Critically Appraised Topic (CAT)

Project Team:
2A-2
Project Team Participants:
Turner Schmidt, Madelyn Zastrow, Carly Schaefer, Ian Soto, Audrey Chu
Clinical Question:
How does xerostomia affect denture fit?
PICO Format:
P:
Patients with medication induced xerostomia
I:
Maintain medications and treat xerostomia
C:
Changing the medications
O:
Affect on quality of life
PICO Formatted Question:
For patients with medication induced xerostomia, is changing medications or primarily treating the xerostomia more effective in improving the patients quality of life?
Clinical Bottom Line:
Changing medications to treat a patients xerostomia has not been a common practice. Management of xerostomia may be performed in combination of therpaetuic products according to the patient's concerns, preferences and oral health requirements.
Date(s) of Search:
9/20 and 9/21
Database(s) Used:
Pubmed.gov **The Journal of the American Dental Association** **American Dental Association**
Search Strategy/Keywords:
Studies containing information on the treatment and management of xerostomia, particularly related to medication induced xerostomia.
MESH terms used:
Xerostomia/ therapy, dental caries/ prevention and control, life style, saliva
Article(s) Cited:
1. Shetty SR, Bhowmick S, Castelino R, Babu S. Drug induced xerostomia in elderly individuals: An institutional study. *Contemp Clin Dent*. 2012;3(2):173-175. doi:10.4103/0976-237X.96821

2. Alsakran Altamimi M. Update knowledge of dry mouth- A guideline for dentists. *Afr Health Sci*. 2014;14(3):736-742. doi:10.4314/ahs.v14i3.33
3. Assery MKA. Efficacy of Artificial Salivary Substitutes in Treatment of Xerostomia: A Systematic Review. *J Pharm Bioallied Sci*. 2019;11(Suppl 1):S1-S12. doi:10.4103/jpbs.JPBS_220_18

Study Design(s):

1. Cross-Sectional Study
2. **Systematic Review of Cohort**
3. **Systematic Review**

Reason for Article Selection:

1. It relates gives confirmation about her reduced salivary flow and a good start to treatment options for the patient. The article also relates to part of the PICO question.
2. **It provides easy access to all the information that has been published on this topic within last 10 years. It also shows us as dentist how much more research needs to and can be done in this field.**
3. **The patient is on many medications and changing medications for her might not be the best option. Finding a therapetuic intervention for her could be of great help to her.**

Article(s) Synopsis:

1. The aim of this study (Drug Induced Xerostomia in elderly individuals) was to evaluate the synergistic effects of multiple xerostomia drugs. A cross-sectional study involving 60 patients above the age of 60 years were divided into three groups. Group A was patients without any systemic disease and long-term medication. Group B was patients with intake of a single drug known to cause xerostomia and group C was patients with intake of more than one drug known to cause xerostomia. Exlusion criteria included: salivary gland aplasia, Sjogren syndrome, sarcoidosis, head and neck radiotherapy, chemotherapy or surgery. The unstimulated saliva was collected from each patient using the spit method from 8 am to 2 pm. Consumption of food and beverages, chewing gum, brushing their teeth and using any form of tobacco was stopped 2 hours prior to collection. The evidence was collected by mean unstimulated salivary flow (USFR) (in ml/5min), a xerostomia questionnaire, and a quality of life questionnaire. The results from the USFR were Group A 1.58 +/- 0.23, Group B 0.70 +/- 0.34 and Group C 0.27 +/- 0.21. As medications increased salivary flow rate decreased and showed stastically significant evidence. The same results occurred for both the xerostomia questionnaire and the quality of life questionnaire.
2. **The aim of this study was to do a review of the updated literature on dry mouth. A pubmed search was done in the past 10 years using the words: dry mouth, causes, symptoms, treatment and dentistry. A large number of papers were identified and papers not relevant to the to the issue were removed. From the review there is no**

clearly established protocol for the treatment of dry mouth. Most of the papers were systematic reviews, non-systematic reviews and observational studies. The most studied patients were Sjogren's syndrome and irradiated patients. Treatments are focused on the etiology, prevention, symptoms, local salivary stimulation and systemic and topical sialogogues including anticholinesterases and cholinergics. It can be concluded that there is no clear evidence for the treatment of dry mouth and the majority of dental practitioners refer to a specialist. Treatment must be individualized and salivary substitute along with mechanical stimulation techniques can be applied.

3. **The aim of this study was to provide an artificial saliva used to maintain the health of the oral cavity of patients with severe hyposalivation. A literature search was conducted in April 2018 in three electronic databases by combinging keywords and terms related to the population and intervention of the topic. Due to the lack of evidences it was difficult to conclude the most effective product or intervention. The studies were categorized under studies conducted on subjects with drug induced xerostomia, studies conducted on subjects with radiation-induced xerostomia and others. It was found that the studies were carried out on different artificial saliva products and therefore it is challenging to reach a definite conclusion. Although all published studies suggested that the tested products reduced signs and symptoms of xerostomia.**

Levels of Evidence: (For Therapy/Prevention, Etiology/Harm)
See http://www.cebm.net/index.aspx?o=1025

☒ **1a** – Clinical Practice Guideline, Meta-Analysis, Systematic Review of Randomized Control Trials (RCTs)
☐ **1b** – Individual RCT
☒ **2a** – Systematic Review of Cohort Studies
☐ **2b** – Individual Cohort Study
☒ **3** – Cross-sectional Studies, Ecologic Studies, "Outcomes" Research
☐ **4a** – Systematic Review of Case Control Studies
☐ **4b** – Individual Case Control Study
☐ **5** – Case Series, Case Reports
☐ **6** – Expert Opinion without explicit critical appraisal, Narrative Review
☐ **7** – Animal Research
☐ **8** – In Vitro Research

Strength of Recommendation Taxonomy (SORT) For Guidelines and Systematic Reviews
See article **J Evid Base Dent Pract 2007;147-150**

☒ **A** – Consistent, good quality patient oriented evidence
☒ **B** – Inconsistent or limited quality patient oriented evidence

☐ **C** – Consensus, disease oriented evidence, usual practice, expert opinion, or case series for studies of diagnosis, treatment, prevention, or screening
Conclusion(s):
For patients with dry mouth, a systematic and multifactorial management strategy between the dentist, physician and the patient should be used. To start, a detailed health history will facilitate early detection and underlying causes if the problem is not known. Second, collaboration with the physician should include the patient's condition and medication use. Third, preventative measures recommended by the dentist should include salivary stimulants, fluoride interventions, and awareness of increased oral hygiene need. Lastly, the patient needs to stay on top of their oral hygiene and be active in the treatment process too. This multifactorial approach will all help to alleviate symptoms for the patient and prevent dental caries, periodontal disease, halitosis, and oral candidiasis. Treatment for dry mouth needs to be done on a case to case basis as not every patient will respond the same.