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Study shows surgeon's experience may be a contributing factor for non-small cell lung cancer patients

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Researchers at McMaster University (Hamilton, ON) explored whether a surgeon's expertise influences procedural choice. The results of a new study of more than 8000 non-small cell lung cancer (NSCLC) patients undergoing surgical resection by 124 physicians showed that surgeons who perform more surgeries are less likely to perform high-risk pneumonectomies. Christian J. Finley, MD, MPH, will be presenting the results of this research at the 95th AATS Annual Meeting in Seattle, WA on April 28, 2015.

For patients in the early stages of NSCLC, lung surgery is associated with the best long-term survival. However, surgical and long-term outcomes vary depending on the choice of resection procedure. For example, removal of the whole lung (pneumonectomy) is associated with significantly higher morbidity and mortality rates compared to procedures in which smaller amounts of the lung are removed (lobectomies or sub-lobar resections), but can be less technically challenging than other procedures.

"If a surgeon with high surgical volumes is less likely to perform higher risk pneumonectomy procedures than one with lower volumes, this may translate to a significant reduction in adverse events. Surgeon volume should be considered an important component in how care is delivered in this population," explained Dr. Finley, who is affiliated with the Department of Surgery, St. Joseph's Healthcare Hamilton, McMaster

University.

The researchers analyzed information on patients who underwent any pulmonary resection for primary NSCLC during 2004-2011 from an Ontario population-based database. They looked at patient demographics, co-morbidities, year of surgery, and institutional and surgical factors. All surgeons were trained as general thoracic surgeons. The volume of cases per surgeon per year was used as a surrogate for experience.

The resections were performed by 124 physicians at 45 institutions. Of the 8070 patients, 842 (10.4%) underwent pneumonectomy, 6212 (77.0%) underwent lobectomy, and 1002 (12.4%) wedge resection. The 90-day mortality was 12.6% for pneumonectomy, compared to 3.9% for lobectomy and 5.7% for wedge resection.

Odds ratios based on regression models for the three procedures revealed that physician volume was predictive of selecting pneumonectomy (OR 0.91, 95% CI 0.83 - 1.00, p=0.04). In fact, for each additional 10-unit increase in physician volume, the risk of performing a pneumonectomy decreased by 9.1% (p=0.04). As surgical volume increased, the number of wedge resections also decreased while the number of lobectomies increased. Other factors predictive of pneumonectomy were patient age, year of procedure, patient gender, and patient co-morbidities. No association was found between surgical volume and disease stage.

Variables, such as tumor biology and location, disease stage, and patient-specific factors such as age, pulmonary function and general health, are commonly taken into account when determining whether a patient with NSCLC will undergo surgery and what kind of surgery. "Only over the past decade have surgeon-specific factors such as experience, training, and volume been identified and examined as other important

determinants of outcomes in lung cancer patients," noted Dr. Finley. "This study possibly provides more evidence that surgeries are more likely to be successful if they are performed by surgeons who have a high annual case volume."

More information: "The effect of surgeon volume on procedure selection in non-small cell lung cancer surgeries," 95th AATS Annual Meeting in Seattle, WA on April 28, 2015.

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