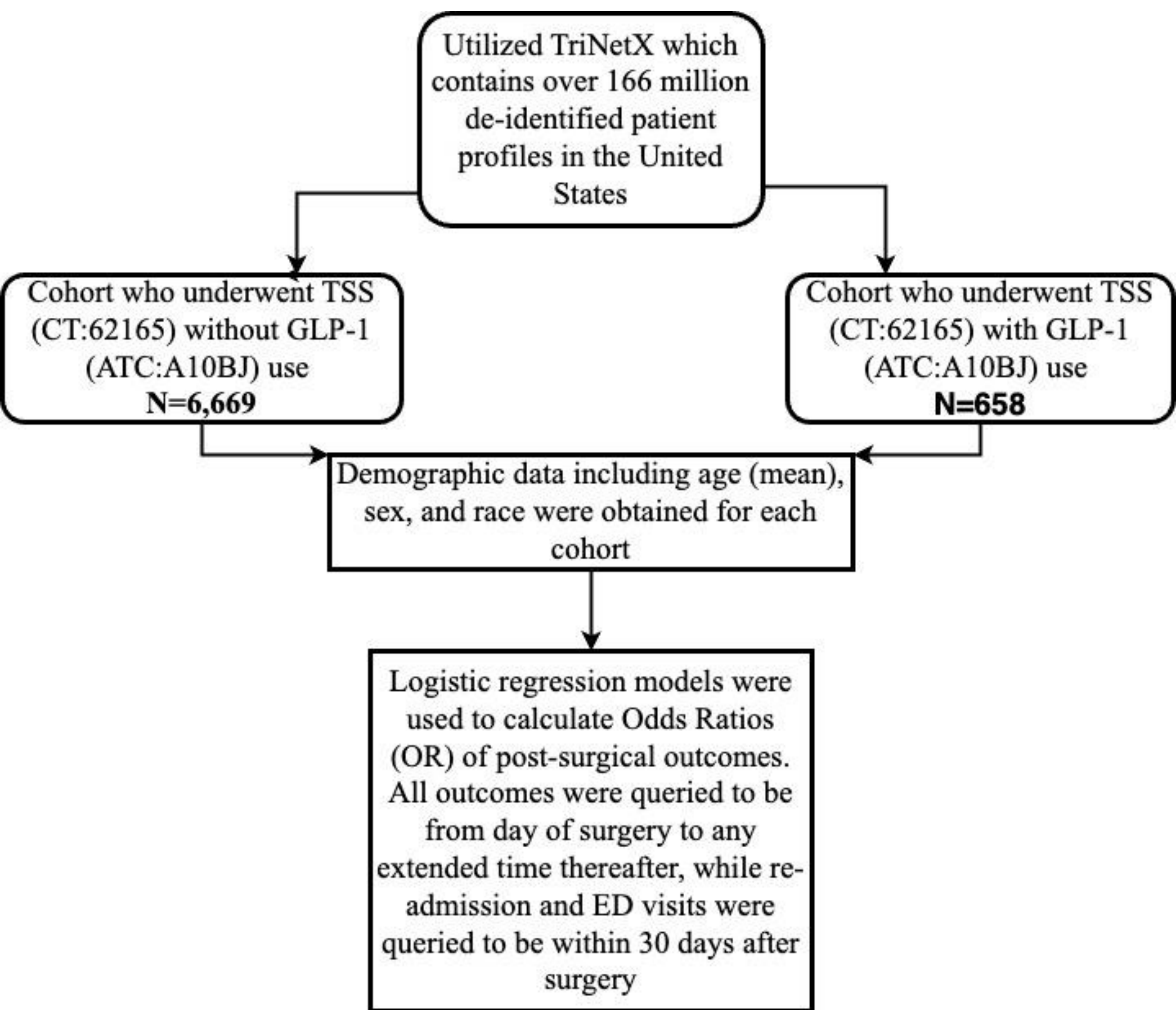
# Risk of Postoperative Complications in Patients who underwent Transsphenoidal Pituitary Surgery Treated with Glucagon-Like Peptide Agonists (TriNetX)

Max Pickles BA; Fox Ryker BS; Shreya Vinjamuri BS; Preston Carey BS; Thomas Rohan BS; India Shelley BA; Amanda Bingaman BS; Roger Murayi MD; David Bray MD; James Evans MD

## Introduction

Since the FDA approved semaglutides for weight loss in 2021, glucagon-like peptide-1 (GLP-1) receptor agonists, such as Wegovy and Ozempic, have seen widespread use<sup>1</sup>. With the growing popularity of these medications, recent literature has focused on their potential association with post-operative complications. Therefore, our study aimed to evaluate their impact on postoperative outcomes and 30-day readmission rates following transsphenoidal pituitary surgery (TSS).

## Methods



## Results

- A total of 6,669 patients underwent TSS not on a GLP-1 agonist, while 658 patients underwent TSS while using a GLP-1 agonist.
- The mean age was 58 years in the non-GLP-1 cohort and 54 years in the GLP-1 cohort (Table 1).
- Females constituted 48.6% of the non-GLP-1 cohort and 65% of the GLP-1 cohort, a statistically significant difference ( $p < 0.0001$ ) (Table 1).
- Patients in the GLP-1 cohort had higher odds of postoperative inpatient admission within 30 days (OR 7.5, 95% CI 3.38-16.60) and acute kidney injury (AKI) (OR 1.44, 95% CI 1.001-2.06) (Figure 1).
- No statistically significant differences were observed between the cohorts for other postoperative outcomes, including emergency department visits, cerebrospinal fluid leaks, deep vein thrombosis, postoperative infection, meningitis/encephalitis, respiratory failure thyrotoxicosis, or delirium (Figure 1).

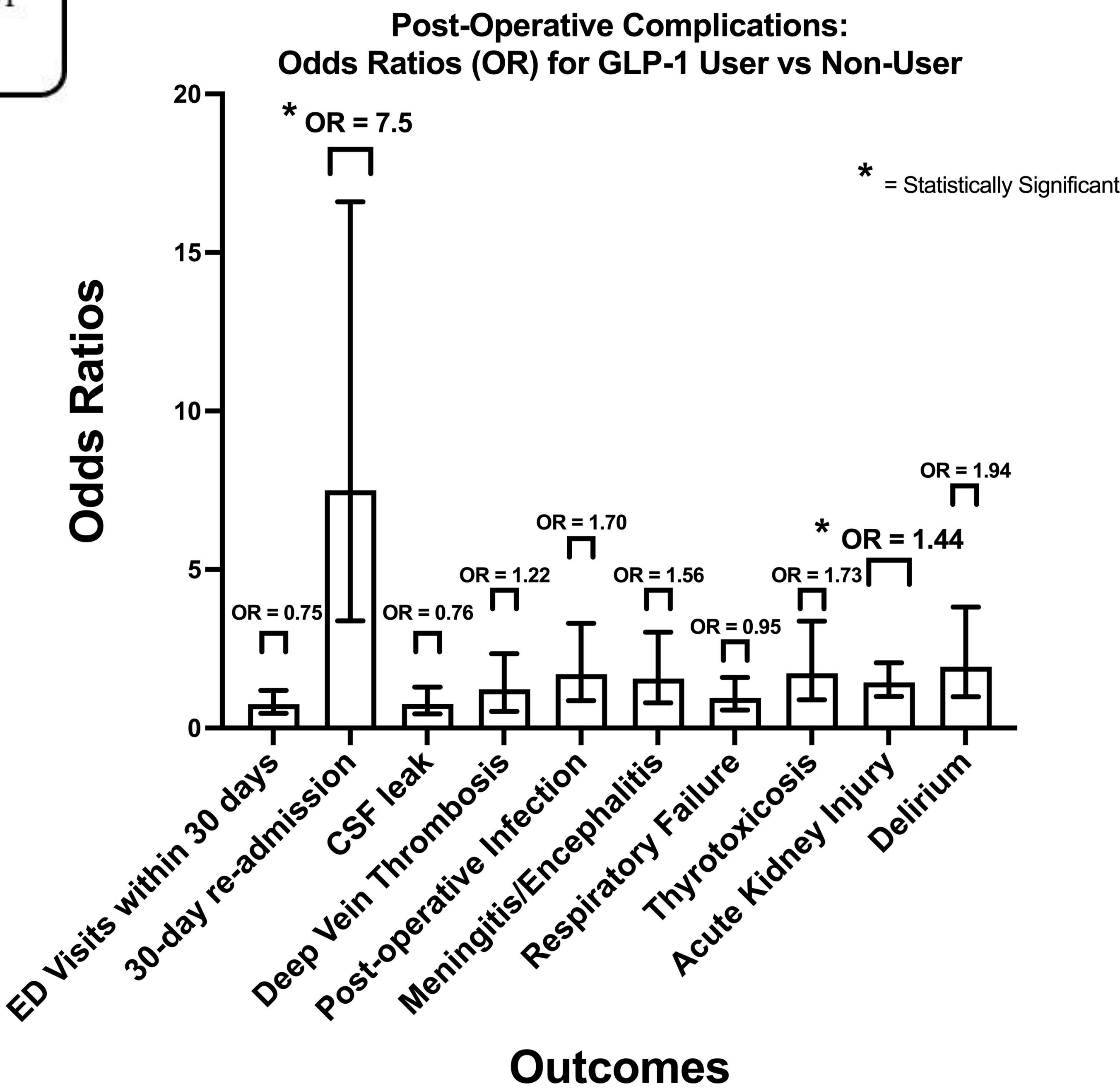
## Sources

1. Wilding JPH, Batterham RL, Calanna S, et al. Once-weekly semaglutide in adults with overweight or obesity. *N Engl J Med*. 2021;384(11):989–1002. doi:10.1056/NEJMoa2032183  
2. Tobaiqy M. A review of serious adverse events linked with GLP-1 agonists in type 2 diabetes mellitus and obesity. *Diabetes Therapy*. 2024;15(8):1717–1733. doi:10.1007/s43440-024-00629-x.

Table 1.

Demographic information		
Cohort	No GLP-1 Agonist Use	GLP-1 Agonist Use
Age (mean, SD)	58 (17) years	54 (17) years
Sex (Female)	48.6%	65.2%
White	63.3%	64.3%
African American	16.2%	16.2%
Asian	4.4%	3.9%
Other	4.7%	4.3%

Figure 1.



## Outcomes

## Discussion

Patients undergoing TSS while using a GLP-1 agonist showed increased odds of postoperative 30-day inpatient admission and AKI.

Possible reasons for increased 30-day re-admission include the potential adverse effects of GLP-1 agonists, such as delayed gastric emptying, pancreatitis, or gallbladder disease<sup>2</sup>. Additionally, the increased risk of AKI, as demonstrated in our study, could contribute to the increased odds of 30-day re-admission.

Alternatively, the higher admission rate may reflect differences in underlying comorbidities or preoperative optimization between the two groups rather than direct effects of GLP-1 agonists. Future research should aim to confirm these findings by utilizing larger sample sizes and methods such as propensity score matching to mitigate the effects of confounding variables.