FAST FACTS AND CONCEPTS #182
XEROSTOMIA

Gary M Reisfield MD, Drew A Rosielle MD, and George R Wilson MD

Background  Xerostomia (dry mouth) is a common symptom at the end of life – affecting more than 75% of hospice patients – and is a cause of significant morbidity and diminished quality of life. This Fast Fact will review the causes and treatments of xerostomia.

Salivary Functions  include hydration, lubrication, and antimicrobial defense of the oral mucosa. Decreased salivation can lead to oral pain; accelerated dental morbidity; oral infections, fissures, and ulcerations; halitosis; alteration in taste and enjoyment of food; chewing and swallowing difficulties; nutritional impairment; trouble producing intelligible speech; and denture-related problems. Xerostomia is usually—although not always—associated with diminished salivary secretion (hyposialia).

Etiologies
• Medications  with anticholinergic activity are the most common pharmacologic causes of xerostomia; these include many antiemetics, antihistamines, antipsychotics, antispasmodics, antidepressants (especially the tricyclics), and bronchodilators. Sympatholytics are also common culprits, including alpha-blockers (e.g. terazosin), alpha-2 agonists (e.g. clonidine), and beta-blockers (e.g. metoprolol). Medication-induced xerostomia may also result from direct interference with or damage to salivary tissue (as with some cancer chemotherapies). Opioids and benzodiazepines cause dry mouth, although the mechanisms are not known.
• Radiation  for head and neck malignancies.
• Medical comorbidities  such as HIV/AIDS, diabetes, renal failure, and Sjögren’s syndrome.
• Psychiatric comorbidities  such as mood and anxiety disorders.
• Dehydration  from any cause including drug-induced.

Treatment
• Address underlying causes. Eliminate unnecessary drugs or substitute less drying ones. If this is not feasible, titrate to lowest effective dose or modify dosing schedule. Replacing immediate-release with controlled-release formulations of some drugs may help (e.g. with oxybutynin and tolterodine for overactive bladder).
• Stimulate residual gland function.
  o Sugarless gums and candies  can stimulate salivary reflexes. Products sweetened with xylitol are anticirogenic; those containing vitamin C may reduce salivary viscosity.
  o Cholinergic agonists  such as pilocarpine and cevimeline. Therapeutic effect is rapid for drug-related xerostomia; latency is greater (often 8-12 weeks) for xerostomia related to radiotherapy. Pilocarpine is started at 5 mg po tid and can be titrated to 10 mg po tid. Cevimeline is dosed at 30 mg po tid. Urinary frequency, dizziness, and sweating are common side effects and may be attenuated with intake of dairy products. These agents are contraindicated in asthma, acute iritis, and narrow-angle glaucoma, and should be used with caution in COPD and cardiac disease.
• Saliva substitutes. Most have limited efficacy; many patients find frequent sips of water more useful and convenient. Topical products containing olive oil, betaine, and xylitol have been found effective for medication-induced xerostomia (e.g. Xerostom® products). Newer products with enzyme systems such as lactoperoxidase, lysozyme, and glucose oxidase (e.g. Biotène® Oralbalance Dry Mouth Gel) —offer potential antimicrobial and moisturizing benefits. Due to limited duration of action, they may be particularly useful before eating, speaking, and sleeping. Recently, custom oral appliances with artificial saliva reservoirs have become available and may be particularly useful at night.
• Encourage oral hydration. Humidifiers, especially during sleep, may also be helpful.
• Optimize oral hygiene.
  o Antimicrobial mouthwashes (alcohol-free). Chlorhexidine gluconate oral rinse, USP 0.12%, twice daily, may be effective in preventing dental caries and oral infections.
Most toothpaste products contain the surfactant sodium lauryl sulfate (SLS), which can irritate dry mucosa and inactivate the enzyme systems of the newer artificial salivas. Biotène® Dry Mouth Toothpaste contains salivary enzymes and is SLS-free.

References


Fast Facts and Concepts are edited by Sean Marks MD (Medical College of Wisconsin) and associate editor Drew A Rosielle MD (University of Minnesota Medical School), with the generous support of a volunteer peer-review editorial board, and are made available online by the Palliative Care Network of Wisconsin (PCNOW); the authors of each individual Fast Fact are solely responsible for that Fast Fact’s content. The full set of Fast Facts are available at Palliative Care Network of Wisconsin with contact information, and how to reference Fast Facts. Copyright: All Fast Facts and Concepts are published under a Creative Commons Attribution-NonCommercial 4.0 International Copyright (http://creativecommons.org/licenses/by-nc/4.0/). Fast Facts can only be copied and distributed for non-commercial, educational purposes. If you adapt or distribute a Fast Fact, let us know! Disclaimer: Fast Facts and Concepts provide educational information for health care professionals. This information is not medical advice. Fast Facts are not continually updated, and new safety information may emerge after a Fast Fact is published. Health care providers should always exercise their own independent clinical judgment and consult other relevant and up-to-date experts and resources. Some Fast Facts cite the use of a product in a dosage, for an indication, or in a manner other than that recommended in the product labeling. Accordingly, the official prescribing information should be consulted before any such product is used.