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Management of Salivary Hypofunction

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Abstract

Early diagnosis and symptom-based treatment is essential for the management of dry mouth. Effective management of dry mouth helps to alleviate much of the discomfort and to retard progression of the disorder. Many effective strategies are available to help patients manage their symptoms. Routine follow-up care with physicians and dentists is essential. With early intervention and proper individualized care people with dry mouth are able to lead comfortable lives. This article describes the various strategies that are available for the management of dry mouth.

Keywords: Xerostomia; Gingiva; Rheumatoid arthritis; Diarrhea

Introduction

Saliva is an important protective constituent of the oral cavity and it has many functions. Saliva aids in the digestion of food, lubrication of the oral mucosa, and facilitates taste bud function. Saliva has antimicrobial properties as it contains lysozyme, lactoferrin, lactoperoxidase, and secretory immunoglobulin A. The presence of these antibacterial agents in the saliva helps to reduce gingival inflammation. Saliva has a neutral pH which allows lubricating and protecting teeth and gingiva. It protects teeth by providing important remineralizing, antibacterial, and lavage functions. It also provides physical and chemical protection for the oral and pharyngeal mucous membranes [1,2].

Salivary hypofunction causes xerostomia or dry mouth. Xerostomia is the subjective perception of oral dryness. There may be various degrees of salivary hypofunction depending upon the etiology [1,2].

Salivary hypofunction is caused due to the following: [3,4]

Medications: frequent side effect of certain prescription and nonprescription drugs such as those used to treat depression, anxiety, allergies, and colds (antihistamines and decongestants), hypertension (diuretics), asthma (certain bronchodilators), and muscle relaxants and sedatives.

Radiation therapy: patients receiving radiation therapy for head and neck cancer

Surgery: surgical removal of the salivary glands due to salivary gland tumor or stones (sialolith).

Autoimmune disorders such as Sjögren's syndrome, Rheumatoid arthritis, Systemic Lupus Erythematosus, and Scleroderma.

Other factors that can affect saliva production and aggravate dry mouth include dehydration due to fever, excessive sweating, vomiting, and diarrhea. Smoking or chewing tobacco; and mouth breathing habit can also cause dry mouth.

Symptoms

Salivary hypofunction causes dry mouth. The common symptoms of dry mouth include a dry, sticky feeling in the mouth and increased frequency of thirst. Dry mouth causes difficulty in speaking, swallowing, and chewing. There may be a change in taste sensation, and patients frequently complain of a burning or tingling sensation in the mouth, especially of the tongue. Dry mouth may cause sores on the oral mucosa; fissured tongue or dry, red, raw tongue; and cracked corners of the lips. There is an increased susceptibility to oral candidiasis. Dry mouth causes rampant decalcification of enamel resulting in dental caries and acid erosion. It also causes increased accumulation of bacterial plaque resulting in gingival inflammation and periodontal disease, and halitosis [1,2,4].

Management

Early diagnosis and treatment is necessary to effectively manage dry mouth and to retard its progression, and promote comfort and productivity [1,2].

Patients diagnosed with dry mouth are at high risk for dental caries, thus an extra effort must be made to protect teeth from decalcification of enamel and dental caries. Patients should receive an annual comprehensive intraoral dental exam and bite-wing x-rays should be taken to diagnose and treat any new carious lesions. Patients should be put on fluoride therapy. At every three months professionally applied concentrated sodium fluoride varnishes or fluoride gel application with trays. A twice daily use of prescription strength 1.1% neutral Sodium Fluoride toothpaste. A calcium-containing remineralizing oral rinse is recommended for daily use as calcium has a remineralizing effect on dental enamel [1,2,4,5].

Dry mouth patients are also at high risk for periodontal disease. The importance of good oral hygiene by regular brushing and flossing should be reinforced to the patient. The use of and electric toothbrush should be recommended to effectively remove plaque and prevent gingivitis. Periodontal prophylaxis should be performed every three months to arrest periodontal disease. Periodontal prophylaxis should be followed by an in-office application of fluoride varnish. An antibacterial rinse such as 0.12% Chlorhexidine gluconate is indicated in an effort to reduce gingivitis. Patients should be referred to a periodontist if they have early signs of periodontitis [1,2,4,5].

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Oral candidiasis is frequently seen in patients with dry mouth. Patients diagnosed with oral candidiasis should be prescribed topical antifungal rinses (Nystatin) or lozenges (Clotrimazole). Systemic antifungal medication such as Fluconazole is recommended for recurrent oral candidiasis or when topical antifungal agents are ineffective [1,2,4,5].

To promote salivary function non-selective muscarinic receptor agonists (Sialagouges) such as Pilocarpine or Civemiline should be prescribed to the patients. Sialagouges are parasympathomimetic drugs and act therapeutically at the muscarinic acetylcholine receptor and stimulate saliva production. Sialagogues should always be taken with food to avoid their side-effects [6].

Dry mouth patients who are unable to afford prescription medications or who are unable to tolerate them due to their side effects may use over-the-counter products. The use of xylitol containing salivary stimulants can help stimulate salivary flow. Xylitol helps to arrest dental caries as it interferes with the growth of cariogenic bacteria [1,2,4].

Omega-3 fatty acid supplement containing flaxseed oil, fish oil, and vitamin E, allows for improvement in symptoms of dry mouth, increased salivary gland secretion, and arrest gingival inflammation. Omega 3 fatty acids block the production of prostaglandins and pro-inflammatory cytokines that cause inflammation and cellular destruction [7].

Xerostomia may also cause the oral mucosa to become dry and sore. Oral lubricants such as vitamin E are effective in soothing irritated oral tissues. Patients are advised to break the vitamin E capsule and apply it topically to irritated oral tissues. Xerostomia causes the lips to become dry and cracked. The regular use of topically applied oil-based balms or vitamin E-containing balm provides soothing relief to dry, cracked lips [1,2,4,5].

Patients should be given nutrition counseling. Patients are advised to avoid any products that can cause oral dryness or irritation such as alcohol, caffeine and tooth whitening products. Alcohol can be irritating and has a drying effect on the oral mucosa. Alcohol should be avoided in both beverages and in oral products such as mouthwashes. Caffeine is a mild diuretic which promotes fluid loss, dehydration and may worsen dry mouth. Patients should avoid or limit caffeine containing items such as coffee, tea, and certain soft drinks as these are acidic in nature and cause decalcification of enamel. Tooth whitening products should also be avoided as they can be irritating to the oral tissues. Patients are advised to minimize consumption of high carbohydrate containing foods (such as cookies, bread, potato chips, gums, candies) and acidic beverages (such as carbonated and sports replenishment drinks) and lemon products as these can cause decalcification of enamel and dental caries. Frequent sips of small amounts of sugar-free fluids, especially water, are helpful in diminishing the effects of oral dryness. Many patients keep a bottle of water handy to moisturize their tissues [8,9].

Patients taking certain medications that result in dry mouth should consult their physician to determine if an alternative medication or dosage is appropriate that may reduce dry mouth and still meet their medical needs [3,4].

Conclusion

Early diagnosis and treatment of dry mouth is essential to prevent damage to the oral cavity. Routine follow-up care with the physician and the dentist is essential to manage their symptoms. With early intervention and proper individualized care, people with dry mouth are able to lead comfortable lives.

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References

1. Singh M, Tonk RS (2011) Diagnosis and treatment of dry mouth Gen Dent 59: e230-232.
2. Singh M, Tonk RS (2012) Xerostomia: Etiology, Diagnosis and Management. Dent Today 31: 80-85.
3. Singh M, Palmer C, Papas A (2010) Sjögren's syndrome: dental considerations. Dent Today 29:64-67.
4. Brennan M, Fox P, Singh M (2009) Clinician's Guide: Salivary Gland and Chemosensory Disorders (1st edn) Edmonds WA: American Academy of Oral Medicine.
5. Palmer C, Singh M (2012) Dental health and preventive care. In: Rippe JM, Encyclopedia of Lifestyle Medicine and Health, (1st edn) Thousand Oaks, CA: SAGE Publications 764-771.
6. Singh M, Papas A (2013) Effect of sialagogue on bleeding on probing in Sjögren's syndrome. Indian J Dent Res 24: 567-570.
7. Singh M, Stark PC, Palmer C, Gilbard JP, Papas A (2010) Effect of omega-3 and vitamin E supplementation on dry mouth in patients with Sjögren's syndrome. Spec Care Dentist 30: 225-229.
8. Singh M, Tonk RS (2012) Dietary considerations for patients with dry mouth. Gen Dent 60: 188-189
9. Palmer C, Singh M (2008) Sjögren's syndrome and its implications for diet and nutrition. In: Coleman LA. Nutrition and Rheumatic Disease, (1st edn) Totowa, NJ: Humana Press Inc.227-249.