



Managing Dry Mouth that Occurs during Sleep

Jeff Burgess*

Department of Oral Medicine, University of Washington School of Dental Medicine, USA

*Corresponding author: Jeff Burgess, DDS, MSD, (Retired) Clinical Assistant Professor, Department of Oral Medicine, University of Washington School of Dental Medicine, USA, Tel: 206 543 6501; E-mail: jeffreymburgess@hotmail.com

Received date: February 18, 2014, Accepted date: April 10, 2014, Published date: April 17, 2014

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Short Communication

Up to 40 percent of the general population is estimated to experience xerostomia or dry mouth with aging [1]. Dry mouth can be caused by conditions such as diabetes and autoimmune disease, prescription and non-prescription drugs and other medical problems such as allergy. Chewing tobacco, mouth breathing or using CPAP (Continuous Positive Airway Pressure) for apnea also causes oral dryness. Night time oral dryness can be associated with burning or tingling; sore throat; tongue, gum, and denture ridge soreness; taste dysfunction; speech problems; a sticky feeling in the mouth; and difficulty swallowing [2]. Oral dryness has also been associated with an increased incidence of oral ulceration, infection (candidiasis), tooth decay, periodontal disease, and lip cracking [3]. Some people also experience halitosis, insomnia, irritability, depression, and speech and eating disorders in association with dry mouth [4]. The condition is not inconsequential and impacts quality of life.

Several medications can be prescribed for patients with severe dry mouth caused by autoimmune disease but these can be associated with adverse effects. Pilocarpine, for example, can cause sweating, dizziness, urinary frequency, and in some cases hypersensitivity [5]. Cevimeline is contraindicated in patients with uncontrolled asthma and glaucoma and may be problematic when prescribed to patients with cardiovascular and pulmonary disease [6]. Side effects include headache, sweating visual disturbance, gastrointestinal problems, and cardiac abnormalities. That is why these medications are only indicated for the management of severe clinically confirmed xerostomia where there is limited gland function.

In most people with dry mouth, however, the condition is mild to moderate and not associated with a significant underlying medical problem so there is no need for prescription medication. Oral dryness occurring during the day can be managed by a number of non-prescription OTC (Over the Counter) medications and non-medication solutions. However, historically there are very few options available for people who experience night time oral dryness that is age or medication related.

New research, however, assessing a novel product, XyliMelts-For Dry Mouth (OraHealth Inc., Redmond, Washington, USA)-suggests that there is now an effective strategy for reducing dryness that occurs during sleep. XyliMelts combines 500mg xylitol, a natural non-fermentable carbohydrate that tastes like table sugar, with cellulose gum (cellulose with added carboxy and methyl groups plus a sodium ion) and is lightly flavored with peppermint oil. This material is shaped into a slowly-dissolving disc and one side is coated with a vegetable gum adhesive which allows the disc to be used at night during sleep [7,8].

The study evaluating the effectiveness of XyliMelts in reducing dry mouth was conducted as a non-blinded case series involving fifteen

healthy subjects between the ages of 19 and 66. In addition to a standard Oral Medicine examination protocol [9], initial and follow-up questions included endorsement of two 100 mm visual analogue scales (anchored by dryness/wetness and comfortable/uncomfortable) defining the perceived level of mouth moisture and the level of oral discomfort upon awakening in the morning. Subjects were also asked via questionnaire about sleep problems and night awakenings related to dry mouth. Unstimulated whole saliva was acquired at each evaluative session spaced one week apart.

Subject mean age was 46.21. The mean initial self-assessed oral wetness upon awakening was 22.2 (SD 15.28). The mean after one week of using 2 discs at bedtime and three more during the day increased to 67.80 (SD 14.96). The mean for initial discomfort upon awakening was 65.23 (SD 21.81) and post treatment mean discomfort fell to 27.63 (SD 17.59). Mean initial salivary volume was .15 (range .02-.37) and post salivary volume .36 (range .069-2.21). Comparison of pre-post means for oral wetness and discomfort was significant for both factors (Wetness, $t=-8.79$, $p<.001$), (Discomfort, $t=6.43$, $p<.017$). The results revealed that subjects in this clinical trial experienced a significant improvement in subjective wetness and a significant decrease in perceived morning discomfort over one week of disc use. The use of XyliMelts for Dry Mouth while sleeping caused perceived morning oral wetness scores to increase more than three fold. No adverse reactions were observed and several subjects reported less sleep disturbance. All tasted the XyliMelts when they awoke although the discs were judged to dissolve within about an average of 1.18 hours after placement [8].

Hyposalivation that occurs during sleep is normal but if severe can disturb sleep. Severe night time dryness may have a negative impact on the quality of life of affected patients. This study demonstrates that the use of XyliMelts time-release adhering discs improves perceived oral wetness upon awakening and decreases the perception of discomfort from night time oral dryness. This is the only OTC product specifically made to reduce oral dryness that occurs during night time sleep.

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