

## **American Academy of Otolaryngology-Head and Neck Surgery**

### **Policy Statement**

#### **Submucosal Ablation of the Tongue Base for OSAS**

Adult patients with mild to severe obstructive sleep apnea (OSA) can be successfully treated with submucosal radiofrequency tongue base ablation.(Powell 1999 and refs below) The majority of studies demonstrating effectiveness of tongue base submucosal radiofrequency ablation (RFA) have been performed in patients with mild to moderate OSA and without morbid obesity, often as part of multilevel pharyngeal surgical therapy.

A randomized, CPAP and placebo controlled trial of tongue base and palate (RFA) for mild to moderate OSA demonstrated significant improvements following radiofrequency compared with sham-placebo in quality of life (QOL), airway volume, apnea index, and respiratory arousal index (all  $P < 0.05$ ).(Woodson 2003, Level 1 evidence). Comparison between CPAP and RFA showed no significant differences in improvements in QOL or daytime sleepiness (Woodson 2003).

Additional prospective study comparing CPAP to radiofrequency submucosal ablation for mild to moderate obstructive sleep apnea showed similar effectiveness of both therapies suggesting a role for primary treatment of mild to moderate OSA with submucosal ablation (Ceylan 2009, Level 2 evidence).

Prospective study with extended follow-up of patients treated with RFA demonstrates persistent improvements in daytime sleepiness and OSAS-related quality of life (both  $P < 0.001$ ). Median reaction time testing and apnea-hypopnea index (AHI) were also significantly improved at long-term follow-up ( $P = 0.03$  and  $0.01$ ).(Steward 2005, Level 2 evidence).

Cumulative meta-analysis of submucosal RFA found a 31% reduction in short-term ESS (odds ratios (OR) 0.69, 95% confidence interval (CI) 0.63-0.75), which was maintained beyond 12 months (OR 0.68, 95% CI 0.43-0.73). Likewise, RFA resulted in a 31% reduction in short term (<12 month) (OR 0.69, 95% CI 0.61-0.77) and 45% reduction in long-term (>24 month) (OR 0.55, 95% C.I. 0.45-0.72) respiratory disturbance index (RDI) levels. (Farrar 2008, Level 3 evidence).

Randomized comparison of submucosal RFA with tongue suspension found significant improvements in OSA for both treatment groups with significantly less morbidity with submucosal ablation.(Fernandez-Julian 2009, Level 1 evidence). Other studies have also demonstrated low morbidity with tongue base \ submucosal RFA.( Kezirian 2005, Level 4 evidence).

Controlled study of treatment schemes for RFA suggests additional improvement in outcomes with repeated treatments.(Steward 2004, Level 2 evidence) However, more recent studies have demonstrated significant improvement with a single high energy treatment session with low morbidity.(Nelson 2007, Level 4 evidence).

## References

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