Improving surgical therapy for sleep-disordered breathing by controlled trials

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Compared to the use of nasal ventilation and mandibular advancement devices, the available evidence for surgical interventions in the treatment of snoring and obstructive sleep apnea (OSA) is rather limited. There are only a few controlled trials published so that recommendations regarding many operations rely on uncontrolled case series.

The palate is considered the main generator of snoring sounds, and at least an important contributor to pharyngeal obstruction in many cases. Therefore, the palate is the major target of surgery in patients with snoring or mild to moderate obstructive sleep apnea.

How can a high level of evidence be achieved regarding palatal surgery in sleep medicine? The study of Balsevicius and co-workers published in this issue of *Sleep and Breathing* convincingly shows us how this may be possible.

After the invention of radiofrequency treatment (RFT) of the soft palate in sleep medicine in 1998 [1], several case series were published over half a decade. A meta-analysis of those studies reported a significant reduction of snoring [2]. However, the primary outcome parameter was the snoring intensity subjectively assessed by the bed partner. A relevant placebo effect had to be expected. In 2005, Stuck et al. published the ever first randomized, placebo-controlled trial regarding the surgical treatment of snoring using two sessions of interstitial radiofrequency at the level of the palate. They could show a significant reduction of snoring compared to placebo. However, the overall efficacy in the treatment group was limited as most bed partners reported that snoring was reduced but still present [3].

Radiofrequency interventions at the palate in sleep apnea patients were evaluated in 2008 by Farrar et al. presenting a meta-analysis [4]. Bäck et al. finally compared a single-

session interstitial treatment of the palate to placebo in patients with mild to moderate OSA and found no benefit versus placebo 1 year later [5].

After 11 years finally, a well-founded recommendation could be given regarding the use of interstitial radiofrequency of the soft palate. However, the palatal anatomy in many snoring and sleep apnea patients is characterized by excessive mucosa at the posterior pillars and the uvula. In such patients, resection of excessive tissue is necessary. In 2009, Baisch et al. presented the combination of interstitial radiofrequency treatment with the resection of redundant mucosa using a radiofrequency cutting device [radiofrequency-assisted uvulopalatoplasty (RF-UPP)] in a series of simple snorers. Results were far superior to former series using interstitial treatment alone [6]. Stuck reported a recurrence of snoring in 37 % almost 2 years after RF-UPP [7]. Just recently, Bäck and co-workers correlated oropharyngeal findings to the outcome of interstitial palatal RFT for snoring and found a reduced success rate if the uvula was large [8]. Even though all these data support the use of RF-UPP, it is still not proven whether RF-UPP is really superior to interstitial treatment of the soft palate alone.

Balsevicius and colleagues attempted to answer this question adding another important piece of evidence regarding radiofrequency surgery of the palate in snoring with mild sleep apnea. They compared purely interstitial radiofrequency (RF) treatment with RF-UPP in 40 patients in a randomized controlled study design with an 80 % follow-up. They looked at Respiratory Disturbance Index (RDI), snoring, quality of life, and depressive symptoms. They repeated Stuck's and Bäck's findings in snoring and OSA for interstitial RF treatment showing some significant improvement of snoring but no change of RDI. In contrast, the improvement seen after RF-UPP was more pronounced in snoring and significant for the RDI. In accordance to this, quality of life was significantly more improved in RF-UPP, and depressive symptoms were only improved after RF-UPP.

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Balsevicius et al. address and discuss their shortcomings: small sample size, short follow-up, and high dropout rate (in the RFT group only). As a consequence, they call for larger studies with longer follow-up.

Despite these limitations, surgeons may feel well supported now by the available evidence if they recommend RF-UPP instead of interstitial RFT of the palate alone in patients with snoring and mild OSA. However, for me one further question remains open: Is interstitial RFT really beneficial when performing RF-UPP or is tissue resection enough? Let us wait for the next study to answer it!

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