Association of Surgeon Volume and Outcome in Esophagomyotomy

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INTRO:

- The relationship between surgeon volume in a specific procedure and improved postoperative outcome has been demonstrated in a number of surgical disciplines.
- Esophagomyotomy is commonly performed in the care of patients with achalasia, however it remains to be seen what constitutes the designation of “high volume” in this procedure, and if the volume to outcome relationships seen elsewhere apply.
- We hypothesize that surgeons performing higher numbers of esophagomyotomies will experience superior postoperative outcomes as compared to their lower volume peers.

METHODS

- The 2015-2019 Florida Agency for Health Care Administration (AHCA) Inpatient dataset was queried for esophagomyotomy using ICD10 codes.
- Surgeons who performed 10 or more procedures during the study period were placed into the high-volume cohort, and those performing < 10 into the low-volume cohort.
- Groups were then compared in regard to length of stay, patient disposition at discharge, and a number of postoperative complications.
- Patient demographics were evaluated using student’s t-test and chi square test, $p < 0.05$ considered significant.

Results

- 662 procedures were identified (45 open, 471 laparoscopic, and 146 robotic), performed by 135 surgeons. The mean number of esophagomyotomies per surgeon was 4.9 over the study period (Range 1-147).
- The high-volume group (n=12) performed 362 of the 662 procedures (55%), while the low-volume group (n=123) performed the remaining 300 (45%).
- Patients of high-volume physicians had decreased length of stay (1.4 ± 0.8 days vs 4.9 ± 6.7 days, p=0.01) and were more likely to be discharged to home or self-care following surgery (92.8% vs 86.0, p=0.04).
- High volume physicians also had statistically significant differences in rates of urinary tract infection (1.4% vs 4.0%, p=0.034), postoperative malnutrition (5.8% vs 11.0%, p=0.015), and postoperative fluid and electrolyte disorders (5.5% vs 13.3%, p<0.0001).

	Total	High Volume	Low Volume	P-value
Surgeons, n	135	12	123	
Procedures, n (%)	662	362(55%)	300(45%)	
Length of Stay (Mean ± St Dev)		1.41 ± 0.79	4.91 ± 6.67	
Discharge Home or Self Care		336(92.8)	258(86.0)	0.04
Post-Operative Complications				
Urinary Tract infection	17	5(1.38)	12(4)	0.034
Malnutrition	54	21(5.80)	33(11)	0.015
Fluid and Electrolyte Disorders	60	20(5.52)	40(13.34)	<0.0001

Table 1 - Variation in outcomes due to case volume. Length of stay presented as Mean ± Standard Deviation, and other data presented as n(%)

Discussion

- A small number of surgeons perform the majority esophagomyotomies in the state of Florida.
- Surgeons who perform a higher volume of esophagomyotomies per year are associated with decreased patient length of stay, higher likelihood of patient discharge to home or self-care, and decreased rates of some postoperative complications.
- This research should prompt further inquiry into the role of high-volume centers in foregut surgery.

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Key Takeaways:

Surgeon volume in esophagomyotomy is correlated with shorter length of stay and decreased postoperative complications

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