

Lung cancer surgery

- Calculation of predicted postoperative (PPO) FEV1 and DLCO
- The thoracic revised cardiac risk index
- VATS and robot-assisted sublobar lung resection
- Surveillance after curative intent surgical resection
- SBRT compared to surgical resection

Calculation of predictive postoperative (PPO) FEV1 and DLCO

- Preoperative FEV₁ or DLCO % predicted × (100 – % perfusion to the region to be resected/–100)
- Postbronchodilator % x n lobes to be resected/19. PPO DLCO was 38.4 × (14/19) = 28.3%
 - If >60%: low risk
 - If 30% to 60%: moderate risk
 - This group should undergo exercise testing with shuttle walk test (SWT), stair climbing test (SCT), or 6MWT
 - If SWT <400 m, or SCT height <22 m, or 6MWT <300 m, desaturation ≥4%, or HR recovery ≤12
 - This group should undergo for CPET
 - If <30% should undergo for CPET
 - Peak VO_{2peak} >20 mL/kg/min: low risk
 - VO_{2peak} of 10 to 20 mL/kg/min: moderate risk
 - Peak VO_{2peak} <10 mL/kg/min: high risk

The Thoracic Revised Cardiac Risk Index

Can be used to identify patients at risk for cardiac complications

- High risk for lung resection
 - Need for supplemental oxygen because of underlying lung disease
 - Low DLCO
 - Frailty and low functional status
- Any combination of the following conditions should undergo noninvasive cardiac stress testing and cardiology consultation
 - Previous ischemic heart disease or cardiac condition requiring medication or newly suspected cardiac condition
 - Stroke or transient ischemic attack
 - Creatinine >2
 - Unable to climb two flights of stairs
 - Planned pneumonectomy
 - Echocardiogram to assess RVFx when a pneumonectomy is being consider

VATS and robot-assisted sublobar lung resection

- Fewer surgery-related complications while maintaining cancer outcomes
 - Subsolid lesions
 - Solid cancers <2 cm with no cancer identified from complete lymph node sampling

Surveillance after curative intent surgical resection

- CT chest scan every 6 months for the first 2 years after treatment and yearly after that through 5 years
- Bronchoscopy may be added if central airway squamous cell cancers have been treated or if resection margins are very small, such as <5 mm
- Imaging intervals for surveillance after stereotactic body radiation therapy are less well defined
- Postradiation imaging changes can be difficult to separate from tumor progression

Separately, the probability of a new primary lung cancer is higher in those who have had lung cancer than in those who have not, independent of other risk factors.

SBRT compared to surgical resection

- Early morbidity and mortality are minimized
- Long-term cancer outcomes are slightly poorer
- Less successful when used to treat larger tumors >5 cm
- Complications increase when the tumor involves central structures