

High Volume Surgeons Have Improved Outcomes After Robotic Transthoracic Esophagectomy In The Community Setting

Background: Minimally invasive approaches to esophagectomy have decreased overall morbidity, yet many surgeons continue to perform open operations particularly at community centers. We sought to evaluate the impact of complications after robotic assisted trans-thoracic esophagectomy (RATE) performed by a high volume (HV) surgeon compared to outcomes from surgeons who perform low volume (LV) esophageal surgery at the same center.

Methods: Utilizing a prospectively maintained esophageal database, we identified patients who underwent esophagectomy between 2009-2020. We then stratified by surgeon volume, age, and operation type. Baseline univariate comparisons were made for continuous variables using both the Mann-Whitney U and Kruskal Wallis tests. Pearson's Chi-square test was used to compare categorical variables. All statistical tests were two-sided and $p < 0.05$ was significant.

Results: We identified 148 patients, 11 in the LV group, and 137 in the HV group. The median age in the LV was 67 (35-78) years and 70 (42-91) in the HV groups, $p = 0.03$. There were no differences between gender, $p = 0.95$, race, $p = 0.78$, BMI, $p = 0.47$, ASA score, $p = 0.68$, or histology $p = 0.13$. Neoadjuvant therapy was more often utilized in the HV 112 (81.8%) compared to 2 (18.2%) in the LV group, $p < 0.001$. R0 resections were higher in the HV 100% vs 81.8% in the LV group, $p = 0.005$. Median operative time was 344 (253-304) minutes in the LV and 303 (264-375) minutes in the HV group, $p = 0.59$. Estimated blood loss was 300 (125-400) ml in the LV and 100 (50-100) in the HV group, $p < 0.001$. Lymph nodes harvested were 10 (8-17) in the LV and 17 (13-21) in the HV group, $p = 0.001$. Length of stay in days was 11 (9-31) (LV) and 8 (7-10) (HV), $p = 0.004$. While readmissions were higher in the LV 18.2% vs 13.1%, this was not significant, $p = 0.64$. Complications occurred 72.7% in the LV group and 32.8% in the HV group, $p = 0.01$.

Conclusions: Minimally invasive esophagectomy via RATE continues to demonstrate superior outcomes. High volume surgeons have improved operative outcomes with respect to R0 resections, estimated blood loss, and complications. Our data continue to support high volume surgeons performing esophageal resections.