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| **Name**: Audrey Chu |
| **Group**: 2A-2: Xerostomia |
| **Pathology Question:** |
| What is the etiology and treatment of medication-induced xerostomia? |
| **Report:** |
| Xerostomia is defined by the sensation of a dry mouth which can occur when an individual has reduced salivary flow. It can also occur when an individual has normal salivary flow but still has the sensation of a dry mouth. Most often it occurs with cases where there is reduced salivary flow. Those who suffer from xerostomia can experience difficulty swallowing, chewing, and speaking, as well as, altered taste. In addition, xerostomia can cause morphological changes, such as burning mouth syndrome, halitosis, dry buccal mucosa, glossitis, and a higher risk for oral candidiasis and dental caries. Many elderly patients who require medication for the management of systemic disease suffer from xerostomia due to polypharmacy. According to Millsop et al, about 400 different medications affect salivary gland function and lead to hyposalivation. Xerostomia is a common side effect of drugs that are designed to decrease activity of the parasympathetic nervous system, such as parasympatholytics, cholinolytics, and anticholinergics. These classes of drugs are muscarinic receptor antagonists, so they prevent acetylcholine from binding to muscarinic receptors which will decrease the stimulation of the parasympathetic nervous system and cause effects, such as decrease salivation. Medications that fall under these drug mechanisms are antihistamines, antidepressants, antipsychotics, sedative agents, and antihypertensive medications (which include angiotensin-converting enzyme inhibitors, calcium channel blockers, diuretics, alpha-agonists, and beta blockers). Head and neck radiation therapy can cause xerostomia, as well. The acinar and stem cells within salivary glands can be damaged by the radiation and when a patient is exposed to large doses, glandular atrophy and fibrosis can occur causing decreased salivary secretion.  When managing xerostomia, staying hydrated and maintaining good oral hygiene is important. This will help to reduce the dryness experienced and will help to prevent the manifestation of caries. Making adjustments to the medications that a patient is taking is another way to reduce drug-induced xerostomia. If a change in the medication cannot be done, then additional agents can be used. Topical medications are the first to be recommended. These include chewing gums, candies, salivary stimulants, and saliva substitutes. Chewing gums and candies are sugar-free to prevent the development of caries. Salivary stimulants, such as toothpaste and mouthwash will increase salivary activity. Salivary substitutes are similar to natural saliva which allows them to function similarly to saliva. Common drugs taken to treat xerostomia are sialagogues. However, in the case of drug-induced xerostomia, sialagogues, such as oral pilocarpine and cevimeline, are not recommended because they are direct acting muscarinic agonists. That means that these drugs are going to do the opposite of the anticholinergics (common drugs that cause xerostomia). Sialagogues should be avoided if the patient is experiencing drug-induced xerostomia due to the use of anticholinergics. In other words, the sialagogues will decrease the effects of the anticholinergic drugs, which includes the therapeutic effects, which will put the patient at risk for aggravating their systemic condition. As a result, the best management of drug-induced xerostomia would be to change the patient’s medication or use topical medications to induce salivary function. |
| **References:** |
| Millsop, Jillian W., et al. “Etiology, Evaluation, and Management of Xerostomia.” *Clinics in Dermatology*, Elsevier, 27 June 2017, www.sciencedirect.com/science/article/pii/S0738081X17301062.  Villa, A., Wolff, A., Aframian, D. *et al.* World Workshop on Oral Medicine VI: a  Systematic review of medication-induced salivary gland dysfunction: prevalence, diagnosis, and treatment. *Clin Oral Invest* 19, 1563–1580 (2015). https://doi.org/10.1007/s00784-015-1488-2 |