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Treatment Planning Assignment

A 45 year-old male patient named Hartley Pehn presented for a routine dental cleaning. Medical history was reviewed with the patient and the following systemic conditions and medications were reported by the patient: AIDS, Oral cancer, Acylovir (800mg), and HAART medication. Upon further interviewing the patient, he reported that his most recent CD4 count was 195 cell/mm3 and viral load at 50 copies/mL. The patient reports having AIDS for the past 2 years and listed 04/03/2017 as the date of his first positive HIV test. The patient was diagnosed with oral cancer on 03/03/2018. He did not report any allergies, social drinking, drug use or changes to his overall health.  Mr. Pehn signed an informed consent allowing the dental clinic to contact the patient’s primary care physician to confirm all medical history findings reported by the patient, and to further discuss potential dental treatment. The patient last visited his primary care physician on 03/04/2019 and, he did not report any other sexually transmitted disease, tuberculosis or hepatitis which could impact treatment. Review of the patient’s dental history revealed that the patient experiences occasional mild xerostomia. Mr. Pehn patient also reported that he did not feel confident about his oral health, and his last dental hygiene visit was 2 years ago at an undisclosed location and his last radiographs were taken at this appointment. The patient did not have copies of the radiographs.

To most accurately and efficiently begin treatment planning, it is necessary to review the patient’s medical history as related to the two systemic conditions listed and the two medications taken. AIDS is defined as being the most severe stage of HIV infection. Patients with AIDS have such badly damaged immune systems that they are at an increased risk of opportunistic infections.  Whereas Oral cancer is a cancer which begins in the oral cavity as a growth and soreness in the mouth region. Dental hygienists and dentists are usually the first to detect this cancer which presents as red or white plaques on the oral mucosa, pain or numbness in mouth or lips, and sore or irritation which last for long periods of time

The first medication listed by the patient, Acyclovir, is an antiviral agent used to treat infections caused by viruses such as herpes simplex virus 1 and 2 and varicella zoster. It commonly used for the treatment of AIDS/HIV. Acyclovir works by stopping the growth of the viruses that cause the infection. This medication reduces the severity of the infection and stops it from spreading. It helps the infection heal faster and lessens pain and itching. Acyclovir does not kill the virus, the viruses that cause these infections continue to live in the body. This medication is also used to prevent viral infections in patients with a weakened immune system, such as those receiving cancer medication (chemotherapy). There is no information available indicating the need for special precautions in regards to local anesthetic or vasoconstrictor usage. There are also no significant bleeding effects/complications reported to occur with dental treatment.

  HAART (Highly Active Antiretroviral Therapy) medications refer to the combination of three or more antiretroviral drugs used to treat HIV infection. They work by stopping the virus from replicating itself at different points in its life cycle. This reduces damage caused to the immune system and slows down the development of HIV into AIDS. It also helps prevent the transmission of HIV to others through sexual activity, as well as from mother to child during birth. HAART medications do not cure AIDS, they only provide treatment for HIV. The main adverse side effects of HAART medications include Erythema, xerostomia, and taste disturbance. These side effects may create discomfort but dental treatment can still be provided to these patients. As such, there are no implications on dental treatment with the usage of HAART medications.

  Patients with HIV and Oral cancer have an increased risk of developing lesions in the oral cavity. For this reason, a thorough intra-oral and extra-oral examination is necessary before treatment planning for the aforementioned patient. Intra-oral examination findings can include xerostomia, white hairy leukoplakia, thrush, red band gingivitis (linear gingival erythema) associated with HIV, ulcerative gingivitis or periodontitis (NUG/NUP), Kaposi's Sarcoma, outbreaks of the herpes simplex virus, and aphthous ulcers. Therefore, if any oral manifestations of HIV are present during examination, the first priority is to relieve pain and treat infections.

  Treatment planning for HIV and Oral Cancer patients follows the same sequence followed with patients without these systemic diseases. Treatment should prioritize the alleviation of pain, function restoration, prevention of further disease and lastly, aesthetic considerations. The patient’s ability to withstand treatment and continue to receive treatment is an important factor taken into consideration when treatment planning as both systemic disease reported by the patient can cause fatigue and general weakness. As with all patients, Mr.Pehn’s ability to understand and follow dental care instruction should also be considered. Infection control should also be followed as with other patients by following Standard Precautions since HIV can be transmitted through blood, bodily fluids, and secretions other than sweat.

Following the review of the patient’s medical history, an intraoral and extraoral examination was performed. The intraoral examination revealed a 2mm aphthous ulcer on the attached gingiva adjacent to #5 and a two white 4mm plaques on the right side of the tongue.  The visit was ended upon these findings and the patient was referred to a pathologist. The patient returned for a second visit a week later to further investigate previous findings. The pathological results of the lesions detected in the first visit was that the white lesions were related to the patient’s oral cancer and the aphthous ulcer had resolved.

All teeth were present except for maxillary and mandibular third molars in dental charting.  The patient had generalized areas of decay and attrition on the anterior teeth. The patient also had generalized pocket depths of 5-6mm, and generalized bone loss with grade II furcations which were detected using the Nabers Probe. The patient’s gingiva was erythematous, shiny, and not resistant, with marginal inflammation and bleeding upon probing. These findings were indicative of Type III periodontitis. To verify the findings, the patient had a full-mouth series exposed. These radiographs showed 33% radiographic bone loss. There was also moderate CAL at 4mm. Evidence of Necrotizing Ulcerative Periodontitis was not evident as there was no sloughing or papillary ulceration. The patient did not have soft tissue cratering or interproximal necrosis which is indicative of NUP. The patient had moderate calcareous deposits and moderate staining.

Based on all these findings the treatment plan for the patient will include as a priority, patient comfort and pain relief. Next, the prevention of further disease and lastly esthetic considerations. Through debridement, irrigation, calculus removal, and bacterial interruption, the prevention of disease progression will be established. To accomplish this, the treatment plan will include giving the patient home care education. The patient will first be taught the Bass tooth brushing method to interrupt the accumulation of biofilm on the teeth. After mastering the tooth brushing technique, the patient will taught to use at home irrigation systems. Irrigation will be demonstrated so that the patient can routinely irrigate at home. Calculus debridement will be completed in three visits following the initial visit. During the first visit patient will be taught the Bass tooth brushing method. Then the upper right quadrant will be scaled, followed by the second quadrant during the next visit, then the third and so progressively until all quadrants are scaled. Irrigation will be provided at each of these visits and recommended to the patient for at home use. Measures to ensure the patient’s comfort will be taken by communicating with the patient, and also using 10% povidone-iodine rinse. Using this rinse will help increase patient comfort, decrease bleeding and provide antimicrobial activity against bacteria and fungi. Doing so will improve periodontal healing. This rinse also provides some relief that topical anesthesia provides. If the patient continues to feel discomfort, topical anesthesia can be used. If topical is not strong enough to relieve the patient’s pain then local anesthesia can be provided since there are no contraindications to using local anesthesia on patients unless they are known to have a history of poor hemostasis. The same patient pain relief measures will be taken at all subsequent visits. This patient can also receive infiltration as there are no contraindications. Moreover, being that as dental hygienists we cannot prescribe medication to use during treatment, we cannot incorporate antimicrobial prophylaxis into treatment planning by using antibiotics. If working with the dentist, it is up to the dentist or periodontist to determine if the use of antibiotics is necessary. Furthermore, being that the patient has HIV along with Oral Cancer and takes medication to treat these systemic diseases which share a common dental symptom is xerostomia, additional measures will be taken to alleviate patient discomfort. Xersotomia increases the patient’s likelihood of developing caries or getting soft tissue infections, for this reason a salivary substitute such as Biotene Oral Balance or Salivart will be used at every visit. The patient will be recommended to buy an over the counter salivary substitute to decrease dry mouth discomfort and to provide a local defensive barrier. During the last visit the patient will receive engine polishing to remove stain, and to remove any residual biofilm. Air polishing is not recommended because of the aerosols and the large pocket sizes the patient has. Afterwards, a fluoride treatment will be provided using 2% Neutral NaF Gel due to the patient’s moderate caries risk. At the end of each visit the patient will be advised to rinse with warm water and salt. Home care and good oral hygiene will be emphasized throughout the visits. Visits will be scheduled with at least one week apart from each other to allow healing time for the quadrants previously scaled. If all planned visits are completed, the prognosis will be a decrease gingival inflammation, decrease in pocket size, a decrease in plaque accumulation, stain removal, and the prevention of further caries development.

If the patient does not have a periodontist, he will be recommended to visit a periodontist and a dentist. The dentist can provide fillings for the areas of decay, and the periodontist can aid in arresting the patient’s periodontal status from advancing. The patient will be scheduled for a recare visit in 3 months because it is important for periodontal health that a patient with the systemic conditions and Type III Chronic Periodontitis, have professional dental care to interrupt bacterial formation and to prevent the disease from advancing to type IV periodontitis. The patient should have recare appointments every three months after initial treatment. The importance of routine dental professional visits and also following home care instructions will be emphasized to the patient. It will be explained that by having routine 3 month recare visits, and maintaining good oral home care, the patient’s oral discomfort will decrease effects of xerostomia will be minimized and the patient’s oral health to improve.

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**Planned Interventions:**

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| --- | --- | --- |
| **Visits**: | **Educational** | **Therapeutic** |
| #1 | Bass Tooth brushing method | Upper Right Quadrant (Q1):   1. Irrigation 2. Quadrant Scaling/Root Planing |
| #2 | -Reassess patient ability to use previously taught intervention. –Demonstrate irrigation (for at home use)  The patient can use Listerine or OTC antimicrobial rinse of their choice as irrigating liquid | Lower Right Quadrant (Q4)   1. Irrigation 2. Quadrant Scaling/Root Planing |
| #3 | -Reassess patient ability to use the previously taught home care interventions. Modify if necessary. | Upper Left Quadrant (Q2)   1. Irrigation 2. Quadrant Scaling/Root Planing |
| #4 |  | Lower Left Quadrant (Q3)   1. Irrigation 2. Quadrant Scaling/ Root Planing 3. Engine Polishing using appropriate sized grit 4. Fluoride treatment using Neutral 2% Flouride gel. |

**Part II:**

**AIDS:**

The patient is 45 y/o male with AIDS. Patient with AIDs with less than 200 T4 cells counts in the immune system who is more opportunistic infections. The ADA recommends the dental health care plan an important role to be part of all HIV/AIDS treatment plans. To develop an appropriate treatment plan, the patient’s medical histories should be careful to review or consultation with the patient’s physician to obtain information of patient’s health and medication status. A patient with HIV may develop oral manifestations, including candidiasis, dry mouth, white lesion on the sides of the tongue, thrush, red band gingivitis, ulcerative periodontitis, Kaposi's Sarcoma, outbreaks of the herpes simplex virus, canker sores, and mouth ulcers. Therefore, a routinely examine Extra-oral and Intral-oral should be performed, if any oral manifestations of HIV are present, the first priority is to relieve pain and treat infections. Patient with HIV may difficulty consuming a balanced diet due to suffering from changes in taste and decreased the ability to chew and swallow as a result of medication-induced xerostomia. A referral to the patient’s physician or registered dietitian may be necessary. There is no routine antibiotic, it may predispose patients to adverse drug reactions due to patients with AIDs have a higher incidence of allergic reactions to antibiotics and other medications.

Most of the patients with HIV are tolerate to routine dental care and procedures, there is no evidence to support modification in oral health care based solely on the presence of HIV infection. Still, dental treatment planning must be done on an individual basis. A pre-treatment antibacterial mouth rinse to reduce intraoral bacterial counts, a six-month recall schedule should be instituted to monitor any oral changes. Also, poor hygiene may cause progression of oral disease develop rapidly, a proactive attitude and an emphasis on prevention should be encouraged. Dental treatment should be prioritized based on the patient’s health and circumstances.  It’s very important to keep an updated list of a patient’s medication as it may change. Patients taking some antiretroviral medications may suffer from side effect such as photophobia, xerostomia. It’s important to see if any changed necessarily during treatment. Excellent oral hygiene home, topical fluoride and frequent hygiene recall visits, as well as nutritional counseling and saliva enhancers will be critical for the prevention of periodontal disease and dental caries. Patients with HIV have a higher risk of dental caries caused by decreased salivary flow as a side effect of medications. If the patient is a tobacco user, adverse effects of tobacco and cessation should also be discussed with the patient. Infection control for patients with HIV: HIV can be most likely transmission through blood, however, bodily fluids, secretions, and excretions other than sweat may contain transmissible infectious agents. Therefore, it’s important for dental professionals to follow Standard Precautions during dental procedures regardless of the patient was diagnosed with HIV/AIDS.

**Oral Cancer:**

Oral cancer is a growth and soreness in the oral cavity and neck region. There are many signs and symptoms that can be clinically seen. Some are: red or white patches, pain or numbness in mouth or lips, Sore or irritation for a long period of time. During oral hygiene care, oral cancer can be detected in its early stage and the chances of being cured increase. There are many causes of oral cancer; some are tobacco, overexposure of sun, and HPV. HPV vaccines have been made and it is likely to reduce the rates of oral cancer.to lower the risk of getting oral cancer, people should stop smoking, eat a lot of fruits and vegetables, decrease alcohol intake and get regular dental check-up. Patients with suspicious lesions are documented and if it is not recovered in three weeks, the dentist might do a biopsy on it. The common therapies for Oral cancer are surgery, radiation therapy and chemotherapy. Surgery is the removal of tumors. It affects the appearance of oral cavity, makes it difficult to eat, talk and swallow. Radiation therapy is usage of x-ray beam or photons to kill cancer cells. It is either used alone or after performing surgery. The side effects might be dry mouth, tooth decay and damage of jawbone. Chemotherapy is the usage of chemicals to kill cancer cells. It is often combined with radiation therapy. Common side effects for chemotherapy are nausea, vomiting and hair loss.

**Acyclovir** Brand name – U.S. Zovirax | Pharmacologic category – antiviral agent

Aciclovir is used to treat infections caused by viruses, such as herpes simplex virus (which causes [cold sores around your mouth](https://www.healthnavigator.org.nz/health-a-z/h/herpes-simplex-virus/) and [genital herpes](https://www.healthnavigator.org.nz/health-a-z/g/genital-herpes/)) and varicella zoster (which causes [chickenpox](https://www.healthnavigator.org.nz/health-a-z/c/chickenpox/) and [shingles](https://www.healthnavigator.org.nz/health-a-z/s/shingles/)). It works by stopping the growth of the viruses that cause the infection. Aciclovir reduces the severity of the infection and stops it from spreading. It helps the infection heal faster and lessens pain and itching. Aciclovir does not kill the virus. The viruses that cause these infections continue to live in your body. Aciclovir is also used to prevent viral infections in people with a weakened immune system, such as if you are receiving cancer medication (chemotherapy). Aciclovir is available as tablets in different strengths (200 milligrams, 400 milligrams and 800 milligrams). Acyclovir is approved by the Food and Drug Administration (FDA) as a prescription drug.  There is no information requiring special precautions with use of a Local Anesthetic/Vasoconstrictor Precautions. There are no significant effects on dental treatment or bleeding.

**HAART**

HAART is the acronym that stands for highly active antiretroviral therapy. It refers to the combination of three or more antiretroviral drugs used to treat HIV infection. It works by stopping the virus from replicating itself at different points in its life cycle. This reduces damage caused to the immune system and slows down the development of HIV into AIDS. It also helps prevent the transmission of HIV to others through sexual activity, as well as from mother to child during birth. HAART has a twofold effect. It increases the number of immune cells while also decreasing the number of virus cells. HAART is an effective treatment for HIV but it does not cure the condition. Strict adherence to the HAART regimen is crucial. Each class of medication has a specific task and works best when it is combined with another class of medication. The medication should be refilled regularly and is considered a “chronic medication,” which means it should be continued indefinitely.

**HIV/AIDS & Periodontitis**The mouth may be the first part of the body to be affected when infected with HIV. Because infection with HIV weakens the immune system, the body is more susceptible to infections and other health related problems. In the mouth, this can be seen in the form of oral lesions and toothaches.

The most common oral issues that occur in those infected with HIV/AIDS include dry mouth, oral candidiasis (thrush), oral hairy leukoplakia (white lesions on the sides of the tongue), linear gingival erythema, ulcerative periodontitis, Karposi’s Sarcoma, outbreaks of herpes simplex virus, hyperpigmentation, angular cheilitis, canker sores and mouth ulcers. However, evidence has shown that there has been a significant reduction in the occurrence of oral lesions and other oral manifestations in those patients under HAART. Many opportunistic infections have resolved as a result of an improved immune system.  **Considerations & Treatment:** HAART has significantly modified the course of HIV disease into a manageable one with an improved quality-of-life, though side effects may exist. For example, Xerostomia can cause trouble chewing or swallowing and may prevent a patient from taking their HIV medication. It can also result in malnutrition, as a patient may have trouble eating and absorbing enough essential nutrients. A compromised digestive system may affect the absorption of the HIV drug treatment. Overall, the benefits of HARRT medication far outweighs the risk of side effects.