Appropriate Lymph Node Staging For Lung Cancer Surgery Within a Statewide Quality Collaborative-Quality Improvement in Action

Objectives: The necessity for appropriate lymph node harvest during surgical resection for lung cancer has been well-studied and guidelines exist to ensure accurate nodal staging is completed for all lung cancer patients. Adequate lymph node harvest during lung cancer surgery has emerged as a surrogate marker of surgical quality, yet adherence to this standard remains low. We describe a statewide collaborative-based approach to improving lymph node sampling during surgical resection of lung cancer.

Methods: In January 2016, our statewide quality improvement collaborative focused on three metrics of adequate lymph node harvest which included rates of pathologic examination of ≥10 lymph nodes, sampling ≥5 lymph node stations, and pathologic nodal upstaging (cN0→pN1-N3, cN1→pN2-N3, etc). These were discussed at quarterly statewide quality collaborative meetings from January 2016 onward and included an educational program. We retrospectively reviewed patients undergoing lobectomy for non-small-cell lung cancer from July 2015-December 2020 at the participating 16 centers using Society of Thoracic Surgeons General Thoracic Surgery Database records. In addition to describing trends for these metrics of surgical quality, patients were stratified into two groups comparing patients who had surgery in 2015-2017 versus 2018-2020.

Results: In total, 3843 patients met inclusion criteria. The distribution of surgical approaches included 1082 (28%) open lobectomies, 1483 (39%) video-assisted thoracoscopic surgery (VATS) lobectomies and 1278 (33%) robot-assisted lobectomies. The rates of examining ≥10 lymph nodes statewide went from 215 lobectomies (44.0%) in 2015 to 522 lobectomies (78.9%) in 2020 (p<.001). Similar trends were noted statewide for ≥5 lymph node stations which started at 193 lobectomies (39.6%) and increased to 531 lobectomies (80.3%) in 2020 (p<.001). Rates of indicated invasive mediastinal staging including endobronchial ultrasound and mediastinoscopy increased over time (p<.001). The overall rate of nodal upstaging was variable year-to-year and appears to have declined over time (p<.001).

Conclusions: Our statewide quality improvement initiative improved rates of adequate lymph node harvest. This work demonstrates the power that a "community of practice" philosophy in a statewide quality improvement collaborative can have on the quality of lung cancer surgical care.

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