

AB013. Learning curve of image-guided video-assisted thoracoscopic surgery for small pulmonary nodules: a prospective analysis of thirty initial patients

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Background: The use of image-guided video-assisted thoracoscopic surgery (iVATS) for simultaneous localization and removal of small solitary pulmonary nodules (SPNs) in a hybrid operation room using C-arm cone-beam computed tomography (CBCT) is gaining momentum. We sought to assess the effect of the learning curve on procedural parameters and clinical outcomes of iVATS for treating patients with small SPNs.

Methods: Clinical variables and treatment outcomes of the 30 initial patients with SPNs who were treated with iVATS at our institution were prospectively analyzed. Two sequential groups (group I and group II, n=15 each) were compared with regard to localization time, radiation doses,

and success rates.

Results: In the entire cohort, the median size of SPNs on preoperative CT images was 6 mm [interquartile range (IQR): 4.5–9 mm], whereas their median distance from the pleural surface was 10 mm (IQR: 5–15 mm). The median tumor depth-to-size (D-S) ratio was 1.4 (IQR: 0.7–2.5). The clinical parameters were similar among the two groups. A significant reduction in localization time (median, 24 *vs.* 49 min, respectively; $P<0.001$) and radiation exposure (median, 70.7 *vs.* 224 mGy, respectively; $P<0.001$) was noted in group II (late patients) compared with group I (early patients). Notably, the success rates in groups II and I were similar (93.3% *vs.* 86.7%, respectively; $P=0.876$).

Conclusions: Our data demonstrate a significant learning curve for iVATS in the treatment of SPNs as evidenced by decreased localization time and radiation exposure occurring with increased surgeon experience.

Keywords: Video-assisted thoracoscopic surgery (VATS); image-guided video-assisted thoracoscopic surgery (iVATS); hybrid operating room; ARTIS zeego; small pulmonary nodules

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