

Treatment of dry mouth and other non-ocular sicca symptoms in Sjögren's syndrome-II

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This topic review represents a continuation of the discussion on the treatment of dry mouth in Sjogren's syndrome. (See "Treatment of dry mouth and other non-ocular sicca symptoms in Sjogren's syndrome-I").

PREVENTION OF DENTAL CARIES — Development of dental caries is a major problem in patients with dry mouth, who are especially prone to root and incisal caries, rather than coronal caries [5,25]. To help avoid these complications we suggest aggressive application of the same general principles as in individuals without dry mouth, including meticulous self-care, frequent visits to the dentist (at least every six months for patients with mild disease), and plaque control. Because these measures alone are usually insufficient, and given the multiple potential treatments with different mouthwashes, gels, pastes and other applications, we suggest that individualized treatment should be provided by a dentist with experience or particular interest in the care of patients with dry mouth and SS whenever possible.

Several aspects of dental care are of particular importance in SS:

Remineralization — The loss of teeth in SS patients results from a combination of low oral pH that facilitates loss of dental calcium and alterations of oral bacterial flora that lead to accelerated decay [5,26]. For individuals with very low to no salivary production, the amount of phosphate and calcium available for incorporation onto the tooth surface and remineralization may be limited.

The remineralization process may benefit from provision of calcium phosphate ions through a toothpaste or specialized chewing gums (eg,

Recaldent paste and chewing gum) or as an oral solution (eg, Caphasol, a neutral supersaturated calcium phosphate rinse). No long-term clinical trials have been done to test the effectiveness of these agents [5,26-28]. There is currently no agreed-upon formulation/concentration of calcium phosphate or consensus on how often exposure should occur.

NOTE: Au's, are there toothpastes, mouthwashes, other interventions that you suggest in all or most SS patients? Are there different clinical characteristics that determine which treatments you would recommend next? Thanks. No specific interventions – go along lines already mentioned. Toothpaste with fluoride, good oral hygiene. Patient preference regarding which brand - PC

Fluoride — Fluoride is an important element in the prevention of dental caries [29]. Two mechanisms by which topical fluoride promotes remineralization of teeth include the development of a crystalline protective veneer at the site of demineralization and inhibition of bacterial metabolism and acid production. Fluoride may be applied in various forms, depending on the severity of disease, including a mouth rinse, fluoride gels applied at home in custom fitted trays, and by dental office-based application of fluoride varnish [5,29].

We suggest that over the counter rinses such as a 0.05 percent sodium fluoride rinse (ACT rinse or Fluorigard) be used for one or two minutes daily. **NOTE: Au's is this OK? What comes next and in whom? Thanks. Sounds fine as it is PC** Dentists may prescribe stronger fluoride rinses, gels and dentifrices. A commonly available gel is 1.23 percent acidulated phosphate gel, but in patients who have severe salivary gland dysfunction, it may be poorly tolerated because of mucosal sensitivity. Such patients may be treated with a 1.1 percent neutral sodium fluoride dentifrice (eg, Prevident 5000) or a gel applied in a custom tray for five to ten minutes once daily. Neutral fluoride toothpastes are also available.

A five percent sodium fluoride varnish (such as Durphat) is available in the United States and in Europe, where it was developed and tested primarily in children. The theoretical advantages of using a varnish are the higher level of fluoride and sustained release. A single application of the varnish can release fluoride for up to six months [26]. Varnish application is fast and easy and does not necessarily require professional prophylaxis prior to

application; varnish can be applied directly to the root and incisal surfaces that are most vulnerable to decay in the SS patient population. and can be applied two to four times/year [30,31].

Chemoprophylaxis — Several approaches may be taken in an effort to reduce oral bacterial flora, including the use of chlorhexidine (CHX) , a topical antimicrobial agent, and products containing baking soda (eg, Arm and Hammer Dental Care Toothpaste and Baking Soda Gum), bicarbonate or xylitol (see below) [5]. CHX is a topical antimicrobial agent that is used to decrease the intraoral bacterial load thought to contribute to periodontal disease and caries [32]. In addition, CHX has an antifungal effect that may also benefit patients with SS. The available CHX oral rinses, however, especially those containing alcohol, may not be well tolerated by SS patients. Because chlorhexidine can bind fluoride, they should not be used concurrently. **NOTE: au, do you recommend these and if so, in whom? or is this deferred to the dentist? I do not routinely recommend – problem is that strong antibacterial mouthwashes are irritant to the dry mouth. I think what you have written is fine PC**

Sugar substitutes — Polyol sweeteners such as xylitol and sorbitol that are not fermentable by acid-producing bacteria are of low cariogenic or noncariogenic potential; they may prevent or limit demineralization and promote the remineralization process [33]. Studies done primarily with healthy children (usually using a chewing gum formulation) have shown significant anti-caries effects [33-36].

The use of xylitol and other sugar substitutes for caries reduction in the general population remains somewhat controversial [33,37]. Xylitol may be a useful adjunct to other anti-caries treatments, but should not be considered in patients with SS as a substitute for fluoride or other well-established interventions [5,33]. There has been some suggestion that part or all of the caries-preventative effect of xylitol/sorbitol is due to the effect of chewing alone, via the production of saliva [26,38]. However, other mechanisms have been identified, including the growth inhibition of caries-inducing bacteria, the selection of xylitol-resistant strains with a resultant shift to less virulent and cariogenic strains, and the binding of xylitol to surface receptors on Strep. mutans species modulating their function [34,35,39].

Oral hygiene and self-care — Under the supervision of their dentist, we suggest that patients do the following:

- Use dental floss after meals and fluoride either as toothpaste or a mouth rinse daily
- Avoid sucrose, carbonated beverages, juices, and water with additives
- Use toothpastes specifically designed for dry mouth (eg, Biotene toothpaste), which lack the detergents present in many toothpastes that can irritate the dry mouth.
- Use toothbrushes with features that improve effectiveness, such as interdental brushes (for cleaning between teeth) and electric toothbrushes.

Dental professional care — Patients should be seen at a minimum of every six months. More frequent visits may be necessary depending on the severity of oral involvement. Whenever possible, we suggest that patients be seen by a dentist familiar with the care of patients with SS. Professional dental care includes:

- Frequent cleanings and use of minimally invasive dental techniques to treat lesions early and prevent need for restorative care [5]
- Guidance regarding home self-care and oral hygiene and prescription, where indicated, of calcium, phosphate, and fluoride preparations, including mouthwashes, toothpastes, and gels
- Use of fluoride varnishes or topical fluoride after each professional cleaning [40]

RESTORATIVE AND COSMETIC DENTISTRY

- **Dentures and implants** — Patients with SS may have more difficulty wearing dentures because of the decreased moisture in the mouth. No systematic clinical trials have addressed this question. In general, dentures cannot replicate the efficiency and comfort of natural teeth. There are scattered case reports regarding the ability of patients with SS to handle implants. The majority of reports for patients with SS

appear favorable, but do not provide long-term follow-up [41]. Decisions regarding use of implants in a given patient with SS should be made on an individual basis, and the limited evidence should be acknowledged. **NOTE: Au, what do you recommend re: dentures and re: implants and in whom? I recommend discuss with their dentist! PC**

- **Brightening products** — The safety of home products for whitening or brightening of teeth in patients with dry mouth and salivary gland dysfunction has not been studied, and use of such products should be avoided by patients with SS. There may be increased risk from the acidity of some over-the-counter products designed for use in patients with normal salivary flow and content. If professionally applied whitening processes are considered, the use of a remineralizing solution containing calcium phosphate and a fluoride treatment may be beneficial in conjunction with a bleaching treatment. Such procedures should only be performed after consultation by the patient with their dry mouth dentist.

ORAL CANDIDIASIS — Oral candidiasis is a common complication of SS, which may occur in over a third of patients [42,43]. Symptoms include a painful mouth, sometimes with a burning sensation, and sensitivity to spicy or acidic foods. Oral candidiasis is particularly frequent following antibiotic treatment or the use of glucocorticoids. (See "Clinical manifestations of oropharyngeal and esophageal candidiasis").

Findings in SS patients with oral candidiasis include diffuse or patchy erythema and, less often, white patches on the mucosal surfaces. The tongue, buccal mucosa, palate, lips and the corners of the lips may be affected. There may be loss of tongue papillae. Angular cheilitis and atrophic changes of the buccal mucosa are common manifestations in SS [43].

In patients with SS and oral candidiasis, several particular factors require consideration. Because most antifungal preparations for oral use contain sugar to improve taste, such agents should not be used immediately before bed without a thorough tooth brushing. An alternative preferred by some experts is use of topical Nystatin Vaginal tablets (100,000 units/tablet) sucked on like a lozenge three to four times/day for seven to ten days [5]. These tablets do not contain fermentable carbohydrate in the carrier. **NOTE: Au, what do you suggest first, and next? Start with nystatin oral suspension 100,000 U/ml; 4 times**

daily after food for 7 days. Or go for miconazole oral gel (sugar free, 24 mg /ml = 20 mg / g) 5-10 mls 4 times daily, held in mouth before swallowing (UK trade name "Daktarin"). Then amphotericin lozenges 10 mg 4 times daily PC

There is some concern that in patients with severe salivary dysfunction that insufficient local (salivary) levels of medication may be reached with use of systemic medications. Thus, in dry mouth patients who do not respond adequately to systemic medications within seven to ten days, switching to a topical oral antifungal is suggested [5]. (See "Treatment of oropharyngeal and esophageal candidiasis", section on HIV-seronegative patients). **NOTE: Au, do you agree? Yes PC**

OTHER SICCA SYMPTOMS — Sicca symptoms other than dry eyes and dry mouth are also treated symptomatically.

- For dry lips, we suggest lip salves or petroleum jelly.
- For dry skin, we suggest moisturizing lotions and bath additives.
- Preparations for vaginal dryness include vaginal moisturizers (eg, Replens), vitamin E oil, cream or capsules. Topical vaginal estrogens may be helpful in preventing or treating dyspareunia. (See "Clinical manifestations and diagnosis of vaginal atrophy").

Nasal dryness — Nasal dryness should be considered in conjunction with xerostomia, since blocked nasal passages increase mouth breathing and exacerbate oral dryness. Saline nasal sprays are available and should be used frequently. We also suggest the use of humidifiers followed by gentle nasal lavage to remove encrusted secretions if needed. The apparently paradoxical finding of rhinitis in a patient with SS may be due to vasomotor rhinitis and often will respond to nasal lavage followed by a glucocorticoid nasal spray. Additional causes of nasal blockage, including nasal polyps and sinus infection, should be sought and treated appropriately.

Laryngotracheal reflux — It is common for SS patients to exhibit symptoms of recurrent sinusitis or allergy such as "post-nasal" drip or frequent "throat clearing" with mucus [44]. Rather than allergic rhinitis and sinusitis, some patients with these complaints have gastroesophageal

reflux that results in laryngotracheal irritation, which stimulates vagal responses that mimic sinusitis. Inappropriate treatment with antibiotics for presumed sinusitis will be ineffective in patients with reflux and increases risk for oral candidiasis. (See "Medical management of gastroesophageal reflux disease in adults").

INFORMATION FOR PATIENTS — Educational materials on this topic are available for patients. (See "Patient information: Sjogren's syndrome").

SUMMARY AND RECOMMENDATIONS — Both local and systemic medical therapies may be used in the treatment of SS. Regardless of disease severity, most patients benefit from close coordination of rheumatologic, primary and other specialty care and ongoing care by an ophthalmologist and dentist with an interest in SS. Comprehensive patient education should include self-management strategies for treatment of dry mouth symptoms, oral hygiene, and recognition of symptoms requiring medical attention. (See "General principles" above).

- Treatment of dry mouth due to salivary gland dysfunction should be directed towards alleviating symptoms and preventing complications such as dental caries, periodontal disease, and oral candidiasis. The following are indicated:

- Maintenance of good hydration
- Avoidance of medications that worsen dryness
- Avoidance of oral irritants (eg, coffee, alcohol, and nicotine)
- Avoidance of acidic drinks (eg, carbonated beverages and juices)
- Taking regular sips of water and drinking sugar-free liquids
- Use of sugar-free stimulants of salivary flow
- Meticulous oral hygiene and regular dental care

(See "Basic measures" above and see "Topical stimulation of salivary flow" above).

- We suggest the use of a systemic sialogogue, pilocarpine or cevimeline, in patients who do not achieve sufficient salivary excretion with topical stimulants and some residual excretory capacity (**Grade 2B**). Choice of medication is determined by individual factors, including cost, convenience, clinical response, and tolerance of adverse effects such as

sweating. These medications are contraindicated in patients who are pregnant, have a history of uncontrolled asthma, or have acute iritis, narrow angle glaucoma, or severe hepatic impairment. They should be given with caution to patients with other disorders, including unstable cardiovascular disease and chronic airway disorders. (See "Muscarinic agonists" above).

- We suggest the use of artificial saliva to help relieve symptoms temporarily in patients with moderate to severe salivary dysfunction who do not receive sufficient benefit from stimulants of salivary flow or water (**Grade 2C**). Several different products should be tried if a particular substitute is not acceptable. (See "Artificial saliva" above).

- Development of dental caries is a major problem in patients with dry mouth, who are especially prone to root and incisal caries, rather than coronal caries. Meticulous self-care, frequent visits to the dentist, and plaque control are necessary but not sufficient. (See "Prevention of dental caries" above).

- Oral hygiene and self-care should include use of dental floss after meals and fluoride either as toothpaste or a mouth rinse daily; avoidance of sucrose, carbonated beverages, juices, and water with additives; and use of toothpastes specifically designed for dry mouth. (See "Oral hygiene and self-care" above).

- Dental professional care should include frequent cleanings and use of minimally invasive dental techniques to treat lesions early and prevent need for restorative care; guidance regarding home self-care and oral hygiene; prescription, where indicated, of calcium, phosphate, and fluoride preparations, including mouthwashes, toothpastes, and gels; and may include use of fluoride varnishes or topical fluoride after each professional cleaning. (See "Dental professional care" above).

- Oral candidiasis is common in patients with SS and should be suspected in patients with pain, burning or increased sensitivity. Findings of typical white patches are less frequent in SS and disease-specific considerations may influence choice of therapies. (See "Oral candidiasis" above).

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