

“Sjogren’s syndrome and Osteoporosis”

Anjani Joshi  
Clara Kim  
Judy Kuang  
Sylvia Gines  
Victoria Hsu

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Our immune system is designed to defend our bodies from invading microorganisms. When our immune system is working normally our bodies are in tune. Unfortunately, sometimes our own body can make a mistake and destroy the cells that were meant to help protect us. This can lead to several autoimmune diseases. One of the diseases oral health care providers should be aware of is Sjogren's syndrome which is an autoimmune disease that attacks the exocrine or secretory gland and primarily causes dry mouth and dry eyes. On average it takes about five years to be properly diagnosed with this disease due to it mimicking many other autoimmune diseases. The diagnosis of Sjogren's syndrome is based on the synchronous existence of multiple oral signs and symptoms of the disease. The leading complication of the Sjogren's syndrome is xerostomia and dental caries due to the lack of saliva being produced in the salivary glands. Another common and painful complication is oral candidiasis because of the inability to remove bacteria from tooth surfaces by chewing, tongue movement and salivary flow. The most serious complication that can occur is Non-Hodgkin lymphoma which can be life threatening if not treated in a timely manner. There is no cure for Sjogren's syndrome, so it is imperative for oral health care professionals to be informative of the best treatment to reinstate the oral pH and modulate the microbes in the mouth to avoid colonization of bacteria. There must be a personalized treatment plan made with their health care professionals to treat multiple symptoms. According to the article "*Sjogren's Syndrome: Oral Manifestations and treatment, a Dental Perspective*", stated that an oral health treatment plan should include the patient brushing 2 to 3 times a day with a prescription fluoride gel containing 1.1% sodium fluoride, or demineralizing dentifrice. Interdental aids such as a waterpik or proxy brush in addition to flossing. A complement of chemotherapeutic agents such as salivary substitutes and saliva stimulants. Most importantly the patient should have the minimum of 3-4 months recall visits.

Osteoporosis is a condition that causes bones to become brittle and less dense. It affects all parts of the body and makes bone more likely to fracture. The rate of bone resorption is faster than the rate of bone formation. Osteoporosis occurs more frequently in females and elderly people. The alveolar process

in our jaw is affected by this condition and may result in tooth mobility or tooth loss. Other dental problems arise from osteoporosis too, ill-fitting dentures and less optimal oral surgery outcomes are examples. Periodontal disease also affects bone density. Both osteoporosis and periodontal disease have common risk factors such as smoking, poor nutritional status, age and immune deficiency. With the alveolar process less mineralized from osteoporosis it is more likely to be prone to disease from periodontal bacteria. Some studies suggest that osteoporosis is a risk factor for the progression of periodontitis. The periodontal pathogens will cause an inflammatory response for the connective tissue and bone around the tooth and this will lead to bone resorption. Resorption of the alveolar bone has effects on clinical periodontal parameters, such as probing depth and clinical attachment loss. Dental radiographs can be a good way of determining if the patient is suffering from osteoporosis because bone density will show up on the radiograph.

Dental Hygiene Treatment plan:-

CC: Dry mouth, Dry eyes.

Age: 80 Y/F. Type III. Currently taking Actonel, Plaquenil, Pilocarpine. Patient presents Sjroger's syndrome and osteoporosis. ASA III.

First Visit: Patient education by demonstrating the brushing technique adequate for her needs and Since, dry mouth can cause caries treatment alternatives can be Listerine total care for anti cavity.

Request for FMS radiograph. Root Scale Quadrant 1 , because of having dry mouth. For pain management, topical anesthesia will be provided for patient.

Second visit: Re-evaluate the previous scaling and assess gingival appearance. Introduce patient to interdental aids. In alternative for the previous mouthwash would be Biotene. Interpret radiographs to patients, explain any abnormal findings. Rescale if needed, also scale Quadrant 2. For pain management topical anesthesia would be provide.

Third Visit: Re-evaluate the previous scaling and gingival appearance on quadrant 1 and 2. Ask patient to demonstrate previous patient education methods taught on the previous visit. Scale Quadrant 3 and provide topical anesthesia for pain management.

Fourth visit: Re- evaluate all the 3 quadrants and reassess gingiva. Ask patients for any changes in health and oral discomforts. Finish scaling the remaining quadrant. Recall the patient for 3 months revisit.

Actonel is a pyridinyl bisphosphonate that inhibits osteoclast-mediated bone resorption and modulates bone metabolism. Actonel helps make healthy bone and to slow bone loss in patients with Paget's disease of bone and osteoporosis. Bone is continually being formed and dissolved. New bone is laid down by cells called osteoblasts while old bone is removed by cells called osteoclasts. Bisphosphonates strengthen bone by inhibiting bone removal (resorption) by osteoclasts. By slowing down the rate at which bone is dissolved, risedronate increases the amount of bone. It reduces calcium loss from bones. Some common side effects are heartburn, indigestion, stomach pain, diarrhea, back pain, joint pain, muscle pain symptoms. These symptoms may begin when you first start taking the drug, or after you have been using it for years.

Before taking Actonel, it is recommended that one should inform their doctor if they have or ever had difficulty swallowing, problems with their esophagus, ulcers, heartburn, low levels of calcium in the blood, anemia, cancer, any type of infection in the mouth (teeth, or gums), blood clotting, dental diseases, kidney disease, vitamin D deficiency and allergies to medications. Actonel may cause serious jaw problems, especially if you have dental surgery or other dental treatments while taking this medication. In a dental setting, a patient should be examined prior to taking Actonel. While taking Actonel, it is best recommended to brush, floss and clean teeth and mouth.

The generic name for plaquenil is Hydroxychloroquine and it is used to prevent or treat malaria infections caused by mosquito bites. Other uses for this medication is to treat certain autoimmune diseases such a lupus and swelling or pain from rheumatoid arthritis. Plaquenil is a disease modifying anti-

rheumatic drug. There is a high prevalence of people who take plaquenil have periodontal disease. This is because a bacteria, *P. gingivalis*, is associated with periodontal disease which is a risk factor for developing autoimmune antibodies for rheumatoid arthritis. Studies suggest that plaquenil interferes with cell communications in the immune system. As a result, people with rheumatoid arthritis have severe periodontitis or tooth loss. Rheumatoid arthritis causes stiff and painful hands which leads to a difficult oral homecare. Having a difficult homecare with this condition, plaquenil will suppress the immune system by hindering the body's ability to fight harmful bacteria in the mouth. Research has been done to show that if rheumatoid arthritis is treated then periodontal disease will be improved.

Pilocarpine is a medication that used to treat symptoms of dry mouth due to a certain immune disease such as Sjogren's syndrome or from salivary gland damage due to radiation treatment of the head and neck for cancer. Pilocarpine belongs to a class of drugs known as cholinergic agonists. It works by stimulating certain nerves to increase the amount of saliva you produce, making it easier and more comfortable to speak and swallow. This medication may reduce your need for other oral comfort agents, such as hard candy, sugarless gum, or artificial saliva agents. Who should not use pilocarpine? You should not use pilocarpine if you have narrow-angle glaucoma, or asthma that is untreated or uncontrolled. Some side effects of pilocarpine are excessive sweating (diaphoresis) which is a frequent side effect; nausea, runny nose, chills, flushing, frequent urge to urinate, dizziness, weakness, diarrhea, and blurred vision. If any of these effects persist or worsen, a visit to the doctor or pharmacist is best to resolve the complications. This medication may cause an increase in tears which can be helpful if you have dry eyes (such as with Sjogren's syndrome). It is important that you visit your dentist regularly even though this medication may make your dry mouth feel better. Having xerostomia makes you more likely to have dental problems.

## References

1. Cartee, D. L., RDH, MS, Dalonges, D., RDH, BS, Maker, S., RDH, BS, & Manski, M. C., RDH, MS. (2015). Sjögren's Syndrome: Oral Manifestations and Treatment, a Dental Perspective. *Sjögren's Syndrome: Oral Manifestations and Treatment, a Dental Perspective*, 89(6), december, 365-371. Retrieved March 25, 2019.
2. Detert, J., Klaus, P., Listing, J., Höhne-Zimmer, V., Braun, T., Wassenberg, S., Burmester, G. R. (2014). Hydroxychloroquine in patients with inflammatory and erosive osteoarthritis of the hands (OA TREAT): study protocol for a randomized controlled trial. *Trials*, 15, 412. doi:10.1186/1745-6215-15-412
3. Rutger, Persson G. (2012). Rheumatoid arthritis and periodontitis - inflammatory and infectious connections. Review of the literature. *Journal of oral microbiology*, 4, 10.3402/jom.v4i0.11829. doi:10.3402/jom.v4i0.11829
4. Esfahanian, V., Shamami, M. S., & Shamami, M. S. (2012). Relationship between osteoporosis and periodontal disease: review of the literature. *Journal of dentistry (Tehran, Iran)*, 9(4), 256–264.
5. Wang, C. J., & McCauley, L. K. (2016). Osteoporosis and Periodontitis. *Current osteoporosis reports*, 14(6), 284–291. doi: 10.1007/s11914-016-0330-3
6. <https://www.rxlist.com/actonel-drug.htm> (need to cite this properly- pls girl whose this do it)
7. <https://reference.medscape.com/drug/actonel-risedronate-342835> (this also)
8. Pilocarpine (Oral Route) Description and Brand Names. (2019, February 01). Retrieved from <https://www.mayoclinic.org/drugs-supplements/pilocarpine-oral-route/description/drg-20065496>
9. Retrieved from <https://www.mayoclinic.org/drugs-supplements/pilocarpine-oral-route/side-effects/drg-20065496> 3. Pilocarpine (oral). (n.d.). Retrieved from <https://www.uofmhealth.org/health-library/d04031a1>