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[Intervention Review]

Oral appliances for obstructive sleep apnoea

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ABSTRACT

Background

Obstructive sleep apnoea-hypopnoea (OSAH) is a syndrome characterised by recurrent episodes of partial or complete upper airway obstruction during sleep that are usually terminated by an arousal. Nasal continuous positive airway pressure (CPAP) is the primary treatment for OSAH , but many patients are unable or unwilling to comply with this treatment. Oral appliances (OA) are an alternative treatment for OSAH.

Objectives

The objective was to review the effects of OA in the treatment of OSAH in adults.

Search methods

We searched the Cochrane Airways Group Specialised Register. Searches were current as of June 2008. Reference lists of articles were also searched.

Selection criteria

Randomised trials comparing OA with control or other treatments in adults with OSAH .

Data collection and analysis

Two authors independently extracted data and assessed trial quality. Study authors were contacted for missing information.

Main results

Seventeen studies (831 participants) met the inclusion criteria. All the studies had some shortcomings, such as small sample size, under-reporting of methods and data, and lack of blinding. OA versus control appliances (six studies): OA reduced daytime sleepiness in two crossover trials (ESS score -1.81; 95%CI -2.72 to -0.90), and improved apnoea-hypopnoea index (AHI) (-10.78 events/hr; 95% CI -15.53 to -6.03 parallel group data - five studies). OA versus CPAP (ten studies): There was no statistically significant difference in symptoms for either parallel or crossover studies, although OAs were less effective than CPAP in reducing apnoea-hypopnoea index in parallel and crossover studies. CPAP was more effective at improving minimum arterial oxygen saturation during sleep compared with OA. In two small crossover studies, participants preferred OA therapy to CPAP. OA versus corrective upper airway surgery (one study): Symptoms of daytime sleepiness were initially lower with surgery, but this difference disappeared at 12 months. AHI did not differ significantly initially, but did so after 12 months in favour of OA.

Authors' conclusions

There is increasing evidence suggesting that OA improves subjective sleepiness and sleep disordered breathing compared with a control. CPAP appears to be more effective in improving sleep disordered breathing than OA. The difference in symptomatic response between these two treatments is not significant, although it is not possible to exclude an effect in favour of either therapy. Until there is more definitive evidence on the effectiveness of OA in relation to CPAP, with regard to symptoms and long-term complications, it would appear to be appropriate to recommend OA therapy to patients with mild symptomatic OSAH, and those patients who are unwilling or unable to tolerate CPAP therapy. Future research should recruit patients with more severe symptoms of sleepiness, to establish whether the response to therapy differs between subgroups in terms of quality of life, symptoms and persistence with usage. Long-term data on cardiovascular health are required.

PLAIN LANGUAGE SUMMARY

Oral appliances for treating sleepiness, quality of life and markers of sleep disruption in people with obstructive sleep apnoea/hypopnoea (OSAH)

OSAH is characterized by recurrent episodes of partial or complete upper airway obstruction during sleep, leading to a variety of symptoms including excessive daytime sleepiness. The current first choice therapy is CPAP that keeps the upper airway patent during sleep. However, this treatment can be difficult for some patients to tolerate and comply with on a long-term basis. OA are now widely used as an alternative to CPAP therapy. They are designed to keep the upper airway open by either advancing the lower jaw forward or by keeping the mouth open during sleep. This review found that OA should not be considered as first choice therapy for OSAH, where symptoms and sleep disruption are severe. There has not been a sufficient amount of research that examines the effects of OA compared with CPAP in terms of symptoms and quality of life. Although CPAP was clearly more effective at reducing the disruption to sleep, some people with OSAH may prefer using them if they are found to be tolerable and more convenient than CPAP. When an active OA was compared with an inactive OA , there were improvements in daytime sleepiness and apnoea/hypopnoea severity. OA may be more effective than corrective upper airway surgery. Further research should consider whether people with more distinctly severe symptoms respond in a similar way to those patients represented in the studies we have included in the review.