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Providing Solutions for Complex Dental Problems

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TMJ/Orofacial Pain & Dental Sleep Medicine

Spring 2016

Meta-analysis of Randomized Controlled Trials of Oral Mandibular Advancement Devices and Continuous Positive Airway Pressure for Obstructive Sleep Apnea-hypopnea

Sharples LD, Clutterbuck-James AL, et al.

Sleep Med Rev. 2015 May 30

Obstructive sleep apnea-hypopnea (OSAH) causes excessive daytime sleepiness, impairs quality-of-life, and increases cardiovascular disease and road traffic accident risks. Continuous positive airway pressure (CPAP) treatment and mandibular advancement devices (MAD) have been shown to be effective in individual trials but their effectiveness particularly relative to disease severity is unclear. A MEDLINE, Embase and Science Citation Index search updating two systematic reviews to August 2013 identified 77 RCTs in adult OSAH patients comparing: MAD with conservative management (CM); MAD with CPAP; or CPAP with CM. Overall MAD and CPAP significantly improved apnea-hypopnea index (AHI) (MAD -9.3/hr, CPAP -25.4).

In direct comparisons mean AHI and Epworth sleepiness scale score were lower (7.0/hr and 0.67 respectively for CPAP. There were no CPAP vs. MAD trials in mild OSAH but in comparisons with CM, MAD and CPAP reduced ESS similarly (MAD 2.01; CPAP 1.23).

Both MAD and CPAP are clinically effective in the treatment of OSAH. Although CPAP has a greater treatment effect, MAD is an appropriate treatment for patients who are intolerant of CPAP and may be comparable to CPAP in mild disease.