# Association of Neoadjuvant Immunotherapy with Postoperative Major Morbidity After Oncologic Surgery

Daniel R. S. Habib BA[1], Matthew Shou BA[1], Kamran Idrees MD[2], Aimal Khan MD[2]

[1] Vanderbilt University School of Medicine, [2] Vanderbilt University Medical Center Department of Surgery

## Background

- Neoadjuvant immunotherapy (NI) has revolutionized cancer treatment.[1]
- Extensive research on the impact of neoadjuvant chemotherapy [2] but not NI on surgical outcomes across cancer types
- Understanding the effect of NI on surgical complication risk informs patient selection for oncologic surgery.

## Methods

- National Cancer Database (NCDB): patients aged 18-90 who underwent non-palliative oncologic surgery for rectal, colon, anal, esophageal, lung (non-small cell), and oral cavity cancer between 2010-2020
- Primary outcome: major morbidity = hospital length of stay within top decile of each surgery subtype, unplanned 30-day readmission, or 30-day mortality
- Multivariable logistic regressions to calculate odds ratios of major morbidity from NI by cancer type
  - Controls: patient demographics, Charlson-Deyo comorbidity index, clinical cancer staging, procedure type, surgical approach, and other treatment (e.g., chemotherapy or radiotherapy)

## Results

**Figure 1. Flowchart of Inclusion Criteria for Cancer Surgery Patients by Neoadjuvant Immunotherapy**

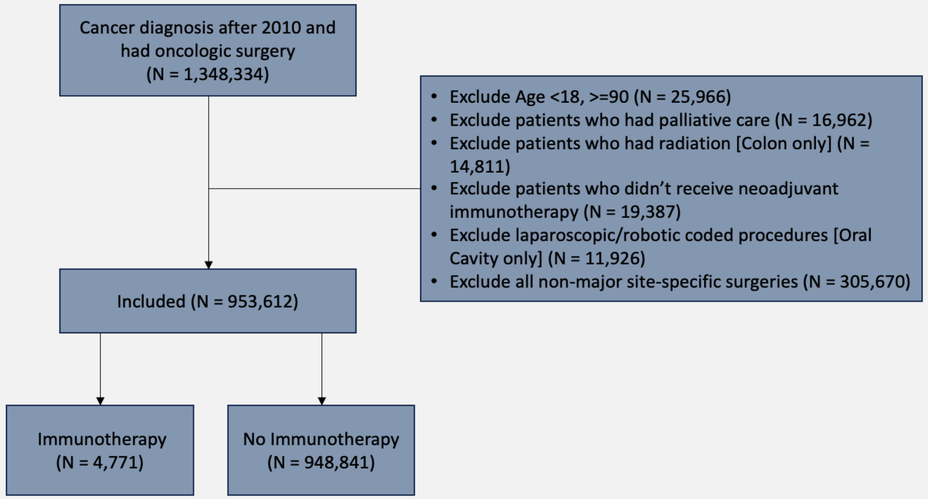
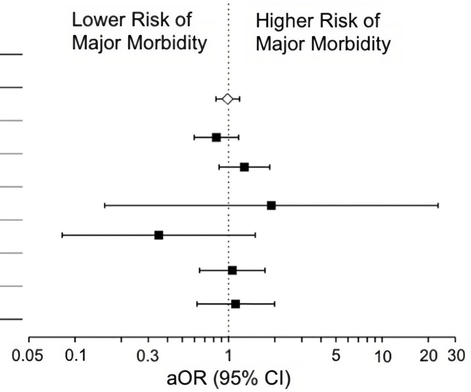



**Figure 2. Adjusted Odds Ratios for Major Morbidity Associated with Neoadjuvant Immunotherapy by Cancer Type**

| Cancer Type | Adjusted OR (95% CI) | P-value |
|---|---|---|
| Pooled | 0.98 (0.81-1.19) | 0.852 |
| Rectal | 0.83 (0.60-1.16) | 0.282 |
| Colon | 1.27 (0.87-1.85) | 0.220 |
| Anal | 1.90 (0.16-23.15) | 0.615 |
| Esophageal | 0.35 (0.08-1.49) | 0.156 |
| Lung (non-small cell) | 1.06 (0.65-1.73) | 0.821 |
| Oral Cavity | 1.10 (0.61-2.00) | 0.743 |




## Discussion / Conclusions

- No association between NI and increased surgical complication risk for rectal, colon, anal, esophageal, non-small cell lung, and oral cavity cancers
- Increasingly relevant finding as more surgeons are considering operating on patients who have recently completed or are currently undergoing immunotherapy
- Limitations: lack of detailed surgical complication information for each cancer type, small sample size for anal cancer, and use of NCDB to study surgical outcomes
  - However, our method of applying NCDB outcome variables to create a major morbidity variable as a surgical complication proxy has been previously validated. [3]
- As immunotherapy becomes more prevalent, understanding its impact on surgical outcomes is crucial for optimizing patient care.

## References

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Daniel.r.habib@vanderbilt.edu

Twitter @danielrshabib

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