The Misunderstood Role of the Nose in Adult Sleep Disordered Breathing

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Sleep disordered breathing reflects a spectrum of disorders ranging from simple or habitual aesthetic snoring, to Obstructive Sleep Apnea (OSA) of varying severity. All of these entities result from increased upper airway resistance due to the summation of static and dynamic narrowing of any number of anatomical subsides in the upper aero digestive tract, including the nose, nasopharynx, retropalatal oropharynx, pharyngeal tonsil region, and retrolingual oropharynx. There is much misconception amongst primary care physicians and it lays public that the nasal airway is the central element in adults with OSA. Certainly, it is well accepted that nasopharyngeal obstruction in the form of adenoid hypertrophy is a significant contributing factor in children, and that removal of this obstruction is an effective means of remedy for obstructive sleep breathing [1]. Still, it must be acknowledged that most data in this area examines the impact of adenotonsillar hypertrophy rather than adenoid hypertrophy alone, and consequently, adenotonsillectomy rather than adenoidectomy alone.

In adults, however, the physiologic contributions of nasal airflow to OSA-spectrum disorders are more questionable. This is somewhat counterintuitive because the nose does contribute approximately two-thirds to total airway resistance [2]. Nonetheless, data reveals that although nasal congestion may correlate with the symptom of snoring, there is no correlation with apnea hypopnea index [3], which is the primary metric of OSA. This issue was evaluated more quantitatively by other authors, who demonstrated that while there was some contribution of nasal resistance to the apnea hypopnea index, it only accounted for 2.3% of the overall variance [4].

What is clear is that in patients with OSA who require continuous positive airway pressure, nasal obstruction is an important limiting factor in the success (tolerability) of this therapy [5]. Furthermore, surgery to relieve nasal obstruction can significantly augment patients' ability to utilize this modality of treatment [6]. The role of nasal surgery in adult sleep disordered breathing should therefore be limited to a means to improve the symptom of snoring and to improve the tolerability of continuous positive airway pressure in those with OSA. Surgical relief of nasal obstruction has been shown to improve quality of life in those with snoring and OSA by augmenting daytime breathing and reducing fatigue [7]. However, this may be similar to the effect of medical therapy, such as intranasal steroids, in management of chronic rhinitis.

References

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