

Dental Sleep Medicine

Oral appliance therapy is a more readily accepted treatment option for many.

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Obstructive Sleep Apnea Guidelines

The invention of positive air pressure (PAP) devices by Dr. Colin Sullivan made treatment of obstructive sleep apnea (OSA) possible without tracheostomy. Pathophysiology of OSA had been identified as a collapse of the oropharynx because of the pressure changes of respiration, although the mechanism was yet to be understood. Soon after, articles appeared citing modified oral devices to support the airway.¹ PAP devices and research about them were produced by large commercial companies compared to oral appliance therapy (OAT) being made by dentists individually, leading to uneven accumulation of data. PAP was labeled gold-standard therapy despite poor adherence data. Current clinical guidelines² from the American Association of Sleep Medicine (AASM) and the American Academy of Dental Sleep Medicine (AADSM) include OAT provided by trained dentists as a treatment choice for every person diagnosed with OSA, at any level of disease.

Dentists and Physicians' Role in Assessment

The American Dental Association (ADA) has released a policy statement³ that directs every dentist to screen for sleep-related breathing disorders (SRBD). As there are more than 150,000 dentists, if even half adopt screening protocols that will still be 10 times the number of board-certified sleep physicians. If each of those dentists screened only 1000 patients, it is expected 20% (75 million people) will be identified as high risk for OSA and need therapy. Currently, all diagnostic testing is done by physicians, either directly with board-certified specialists or through the primary care provider. Although physicians cannot assess patients for appropriateness of OAT, they can and do prescribe it and refer the patient to dentistry for assessment and possible fitting of a custom oral appliance. There are few contraindications for OAT, such as lack of periodontal support or extensive caries, so most people can begin therapy. A history or the presence of temporomandibular joint (TMJ) dysfunction is not a contraindication. Acute TMJ problems are dealt with prior to OAT, or, more commonly because chronic TMJ conditions are so often associated with airway problems, OAT is used to address TMJ problems at the same time.

Who Is Indicated for a Dental Approach?

Patients with mild apnea (ie, with an apnea-hypoxia index [AHI] between 5 and 15) are equally appropriate for PAP or OAT. Current guidelines suggest OAT as a second choice for patients with moderate to severe apnea, that is, with an AHI > 15. However, these guidelines were written before much research showing an equivalent physiologic effect between PAP and OAT was published.⁴ This is especially important in the case of a patient with any level of apnea who rules out weight loss, surgery, or a PAP device. For them, OAT may be the only available option, and it is the better choice than doing nothing.

There has been increased awareness of subclinical sleep-related breathing disorders, labeled upper airway-resistance syndrome (UARS). Functional somatic syndrome, which includes chronic widespread medical disorders such as fibromyalgia, inflammatory bowel disease, TMJ disorders, headache, and more, is linked to UARS.⁵ The mechanism posited for UARS is sensitization of the limbic system and the hypothalamic-pituitary (HPA) axis from chronic hypoventilation and stimulus of baroreceptors in the olfactory bulb. This is an unexplored avenue for many patients with chronic pain.

As patients with subclinical SRBD will usually have AHI < 5, it takes a discerning sleep specialist to identify the problem and prescribe therapy. PAP is often unsuccessful in such patients as the physical sensations of the air flow, mask, and headgear are exacerbated by a reactive limbic system. In contrast, after an accommodation period, OAT does not have sensory signaling to the brain and is akin to wearing a wristwatch or earring to bed.

Dentists and Physicians' Roles in Treatment

Dentists are trained to successfully fit a custom appliance to the teeth. Most OAT are made from familiar materials that are easily adapted to fit nearly every oral health condition. Dentists who are serious about providing OAT have the opportunity to accumulate many hours of continuing education that includes collaboration with physicians (see *Sleep Medicine: A Team Sport* on p. 53) and may promote greater understanding of the physiologic consequences of SRBD.⁶ Just as physicians and technologists are relied upon for their expertise, so may dentists be as part of a care team. Patients must be able to understand the dentist's role in therapy, place and remove the device, and

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perform minimal maintenance necessary to keep it clinically acceptable. There are more than 100 designs available and, dentists are experts at matching these to patient characteristics. Dentists are also able to train caregivers to help their clients or family members to insert and remove the devices when needed.

Dentists will scan or make impressions of the teeth and oral cavity for OAT fitting and provide range of motion exercises to begin while a custom device is made in a specialized dental lab. Initially, holding the mandible forward for several hours with the device in place will create a transient soreness. As the body accommodates to the work required of those muscles, the discomfort fades. Dentists are trained to help patients through this period and to treat any of the more troublesome uncommon side effects. With the passage of enough time, the force applied to teeth will reposition the teeth; for this reason, preventive exercise protocols are given to every patient. If followed, tooth movement or other chronic problems are rare. Even when these occur, patients seldom complain, especially if their airway symptoms and health are improved through OAT.

Once subjective symptoms are minimized or eliminated, the referring physician typically completes an efficacy confirmation test. If clinical endpoints are not met, optimization or adjusting OAT or combined therapies may be needed. Frequently, this will require the involvement of an otolaryngologist.

Summary

Millions of people breathe badly every night, many of them with frustrating, unresolved, somatic complaints and no history of airway assessment.⁷ Some may have a PAP they never learned to tolerate. Dental screening and treatment with OAT can address these problems. Physicians may need to be prepared to answer the question, “Could this problem have anything to do with bad breathing while I sleep?” ■

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