

A preliminary study on response to upper airway surgery directed by drug-induced sleep computed tomography for adulthood obstructive sleep apnea

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Objective: Surgical response for obstructive sleep apnea (OSA) depends on adequate correction of collapsible sites in the upper airway (UAW). This pilot study was aimed to examine surgical response to UAW surgery directed by drug-induced sleep computed tomography (DI-SCT) for OSA.

Methods: This prospective study recruited 29 OSA patients (median age, 41 years; median body-mass index, 26.9 kg/m²) who underwent single-stage DI-SCT-directed UAW surgery between 2012 October and 2014 September. DI-SCT using propofol for light sedation by bispectral monitor was performed before and after UAW surgery. Nonresponders were defined as reduction of apnea-hypopnea index less than 50% after six months following UAW surgery.

Results: Using DI-SCT, 28 (97%) of the patients had multiple-site collapse and underwent multi-level UAW surgery accordingly. Apnea-hypopnea index was reduced from 53.6 to 26.8 ($P < .001$). There were 18 (62%) nonresponders and 11 (38%) responders. Multiple-site collapse could not predict surgical response ($P > .99$). Nonresponders had a significant improvement of tongue collapse ($P = .01$) whereas responders had significant improvements of velopharyngeal and oropharyngeal lateral wall collapses (both $P \leq .01$). Moreover, the response rate of relocation pharyngoplasty plus Coblation endoscopic lingual lightening was significantly higher than that of relocation pharyngoplasty plus Coblation endoscopic lingual lightening and nasal surgery (56% vs. 8%, $P = .046$).

Conclusion: Despite multi-level OSA surgery, residual UAW 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：以藥物誘導睡眠電腦斷層掃描導向上呼吸道手術來治療成人阻塞性睡眠呼吸中止症的成效之初步研究

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