The Columbus
SLEEP CENTER
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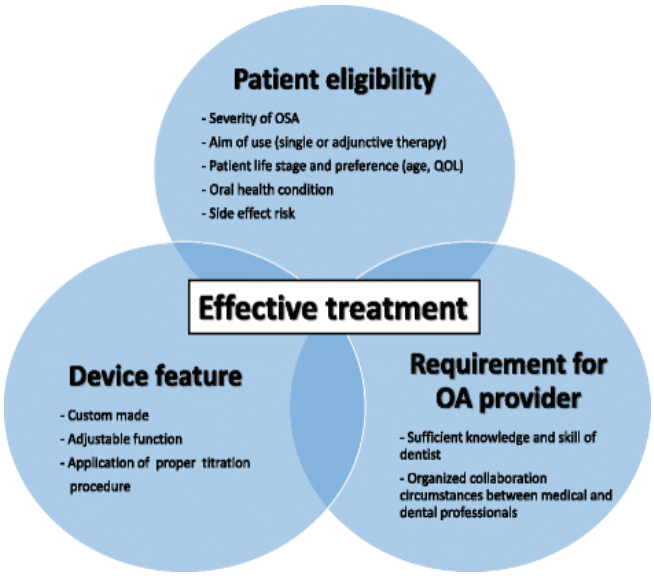
Practical considerations for effective oral appliance use in the treatment of obstructive sleep apnea: a clinical review

Abstract

Oral appliance (OA) therapy is a promising alternative to continuous positive airway pressure (CPAP) for patients with obstructive sleep apnea (OSA). By holding the mandible in a forward position, an OA keeps the airway open and prevents collapse. The recently revised practice parameters of the American Academy of Sleep Medicine extend the indications for OA therapy, recommending that "sleep physicians consider prescription of an OA for adult patients with OSA who are intolerant of CPAP therapy or prefer alternative therapy." This manuscript reviews the practical considerations for effective OA therapy with a discussion of three factors: patient eligibility for OA therapy, device features, and requirements for OA providers.

Identification of patients who are eligible for OA therapy is a key factor because the overall success rate of OA therapy is lower than that of CPAP. Conventional predictive variables have low sensitivity and specificity; however, new tools such as drug-induced sleep endoscopy and single-night polysomnographic OA titration have been developed. Other factors to consider when determining the indications for OA include the patient's oral health, evidence of inadequate treatment for older populations, and the risk of long-term dentofacial side effects. For the second factor, customization of OA features is a key component of treatment success, and no single OA design most effectively improves every situation. Although adjustment of the mandibular position is much more important than device selection, the adjustment procedure has not been standardized. Additionally, a pitfall that tends to be forgotten is the relationship between application of the mandibular position and device selection.

Promising new technology has become commercially available in the clinical setting to provide objective adherence monitoring. Finally, the third factor is the availability of enough qualified dentists because sleep medicine is a relatively new and highly multidisciplinary field. Because OSA treatments such as CPAP and OA therapy are generally considered for continuous use, treatments should be carefully planned with attention to multiple aspects. Additionally, because OA therapy requires the cooperation of professionals with different areas of expertise, such as dentists and physicians with various specialties, everyone involved in OA therapy must understand it well.



DENTAL SLEEP MEDICINE UPDATE

Knowledge & Skill Related to Dental Sleep Medicine Among Dentists

One of the roles of dentists in sleep medicine is providing OA therapy for patients with sleep apnea. The American Board of Dental Sleep Medicine (ABDSM), established in 2004, is an independent, nonprofit board of examiners that certifies dentists who treat snoring and OSA with OA therapy. Although more than 270 ABDSM diplomates are providing quality treatment for patients across the US (http://www.abdsm.org/About.aspx), more qualified dentists are needed in this field.

Difficulties have been encountered in developing educational programs in sleep medicine at academic institutions because the field is relatively new and highly multidisciplinary. In 2004, a questionnaire-based survey of 192 general dental practitioners revealed that 58% of dentists could not identify common signs and symptoms of OSA and that 55% did not know the therapeutic mechanism of OAs, despite the fact that 93% agreed that OSA constitutes a life-threatening illness (Bian 2004).

Simmons and Pullinger (2012) reported that the teaching time dedicated to sleep medicine in predoctoral dental programs in the US had increased to 3.92 h, but the authors still considered this to be insufficient. One of the authors of the present review conducted a similar survey of Japanese dental schools. Of the responding schools, 80.8% reported some educational time devoted to sleep medicine; the average was 3.8 instruction hours, which is similar to the findings in the survey by Simmons and Pullinger (2012). Most sleep medicine instruction was didactic (58.5%); only 11.5% of institutions reported a hands-on clinical laboratory experience (Tsuda et al. 2014).

For appropriate OA therapy, dentists need both technical skills to adjust the appliance and fundamental knowledge in areas such as pathophysiology, typical symptoms of OSA, sleep study interpretation, and alternate treatment options to communicate effectively with patients and sleep physicians. Sleep physicians' specialties vary and include respirology, otolaryngology, cardiology, neurology, and psychiatry, and their treatment strategies also vary. Each of these specialists should understand this multidisciplinary situation, and dentistry should also be recognized as a specialty in sleep medicine. Current practice guidelines recommend close cooperation between sleep physicians and qualified dentists to optimize patient care (Ramar et al. 2015).

Because healthcare systems differ among countries, original treatment strategies and educational curricula should be developed to maximize the quality and cost-effectiveness of treatment according to each country's situation. Importantly, the planning and execution of sleep medicine education in dental schools should be based not only on the dentist's limited role, but also on the dentist's role in general disease management within the healthcare system.

Full article & references can be found online at: https://sleep.biomedcentral.com/articles/10.1186/s41606-017-0013-8

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