

## Comparative Study of Two-Lung versus One-Lung Ventilation Anesthesia for Needlescopic Bleb Resection

Hyun Koo Kim, MD, PhD<sup>1</sup>, Heezoo Kim, MD, PhD<sup>2</sup>, Du-Young Kang, MD<sup>1</sup>,  
Young Ho Choi, MD, PhD<sup>1</sup>, Sang Ho Lim, MD, PhD<sup>2</sup>

Department of Thoracic and Cardiovascular Surgery<sup>1</sup>, Department of Anesthesiology<sup>2</sup>  
College of Medicine, Korea University Guro Hospital, Seoul, Korea

### Aims

This prospective study was conducted to evaluate feasibility and safety of two-lung ventilation with low tidal volume anesthesia (TL) comparing to one-lung ventilation anesthesia (OL) for 2mm sized thorascopic (needlescopic) bleb resection.

Methods : The patients with spontaneous pneumothorax were underwent bleb resection via 2mm sized thoracoscope and grasper ports and one 11.5mm endostapler port. During the operation, tidal volume was set at 4.0ml/kg (TL) and 8.0ml/kg (OL) and respiration rate was set at 23/min (TL) and 12/min (OL) at same FiO<sub>2</sub> (50%).

### Results

A total of 108 patients (55 patients in SL, 53 in DL) were included in this study. Patient's age and the number of resected bleb were not different between the two groups. Peak airway pressure (6.9±2.52 mmHg in TL vs. 22.3± 3.17 in OL, p=0.006) and PO<sub>2</sub> (238.3±43.47 mmHg in TL vs. 107.7±29.78 in OL, p=0.000) were significantly different. However, PCO<sub>2</sub> (42.8±3.88 mmHg in TL vs. 40.4±5.46 in OL, p=0.104) and End-tidal CO<sub>2</sub> (34.1±4.19 in TL vs. 30.6± 7.07 in OL, p=0.054) were not significantly different. Operation time was not different between the two group (33.2±19.27 minutes in TL, 30.7±13.51 in OL, p=0.634). However, time duration from anesthesia induction to incision (26.5±6.78 minutes in TL, 39.5±7.57 in OL, p=0.000) and total anesthesia time (70.7±16.56 minutes in TL vs. 93.2±24.52 in OL, p=0.001) were significantly different.

### Conclusions

Needlescopic bleb resection using two-lung ventilation anesthesia with low tidal volume is technically feasible to thoracic surgeon, makes it easier to anesthesiologist and safe for patients.