

ABSTRACT SUMMARY

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Risk factors for intraoperative conversion to thoracotomy during minimally invasive lobectomy

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Study design

Conversion to thoracotomy continues to be a concern during minimally invasive lobectomy due to its potential impact on the postoperative course of patients. The aim of this study was to identify risk factors for conversion to thoracotomy during elective lobectomy (robotic-assisted surgery and VATS approach) utilizing data from the Premier Database.

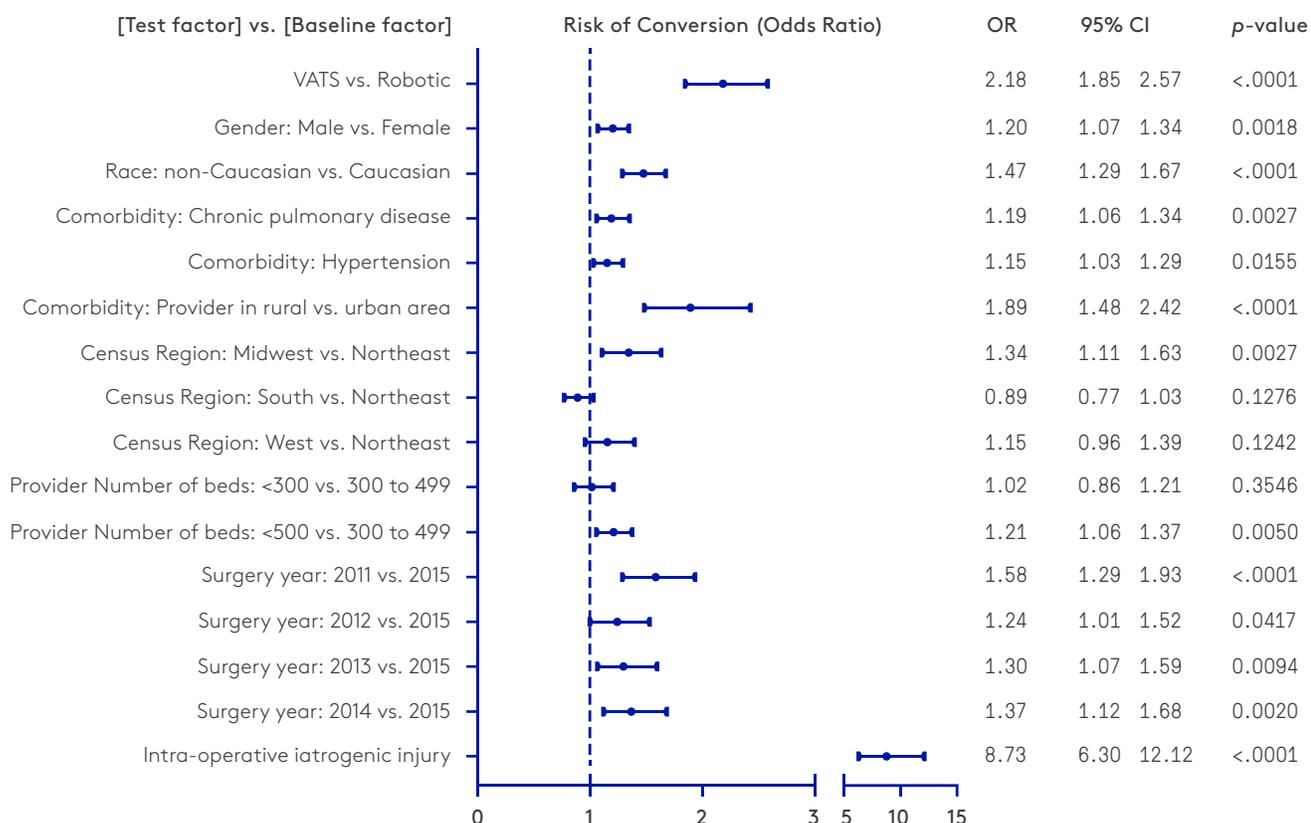
Patients who underwent elective lobectomy between 2011 and 2015 were identified using ICD-9 codes. Univariate logistic

regression models were applied to test the impact of 19 variables (which include characteristics related to surgeon, patient and hospital, as well as iatrogenic injury) as potential risk factors for conversion to thoracotomy.

Multivariable logistic regression analysis was conducted using a step-wise model selection method. All tests were two-sided, with statistical significance set at $p < 0.05$.

Data

Forest plot of odds ratios (with 95% CI) from multivariable logistic regression model of conversion to thoracotomy.



Statistical significance was set at $p < 0.05$. VATS: video-assisted thoracoscopic surgery

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Results

12,354 patients (9,360 VATS; 2,994 robotic-assisted) were identified. The rates of conversion were 6.4 % in robotic-assisted surgery and 13% in VATS.

Ten risk factors identified in the multivariable analysis for conversion to thoracotomy are shown in the figure. Some of

the pertinent risk factors included patient co-morbidities like COPD and hypertension as well as type of hospital, but surgical approach and intraoperative iatrogenic injury presented the highest risk for conversion.

Conclusion

In the multivariable regression model for conversion to thoracotomy, iatrogenic injury is the most significant risk factor (OR: 8.7; 95% CI: 6.3-12.1) and a VATS approach is associated with a 2.2 times higher risk (95% CI: 1.9-2.6) compared to robotic-assisted surgery.

Future studies are necessary to evaluate effects of different types of iatrogenic injury along with the impact of BMI, tumor staging, surgeon experience and hospital volume on conversion.

Study limitations

Data comes from an administrative database, with no data available on long-term outcomes and pathology/staging information.

As anticipated in any large administrative database, there is potential for coding errors in the data.

FINANCIAL DISCLOSURE

Dr. Toloza and Dr. Fontaine have received compensation from Intuitive Surgical for consulting and/or educational services. Ms. Guo, Dr. Gorrepati and Ms. Mehendale disclose a financial relationship with Intuitive Surgical.

IMPORTANT SAFETY INFORMATION

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surgical procedures should be guided by the clinical judgment of an adequately trained surgeon.

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