

INTRODUCTION

- Lung cancer is a common malignant tumor. Surgical resection is the core treatment, but postoperative complications affect prognosis. Previous studies on sex and complications are controversial due to confounding factors.

Objective

Use PSM to balance baseline differences, and explore whether sex is an independent risk factor for short-term complications (Clavien-Dindo).

METHODS

Study design and patients

- Prospective cohort (CN-PRO-Lung 3, Sichuan Cancer Hospital, 2021-2024).
- Included: ≥ 18 y, path-confirmed lung cancer surgery.
- Excluded: pneumonectomy, sleeve lobectomy, incomplete data

Data collection and postoperative complications

- Extracted EMR data (age, sex, BMI, FEV1%, ASA, CCI, smoking/drinking, comorbidities, neoadjuvant therapy, TNM, surgery, op time).
- Postoperative Complications:** Assessed via records & 30-day follow-up (Clavien-Dindo). Primary: grade $\geq$ II; secondary: pneumonia, air leak, atelectasis, pneumothorax, effusion.

Analysis

- PSM balanced confounders. Patients stratified by surgical approach (lobectomy/sublobectomy).
- Ethical approval: SCCHEC-02-2018-043

DISCUSSION & CONCLUSION

Discussion

- Unadjusted sex-based differences in postoperative complications
- Sex-related differences largely disappeared after PSM
- Reasons for inconsistency with previous literature
- Key confounding factors mediating sex-associated outcome gaps
- Role of age and pulmonary function in risk discrepancy
- Clinical implications for perioperative risk stratification

Conclusion

In this cohort, sex was not independently associated with short-term postoperative complications after lung cancer surgery after accounting for baseline clinical differences.

Limitations

This single-center observational study has notable limitations yet provides evidence on sex-related lung cancer surgical complications; further multi-center studies are warranted.

REF. & ACKNOWLEDGEMENTS

Critical references

Batihan G, et al., *J Cardiothorac Surg*, 2024;
Philpott HT, et al., *Eur J Cardiothorac Surg*, 2025;
Beushausen C, et al., *Eur J Cardiothorac Surg*, 2025;
Yu H, et al., *Int J Surg*, 2024.

Acknowledgements

We thank all healthcare professionals participating in this study and patients who provided research data.

RESULTS

2369 lung cancer surgery patients (838 males, 1531 females; mean age 54.26 ± 11.08 years)

lobectomy (n=1148)

Male=480, Female=668

- Mean age: 58.77 years vs 56.09 years
- FEV1% $\geq 70\%$: 88.76% vs 97.40%
- Smoking history: 62.29% vs 2.25%

- Clavien-Dindo Grade $\geq$ II
Male: 86 (17.92%); Female: 78 (11.68%)
- Postoperative pneumonia
Male: 53 (11.04%); Female: 51 (7.64%)
- Persistent air leak
Male: 26 (5.42%); Female: 16 (2.40%)
- Wound dehiscence
Male: 6 (1.25%); Female: 27 (4.04%)

sublobectomy (n=1221)

Male=358, Female=863

- Mean age: 54.53 years vs 50.24 years
- FEV1% $\geq 70\%$: 87.90% vs 96.89%
- Smoking history: 45.66% vs 2.32%

- Postoperative pneumonia
Male: 22 (6.15%); Female: 22 (2.56%)
- Persistent air leak
Male: 11 (3.07%); Female: 11 (1.28%)

Caliper matching (1:1), matched covariates: age, BMI, FEV1%, ASA, CCI, TNM stage, among others.

After propensity score matching, sex differences in overall complications were significantly attenuated, and most intergroup differences in adverse outcomes became non-significant.

