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INTRODUCTION

Esophageal cancer:
- 8th most common indicator cancer worldwide
- 5th leading cause of cancer among patients aged 40-89 years in the USA
- Approximately 17,000 new cases and ~15,000 deaths in 2015

Esophagectomy: Surgical procedure removing the esophagus and reconnecting the lower gastrointestinal tract to the upper gastrointestinal tract.
- Surgical resection primary treatment option and multimodal treatment.
- Remains custodianship early stage and locally advanced disease.
- Despite improvements in postoperative mortality over the past thirty years, esophagectomy continues to have high mortality, rates in some reports up to 10%.

The Leapfrog Group:
- Established standards using volume as a proxy for quality outcomes.

METHODS

We used generalized linear mixed modeling and adjusted for patient characteristics (sex, race, use of ex-smoker, hospital comorbidities, age), year, and hospital State.

RESULTS

FIGURE 1. The Leapfrog Group.

Established standards using volume as a proxy for quality outcomes.

TABLE 1. Clinical characteristics of patients undergoing esophagectomy at low and high volume hospitals. Patients were predominantly male and white with cancer as a principal diagnosis. Low volume surgeons at high volume hospitals performed a greater proportion of esophagectomy procedures than high volume surgeons (63% and 37%, respectively).

TABLE 2. Postoperative outcomes in patients undergoing esophagectomy. High volume hospitals (HVS) were associated with greater than 50% decrease in the odds of mortality and 32% reduced odds of infection prolonged length of stay (PLOS), compared to low volume hospitals (LVM). Surgeon volume had no effect on mortality or incidence of PLOS and hematologic complications.

CONCLUSIONS

Surgeons with low major thoracic surgery case volumes operating at high volume hospitals exhibit patient outcomes comparable to high volume surgeons.

High hospital volume is associated with reduced odds of in-hospital mortality, incidence of PLOS, and hematologic complications.

There were no differences in postoperative outcomes after esophagectomy between high volume and low volume surgeons.

In contrast to frequently performed procedures, hospital surgical quality for esophagectomy (and other less commonly performed, high risk surgeries) is most reliably illustrated via quantification of hospital procedure volume, rather than direct measurement of patient mortality.

Hospital volume allows for selective referral of patients to high-performing hospitals.

REFERENCES

4. AHRO QR Research Version 5.0. Technical specifications Esophageal Resection Mortality Rate, Appropriateness Indicators. 2015.

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