COMMENTARY

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Looking Through the Glass Ceiling

Commentary on Fleury B, Lowe AA, ORal Appliance Network for Global Effectiveness Group. Current barriers and study needs for oral appliance therapy: the personal perspective of a physician and dentist. *Journal of Dental Sleep Medicine* 2014;1(3):123–127.

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Despite growing evidence-based medicine demonstrating the efficacy and effectiveness of oral mandibular advancement appliance (OA) treatment of patients with obstructive sleep apnea (OSA), the OA is still generally considered to be a secondary, alternative treatment to positive airway pressure (PAP). Current practice parameter recommendations limit the use of OA to patients with milder OSA who prefer OAs to PAP, or who do not respond to PAP, are not appropriate candidates for PAP, or who fail treatment attempts with PAP or treatment with behavioral measures such as weight loss or sleep position change.[1] In the review paper "Current Barriers and Study Needs for Oral Appliance Therapy: The Personal Perspective of a Physician and Dentist"[2] in this issue of the *Journal of Dental Sleep Medicine*, Dr. Lowe and Dr. Fleury present their opinions as to why OA has not gained wider acceptance and present their personal perspective about what is needed to break through this "glass ceiling." I will summarize those barriers, based on my own personal perspective, to be delayed time to achieve efficacious treatment, inability to predict whether OA treatment will achieve adequate control of sleep disordered breathing in a particular patient, inability to objectively monitor OA adherence, and the close partnership required between dental and medical professionals.

Two barriers listed by Dr. Lowe and Dr. Fleury that I will not consider are OA contraindications and side effects. Both OA and PAP treatment are contraindicated in some patients and are associated with side effects. Both, however, have minimal risk, and I personally do not regard these as reasons why practitioners prefer PAP to OA treatment. The authors of the paper also feel that lack of standardization of OA manufacturing is another barrier. The plethora of commercially available OAs differ widely in design; however, there is little evidence to support that one custom made OA is more efficacious than another.[3,4] More studies comparing different OAs are needed, but it seems that there may be a wide latitude in OA design.

As stated by Dr. Lowe and Dr. Fleury, it is easier, faster, and less labor intensive to prescribe a PAP device than an OA. PAP is an "off-the-shelf" treatment. Once the diagnosis of OSA is established patients can be quickly started on PAP treatment. The growing use of automatically adjusting PAP (APAP) instead of continuous positive airway pressure (CPAP) has further reduced the time from diagnosis to efficacious treatment by obviating the need for a PAP titration to establish a fixed pressure setting. In contrast, it can take weeks to months to adjust an OA before the patient's sleep disordered breathing is under adequate control. Sleep specialists faced with a symptomatic patient, particularly those at risk for traffic and industrial accidents, are therefore more likely to recommend PAP treatment.

Another major barrier cited by Dr. Lowe and Dr. Fleury is the inability to predict whether OA treatment will achieve adequate control of sleep disordered breathing in a particular patient. Sleep specialists are unlikely to recommend OA, patients are unlikely to select OA, and, most of all, insurers are unlikely to provide OA coverage when they will only know if the treatment is efficacious after weeks to months of OA management. A recent development that promises to address this barrier is the use of a remotely controlled mandibular positioning device during polysomnography to predict if mandibular advancement will be efficacious prior to initiation of OA treatment.[5]

Another major barrier mentioned in the review paper[2] is the inability of practitioners to objectively monitor OA adherence. Objectively monitored PAP adherence is being used by insurance carriers to require that its beneficiaries achieve a certain level of PAP usage to qualify for coverage. Similar standards are increasingly being adopted by the transportation industry for continued employment of its workers. Given these policies, patient use of OA will need to be measured objectively in order to compete with PAP. Recently developed datachips that are implanted in the OA and record temperature will address this barrier.[6,7] However, this emerging technology is still not being widely used clinically. Hopefully, future studies with objectively monitored OA adherence will allow us to answer whether the presumed greater adherence to OA compared to PAP treatment is indeed true and offsets the decreased OA efficacy, thereby resulting in clinical outcomes comparable to PAP treatment.

Though the OA temperature sensor is likely to become a part of routine OA treatment in the near future, we still do not have a way to assess OA efficacy other than by performing a sleep study. In contrast, PAP downloads provide an estimation of the amount of sleep disordered breathing on treatment that is reasonably accurate.[8] In addition, PAP manufacturers and other enterprises are rapidly adapting telehealth technologies to provide practitioners and patients ready access to adherence and efficacy information.

While noted near the end of the review paper, perhaps the most important requirement for OA treatment is a close collaboration between the sleep specialist and the dentist. In the "Future Considerations" section the authors state, "Tests of OA titration efficacy with a cost effective portable monitoring system as used by some dentists could be an elegant way to convince the sleep physician to prescribe future OAs after being reassured of their efficacy." While the use of home sleep testing is an important component of OA management, the dental community will fail

to build collaborative ties if it takes this business away from the sleep physician.

An important barrier to OA treatment that is not mentioned in the paper is cost of OA treatment. No matter how much we improve OA treatment, its cost needs to be competitive to PAP treatment. The review paper by Dr. Lowe and Dr. Fleury tells us why OA treatment has not achieved greater acceptance and provides ways in which those barriers may be removed. Whether OA will ever achieve a usage equivalent to PAP treatment is debatable, but given recent advances, we can be optimistic that OA will continue to gain wider acceptance as an important treatment option for many patients with OSA.

CITATION

Kuna ST. Looking through the glass ceiling. *Journal of Dental Sleep Medicine* 2014;1(3):129–130.

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DISCLOSURE STATEMENT

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