07AP01-12 Nonintubated Thoracoscopic Surgery for Lung Tumors in Patients with Compromised Lung Function

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Background

Patients with **compromised lung function** or chronic obstructive pulmonary disease are considered high-risk for intubated general anesthesia, which may preclude them from surgical treatment for lung tumors. We evaluated the feasibility and safety of **nonintubated** video-assisted thoracoscopic surgery (VATS) for the surgical management of lung tumors in patients with compromised lung function.

Material and Method

From August 2009 to December 2014, 28 patients with compromised lung function (**preoperative forced expiratory volume in 1 second, FEV₁ < 70% of predicted**) underwent nonintubated VATS for managing lung tumors using a combination of thoracic epidural anesthesia or intercostal nerve block and intrathoracic vagal block with target-controlled sedation.

Results

One patient (4%) required conversion to intubated one-lung ventilation because of persistent wheezing and labored breathing. Two patients (7%) developed acute exacerbations of chronic obstructive pulmonary disease, and atrial fibrillation occurred in 1 patient (4%).

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Five patients (18%) developed air leakage more than 5 days postoperatively while subcutaneous emphysema in 6 patients. The median durations of postoperative chest tube drainage was 3 days while the median hospital stay was 6 days.

Table 1. Clinical Characteristics

Characteristic	Value (n = 28)
Age, yrs	68.8 ± 12.8
Sex (male)	19 (68%)
Height, cm	161.9 ± 8.6
Weight, kg	57.9 ± 9.0
Body Mass Index (BMI)	22.0 ± 2.3
History of smoking, n (%)	20 (71%)
Preoperative lung function, % of predicted	
FVC (% of predicted)	76.7 ± 13.8
FEV ₁ (% of predicted)	57.9 ± 13.1
FEV ₁ /FVC (%)	59.4 ± 15.4
Tumor size (mm)	24.4 ± 16.7

Table 2. Anesthetic Results

Variable	Value (n = 28)
Anesthetic induction duration, min	20.0 ± 10.3
Perioperative PaO ₂ /FiO ₂ ratio	
Pre-OLB (n = 17)	428 ± 108
Intra-OLB (n = 20)	245 ± 84
Post-OLB (n = 19)	388 ± 99
Perioperative PaCO ₂ , mm Hg	
Pre-OLB (n = 17)	40.3 ± 4.9
Intra-OLB (n = 20)	64.1 ± 19.4
Post-OLB (n = 19)	44.5 ± 9.7
Lowest SpO ₂ during operation, %	96.3 ± 4.3
Blood loss, mL	51.7 ± 58.0

Conclusions

Nonintubated thoracoscopic surgery is technically **feasible** and clinically **safe** for experienced surgeon and anesthesiologist. It may be applied as an alternative to intubated general anesthesia in managing lung tumors in selected patients with compromised lung function.