LONG-TERM SURVIVAL FOLLOWING OPEN VERSUS VIDEO-ASSISTED THORACOSCOPIC LOBECTOMY AFTER INDUCTION THERAPY FOR NON-SMALL CELL LUNG CANCER

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Objectives: Video-assisted thoracoscopic (VATS) lobectomy is increasingly accepted for the management of early stage non-small cell lung cancer (NSCLC), but its role for locally advanced cancers has not been as well characterized. We compared outcomes of patients who received induction therapy followed by lobectomy, via VATS or thoracotomy.

Methods: Perioperative complications and long-term survival of all patients with NSCLC who received induction chemotherapy (ICT) (with or without induction radiation therapy [IRT]) followed by lobectomy from 1995-2012 were assessed using multivariate logistic regression, Kaplan-Meier, and Cox proportional hazard analysis. Propensity scoring was used to assess the potential impact of selection bias.

Results: From 1995-2012, 273 patients met inclusion criteria and underwent lobectomy after induction chemotherapy: 70 (26%) VATS and 203 (74%) thoracotomy. An “intent-to-treat” analysis was performed. Compared to thoracotomy patients, VATS patients had higher clinical stage ($P = 0.03$), were older ($P < 0.001$), had greater body mass index ($P = 0.01$), and were more likely to have coronary disease ($P = 0.008$) and chronic obstructive pulmonary disease ($P = 0.02$). Induction radiation was used more commonly in thoracotomy patients (VATS 26% [$n = 18$] vs open 71% [$n = 145$], $P < 0.001$). Perioperative mortality was similar between the VATS (3% [$n = 2$]) and open (4% [$n = 8$]) groups ($P = 0.67$). Seven (2.6%) of the VATS cases were converted to thoracotomy due to difficulty in dissection from fibrotic tissue and adhesions ($n = 5$) or bleeding ($n = 2$); none of these conversions led to perioperative deaths. In univariate analysis, VATS patients had improved 3-year survival compared with thoracotomy (61% vs 43%, $P = 0.008$). In multivariable analysis, the VATS approach was associated with improved overall survival (hazard ratio, 0.54; 95% CI: 0.30-0.97; $P = 0.04$). Moreover, a propensity score-matched analysis balancing patient characteristics demonstrated that VATS approach had similar survival to an open approach ($P = 0.53$).

Conclusions: VATS lobectomy in patients treated with induction therapy for locally advanced NSCLC is feasible and effective and does not appear to compromise oncologic outcomes.