

Problem Snoring

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Commentary on Larrain A; Hudson M; Dornitz JA et al. Treatment of severe snoring with a combination of pseudoephedrine sulfate and domperidone. J Clin Sleep Med 2006;2(1):21-25.

Some years ago, when I was presenting at a national meeting,¹ the validity of snoring reports that improved with oral appliance therapy was challenged as too subjective and unreliable. I felt at the time, and still do today, that a bed-partner's report of snoring and change with intervention have face validity when the symptom has risen to the status of being obnoxious or objectionable, or what I here call problem snoring. The challenge sensitized me to the issue of how to define snoring. In fact, most epidemiology investigators use subject and bed-partner reports of snoring and grade severity by an ordinal frequency scale and, less frequently, by a loudness qualifier.² Objective measurements have typically consisted of sound recording, standardized by location of the detector and with various methods of rectifying the signal (v. review by Hofstein, reference 3). While such data may be more objective by eliminating the listener's subjective component, they are not free of confounding—for example, by the effect of body position and sleep stage—which are often not factored into the analysis. Furthermore, the equivalence between such recordings and the relevant outcome, i.e., the listener's complaint, is not established, and the clinical relevance of precisely measured decibels remains unclear. As a result, many investigators define snoring in multiple domains, and bed-partners' reports and behavior continue to be critical parameters. An example is an oral appliance study that measured snoring by microphone and by several questionnaire items in which the most impressive outcome, arguably, was the number of separately sleeping couples who were reunited after therapy.⁴

The validity of snoring reports is a key issue in the intriguing paper by Larrain et al in this issue.⁵ The study variable is snoring rated for frequency and intensity by the sleep partner. The several studies show robust effects of the intervention—a decongestant, pseudoephedrine, and a prokinetic agent used to treat gastroesophageal reflux disease, domperidone. Particularly impressive is the high proportion of subjects rated to have changed from problem snoring (constant severe snoring requiring earplugs or sleeping

apart) to slight or no snoring with treatment. While the open-label experiment may have been biased by regression to the mean, the placebo-controlled studies showed the same effect, supporting an attribution to treatment. A concern is whether unintended unblinding of participants could have prejudiced the responses, but it is hard to imagine a plausible scenario that could bias the outcome sufficiently to produce effects of this magnitude. Thus, despite the reliance on subjective snoring assessment, it is hard to avoid the conclusion that a significant change in snoring occurred.

What biologic action could account for this effect of a decongestant and a prokinetic agent on problem snoring? Treatment of nasal obstruction has long been advocated to relieve snoring, and the physiologic rationale of less-negative pharyngeal pressure with a lower nasal resistance is plausible. However, I am not aware of another study relating nasal therapy to an effect on snoring, at least with a focus on snoring as in this study. With respect to acid reflux, a relation of gastroesophageal reflux disease to obstructive sleep apnea and improvement with continuous positive airway pressure has been reported.⁶ Presumably, increased inspiratory effort in obstructive sleep apnea promotes reflux into the esophagus, and increased thoracic pressure prevents it. Furthermore, there is the concept of subclinical acid aspiration, even to the level of the pharynx and larynx, correction of which might reduce the inflammatory effects of acid on the throat. Thus pseudoephedrine and domperidone could affect snoring by altering pharyngeal pressure dynamics and reducing pharyngeal mucosal edema. In short, plausibility exists, but proof will require specific observations and experiments.

Problem snoring is a common reason for evaluation of sleep and breathing. Those patients who do not have significant obstructive sleep apnea—and what degree of obstructive sleep apnea is significant is a debate for another day—still seek help for their noisy breathing. Oral appliance therapy is one possible solution, although cost and complications limit the general utility of this remedy. Other proposed therapies, from nasal strips to throat lubricants and now palatal stiffeners, are limited by the lack of proven efficacy and safety concerns. The combination of pseudoephedrine and domperidone is a new entrant to this field and hopefully will stimulate more study to address such concerns. At this time, it is uncertain whether this pharmacologic therapy will become clinically useful. What is clear from this study is that novelty and innovation still have a place in the maturing field of

Disclosure Statement

Dr. Schmidt-Nowara has indicated no financial conflict of interest.

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sleep and breathing and that careful clinical study can contribute to better clinical care.

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