

Nonresponders to upper airway surgery for obstructive sleep apnea: Insights from drug-induced sleep computed tomography

Wan-Ni Lin, MD¹, Li-Ang Lee, MD, FICS¹, Hsueh-Yu Li, MD, FACS, FICS¹, Tuan-Jen Fang, MD, FICS¹, Li-Jen Hsin, MD¹, Yu-Lun Lo, MD², Ning-Hung Chen, MD², Chao-Jan Wang, MD³

Department of Otolaryngology-Head and Neck Surgery, Sleep Center, Linkou-Chang Gung Memorial Hospital, Chang Gung University, Taoyuan, Taiwan¹

Department of Thoracic Medicine, Sleep Center, Linkou-Chang Gung Memorial Hospital, Chang Gung University, Taoyuan, Taiwan²

Department of Medical Imaging and Intervention, Sleep Center, Linkou-Chang Gung Memorial Hospital, Chang Gung University, Taoyuan, Taiwan³

Objective: Surgical non-response for obstructive sleep apnea (OSA) depends on inadequate correction of obstruction sites in the upper airway. To examine drug-induced sleep computed tomography (DI-SCT) scan findings in nonresponders to previous upper airway surgery for OSA.

Method: DI-SCT using propofol for light sedation (70-75) by bispectral monitor was performed in nonresponders to previous upper airway surgery (including relocation pharyngoplasty with or without nasal surgery and coblation endoscopic lingual lightening). Nonresponders were defined as apnea-hypopnea index (AHI) reduction less than 50% after surgery. Recorded findings from DI-SCT included the presence and degree of obstruction of the velum, oropharyngeal lateral walls, tongue, and/or epiglottis) to upper airway obstruction.

Results: Eighteen nonresponders underwent DI-SCT examinations. Median age was 42.0 (interquartile range: 35.5-49.8) years, and median body-mass index was 27.1 (interquartile range: 24.7-28.6) kg/m². On diagnostic sleep studies prior to DI-SCT, the median AHI was 48.4 (interquartile range: 25.2-57.4) events/hr. During DI-SCT, 72% of subjects demonstrated residual palatal obstruction, 44% had residual oropharyngeal lateral wall obstruction, 44% had tongue base obstruction, and 50% demonstrated epiglottis obstruction. Sixty-one percent of patients had postoperative multi-level obstructions.

Conclusion: Despite multi-level OSA surgery, residual upper airway obstruction in surgery nonresponders likely occurs due to multiple mechanisms, and DI-SCT may help to understand the reasons of nonresponding.

中文題目：經上呼吸道手術治療阻塞性睡眠呼吸中止症的反應不佳者：自藥物誘導睡眠斷層掃描獲得的深刻理解

作者：林婉妮醫師¹，李立昂醫師¹，李學禹醫師¹，方端仁醫師¹，辛立仁醫師¹，羅友倫醫師²，陳凜宏醫師²，王超然醫師³

林婉妮醫師與李學禹醫師為共同第一作者。

服務單位：林口長庚紀念醫院 長庚大學 耳鼻喉科、睡眠中心¹

林口長庚紀念醫院 長庚大學 胸腔內科、睡眠中心²

林口長庚紀念醫院 長庚大學 影像診療科、睡眠中心³