

Oral Care for Cancer patients



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Treating Cancer Patients



- Do you know how to treat a patient who is diagnosed with cancer?
- What procedures should be done **prior to** chemotherapy and/or radiation treatments?
- What treatment can be done **during** chemotherapy and/or radiation treatments?
- What to do if oral complications arise during chemotherapy and/radiation treatments?

Chemotherapy and Radiation



- Chemotherapy----most chemotherapy drugs cause all dividing cells to die, and since the mucous membranes are composed of rapidly dividing cells, these tissues do not replenish during intense therapy.
 - Mucous membranes form a barrier against infections, and without them the mouth can become inflamed, and opportunistic bacterial, yeast and fungal infections can occur.

Chemotherapy and Radiation



- Chemo also affects the ability to salivate, causing plaque to build up rapidly, thus increasing the incidence of gum infections and cavities.
- Chemo can cause drops in ANC (absolute neutrophil count) which makes it harder to fight off infections.
- Low platelet counts means that brushing and flossing can cause bleeding.
- In children, development of the teeth can be adversely affected by radiation and intensive chemotherapy protocols.

Chemotherapy and Radiation



- Radiation----some people who get radiation to the head/neck (and sometimes chest) areas have redness and soreness in the mouth, a dry mouth, trouble swallowing, changes in taste, or nausea. Other possible side effects include a loss of taste, earaches, and swelling, jaw stiffness and jaw bone changes.

Bisphosphonate drugs used in chemo



- Osteonecrosis of the Jaw (ONJ) is a condition that has been observed in cancer patients who undergo invasive dental procedures such as dental implants or tooth extractions while receiving treatment with intravenous bisphosphonates or by irradiated bone. ONJ can cause severe, irreversible and often debilitating damage to the jaw.



- Bisphosphonates, also known as bone-sparing drugs, are commonly used in the treatment of osteoporosis and cancer that has spread to the bone. Doctors prescribe intravenous bisphosphonate therapy for patients with cancer that has spread to the bone to help decrease associated pain and fractures. In addition, emerging research is exploring the ability of intravenous bisphosphonate therapy to inhibit the spread of some cancers to the bone.



- Invasive dental procedures should be avoided unless absolutely necessary. Conversely, if a dentist becomes aware that a patient is going to be treated with intravenous bisphosphonates or radiation treatment to the head and neck, any needed invasive dentistry should, if possible, be performed before the initiation of such treatment.

Prior to Chemotherapy/head and neck radiation



- Patients should have a thorough exam - at least 1month prior to chemo or head and neck radiation treatment.
 - Panoand FMX
 - Periodontal evaluation
 - Oral exam/cancer screening
- Identify and treat existing infections, carious and other compromised teeth, and tissue injury or trauma.
- Stabilize or eliminate potential sites of infection.
- Extract teeth in the radiation field that are non-restorable or may pose a future problem to prevent later extraction-induced osteonecrosis.
- Conduct a prosthodontic evaluation if indicated. If a removable prosthesis is worn, make sure that it is clean and well adapted to the tissue. Instruct the patient not to wear the prosthesis during treatment, if possible; or at the least, not to wear it at night.
- Perform oral prophylaxis if indicated.



- Time oral surgery to allow at least 2 weeks for healing before radiation therapy begins. For patients receiving radiation treatment, this is the best time to consider surgical procedures. Oral surgery should be performed at least 7 to 10 days before the patient receives myelosuppressive chemotherapy. Medical consultation is indicated before invasive procedures.
- Remove orthodontic bands and brackets if highly stomatotoxic chemotherapy is planned or if the appliances will be in the radiation field.
- Consider extracting highly mobile primary teeth in children, and teeth that are expected to exfoliate during treatment.
- Prescribe an individualized oral hygiene regimen to minimize oral complications. Patients undergoing head and neck radiation therapy should be instructed on the use of supplemental fluoride.

During Chemotherapy and Radiation



- The oncologist may want patient to be seen by the dentist more often than every 6 months.
 - Due to the lack of saliva, the plaque builds up faster therefore cleanings may be every 2 mos. And check for mouth sores and decay. (ANC and WBC Count permitting)
 - Emergency treatment can be done with any hematologic status to remove source of infection, work with oncologist, if count under 40,000mm consider platelet replacement.
 - Use of chlorahexidine prior to treatment and after can help cut down on chance of infection. (give chairside)

During Chemotherapy and Radiation



- Some Oncologist may want patient to be covered by a Prophylactic antibiotic but not all.
- These patients should be covered, but stay up to date on AHA or leave up to oncologist
 - ✦ Patient has an ANC less than 1,000 and/or WBC less than 2000/mm
 - ✦ Patient has a central venous catheter
 - ✦ Patient is taking long-term immunosuppressive drugs, i.e. cyclosporine, prednisone, etc.
 - ✦ Recommendations for antibiotic prophylaxis for dental procedures:
<http://www.qualitydentistry.com/dental/information/abiotic.html>

During chemo and radiation treatment



- **Schedule dental work carefully.** If oral surgery is required, allow at least 7 to 10 days of healing before the patient receives myelosuppressive chemotherapy. Elective oral surgery should not be performed for the duration of radiation treatment.
- **Determine hematologic status.** If the patient is receiving chemotherapy, have the oncology team conduct blood work 24 hours before dental treatment to determine whether the patient's platelet count, clotting factors, and absolute neutrophil count are sufficient to recommend oral treatment. Postpone oral surgery or other oral invasive procedures if:
 - platelet count is less than $75,000/\text{mm}^3$ or abnormal clotting factors are present.
 - absolute neutrophil count is less than $1,000/\text{mm}^3$ (or consider prophylactic antibiotics).



- Try to schedule dental work a few days prior to chemo treatment. This is the time when the patient feels best. After treatment they are weak.

During chemo and radiation



- To prevent mouth sores
- Anti-bacterial mouth rinses
 - Peridex- can prevent infections (most recommended)
 - ✦ Stains teeth
 - ✦ Taste bad
 - 0.63% Stannous Fluoride-- ask oncologist if can substitute for peridex
 - ✦ Stannous part is anti-microbial
 - ✦ Does not stain teeth
 - ✦ Taste better
 - ✦ Fights cavities
 - ✦ Stanimax, periomed.

During Chemo and radiation



- **Anti-fungal mouth rinses**
 - Patients under intense chemo are at risk for fungal and yeast as well as bacterial infections
 - Nystatin to prevent fungal infections, can be used to prevent or treat.
 - Mycostatin or Nilstat rinses- “swish and swallow” because these infections can be in the throat passage as well as in the mouth.
 - Mycelex lozenges.
 - **Thrush is the most common mouth infection during chemo.**

During chemo and radiation



- Use ultra soft toothbrush so patient does not damage tissue (run under warm water)
- Change toothbrush every 3 months or after any infection.
- Floss at least once a day. (do not use a Water Pik)
- Toothpaste should be a mild gel. Stay away from strong flavors like mint, cinnamon, do not use whitening toothpaste.



- If toothpaste irritates patients mouth, use a mixture of $\frac{1}{2}$ teaspoon of salt with 4 cups water.
- Gargle regularly with a solution made up of:
 - 1 quart of plain water
 - $\frac{1}{2}$ teaspoon table salt
 - $\frac{1}{2}$ teaspoon baking soda

During times of low counts



- **AAPD advises the following**
 - Daily tooth brushing and flossing when the ANC is greater than 500 and platelet count is greater than 20,000.
 - Dental hygiene with a moist gauze or toothettes only, when ANC is less than 500 and platelet count is less than 20,000.
 - The teeth have to be cleaned at least once a day thoroughly, but is better to clean them after meals.

During Chemo and Radiation



- Sores in the mouth occur because the cells of the mucous linings are not replaced as quickly as needed due to the chemotherapy.
- Sores or lesions can occur even in the absence of bacterial or fungal infection, but once there they should be treated with anti-bacterial agents to prevent infection.
 - ✦ Glutamine—helps and lessens mucositis.
 - ✦ Saforis- a patented, topical, oral suspension of glutamine.
 - ✦ Magic mouth wash- mixture of benadryl, maalox, nystatin, and lidocaine.
 - ✦ Baking soda and water- aids in healing and neutralizes acid.
 - ✦ Stannous fluoride.
 - ✦ Hot stuff --Cayenne pepper candy.



Amifostine (ethyol)—protects salivary tissues against radiation damage. Approved for reducing dry mouth. May also reduce mouth sores: research is ongoing.

N-acetylcysteine (RK-0202) - prevents inflammation due to radiation therapy.

What is mucositis?



- Mucositis refers to the breakdown of mouth tissues.
- It can range in severity from a red sore mouth and gums to open sores in the mouth.
- Chemotherapy and radiation therapy kill not only cancer cells, but other rapidly dividing cells including the lining of the mouth and throat.



- Oral mucositis leads to several problems:
 - ✦ Pain
 - ✦ Nutritional problems/inability to eat
 - ✦ Increased risk of infection due to open sores in the mucosa

What are the signs and symptoms of mucositis?



- Red, shiny or swollen mouth and gums
- Blood in the mouth
- Sores in the mouth or on the gums or tongue
- Soreness or pain in the mouth or throat
- Difficulty swallowing or talking
- Feeling of dryness, mild burning or pain when eating food
- Soft, whitish patches or pus in the mouth or on the tongue
- Increased mucus or thicker saliva in the mouth

What are the common side effects of radiation or chemotherapy



- Reduced resistance to bacterial, viral or fungal infections which allows them to become opportunistic
- Dry mouth/ altered taste sensations-including a burning sensation
- Sore/stiff jaw
- Damage to tooth enamel
- Swallowing difficulties

Who gets mucositis?



- 40% or more of patients who receive chemotherapy will develop some degree of mucositis.
- Patients receiving radiation to the head, neck, and chest areas, patients who undergo bone marrow or stem cell transplant, are at a greater risk (80%) of developing a mucositis.
- **certain chemotherapy agents are more likely to cause this side effect.

Course of a mouth sore



- Not everyone undergoing treatment for cancer develops mouth sores.
- 1st day of treatment ---no noticeable change, but injury is beginning to accumulate.
- 3-5 days after treatment---damage to genetic material in mouth cells, soft tissue starts to feel warm.
- 7-10 days after treatment---Inflammation and sores appear.



- During treatment period---sores can become painful and infected. Eating and swallowing can become difficult.
- 2-9 weeks after treatment---sores heal and disappear.

There are 3 stages of Oral Mucositis



- (1) Inflammation accompanied by painful mucosal erythema, which can respond to local anesthetics.
- (2) Painful ulceration with pseudomembrane formation and, in the case of myelosuppressive treatment, potentially life-threatening sepsis, requiring antimicrobial therapy. Pain is often of such intensity as to require treatment with parenteral opiate analgesics.
- (3) Spontaneous healing, occurring about 2 - 3 weeks after cessation of anti neoplastic therapy.

What does it look like?



What early intervention strategies should the health team follow?



- The team should begin care planning and intervention strategies prior to the individual noting pain, or staff notice sores, white patches, pus or bleeding, in the mouth or surrounding tissues.
- Patients receiving chemotherapy or radiation to the chest/head/neck area should have their mouths checked daily for redness, sores, or signs of infection.
- If the individual develops a fever (temperature greater than 100.4) with some or all of the above side effects implement protocols as soon as possible. (contact oncologist)

Pain Control



- Cryotherapy-sucking on ice chips has some effect on pain management
- Mucosal protectants work by coating mucosa, forming a protective barrier for exposed nerve endings.
- There are some drugs that protect against the damage to the mucosa. They have demonstrated that they reduce dry mouth and may prevent mouth sores.

Pain Control



- Ibuprofen (such as motrin) or acetaminophen(tylenol) for mild pain.
- over-the -counter anesthetics, such as xylocaine, anbesol, or orajel.
- Difflam- benzydamine mouthwash is a local anesthetic
- Gelclair- an oral gel designed to coat and soothe mouth sores by forming a protective barrier in the mouth.
Gelclair contains 3 key ingredients:
 - one to coat raw tissue with protective film, a second to moisten and lubricate the tissues and licorice root extract for flavoring. RX only.

Pain Control



- Pain causes stress, depression, and fatigue. It can ruin the quality of life and slow progress towards better health.
- Opiates (ex. morphine)—are an important tool for controlling pain and not something to be shunned or feared.
 - ✦ Pills
 - ✦ Liquids
 - ✦ Patches
 - ✦ IV for sever pain

Pain Control



- Fentanyl citrate (Actiq)---lozenge on a stick. Dissolves in the mouth. Delivered quickly to the bloodstream. Only for adults who are already taking opiates.
- Palifermin (kepivance) –has been recently approved for people with blood cancers being treated with high-dose chemo followed by bone marrow transplant. Given by IV. Protects the lining of the mouth, reducing severe oral mucositis. (unsure of effectiveness on other cancers)

Oral Care Do's



- Moisturize lips (non-petroleum products) at least 2x a day up to 6x a day.
- Use a dry mouth product at least 2x a day up to 6x a day.
- Rinse mouth before and after meals and at bed time.
 - Saline solution
 - Soda water
 - Non-alcohol fluoride rinse

Oral Care Do's



- Use an ultra-soft bristle toothbrush after meals and a bedtime.
- Use gauze or washcloth if patient has difficulty swallowing or ANC or WBC counts are low.

Oral Care Don'ts



- No mouthwashes with alcohol
- No dental floss if counts below 40,000
- No lemon or glycerine swabs
- No hard or medium toothbrushes
- No petroleum based products for lip care because they can promote infection
- Do not use water pik during treatment

Denture Tips



- Remove whenever possible to expose soft tissue to air
- Loose fitting dentures can irritate the tissue and should not be worn. (if pt. loses a lot of weight dentures won't fit)
- Do not wear dentures if mouth sores are severe

Nutritional and lifestyle interventions



- Increase fluid intake.
- Include foods high in protein in the diet
- Avoid hot, spicy or acidic foods, alcohol, hard or coarse foods (crusty bread, chips, crackers), soda.
- Do not smoke cigarettes, cigars or pipes.
- Do not use smokeless tobacco (chewing tobacco or snuff)
- Let food cool to room temperature
- Moisten food with gravy if difficulty swallowing.

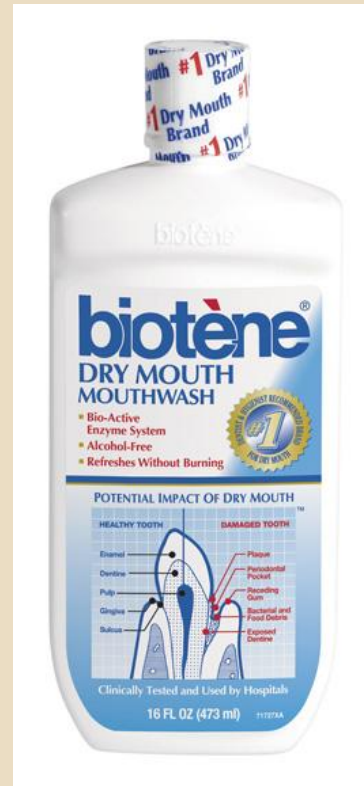
DO Eat

- Ice cream
- Milkshakes
- Baby food
- Bananas and applesauce
- Mashed potatoes
- Cooked cereal
- Cottage cheese
- Pudding/gelatin
- Cooked meats pureed in blender, with gravy or broth added

Don't eat

- Tomatoes
- Citrus fruits or juice
- Salty or spicy foods
- Raw vegetables
- Raw fruits (unless soft)
- Drinks with caffeine or alcohol
- Pickles
- Vinegar
- Chocolate
- Rough dry foods

Over the counter products for optimal oral health



The patient



- **Do not lecture the patient on oral care.**
 - This patient already has a lot on their mind. New instructions to follow every day and may not physically be able to get up and brush properly!!
- **Encourage good oral hygiene.**
 - Have a written instruction sheet
 - Give booklet from cancer care.

After chemo and radiation treatment



- **Chemotherapy**
- Once all complications of chemotherapy have resolved, patients may be able to resume their normal dental care schedule. However, if immune function continues to be compromised, determine the patient's hematologic status before initiating any dental treatment or surgery. This is particularly important to remember for patients who have undergone stem cell transplantation. Ask if the patient has received intravenous bisphosphonate therapy



- **Points to remember**
- High-dose radiation treatment carries a lifelong risk of xerostomia, dental caries, and osteonecrosis.
- Because of the risk of osteonecrosis, principally in the mandible, patients should avoid invasive surgical procedures, including extractions that involve irradiated bone. If an invasive procedure is required, use of antibiotics and hyperbaric oxygen therapy before and after surgery should be considered.
- Lifelong daily fluoride application, good nutrition, and conscientious oral hygiene are especially important for patients with salivary gland dysfunction.



- Dentures may need to be reconstructed if treatment altered oral tissues. Some people can never wear dentures again because of friable tissues and xerostomia.
- Dentists should closely monitor children who have received radiation to craniofacial and dental structures for abnormal growth and development.
- Dentists should be mindful about the recurrence of malignancies in patients with oral and head and neck cancers, and thoroughly examine all oral mucosal tissues at recall appointments



- Always work with oncologist and their staff. He or she is the primary care provider. If you are unsure of treatment always ASK oncologist. You can refer patient out to a specialist for emergency dental work and you can refer patient to oncologist for most medicines needed for mouth infections.
- ** You should know what your role is. Working as a team will be the best way to help your patient's recovery !!!!!

Web sites



<http://www.nidcr.nih.gov/OralHealth/Topics/CancerTreatment/OralComplicationsCancerOral.htm>

American Oncology Nursing Association Customer.service@ons.org

OncoLink Abranson Centre Cancer Centre University of Pennsylvania

<http://www.oncolink.com>

National Cancer institute website, www.cancer.gov

<http://www.nursing.upenn.edu>

<http://www.cancer.org/docroot/MBC/content...>

<http://www.cancerbackup.org.uk/resourcessupport/symptomssideeffects/mouthcare/chemotherapy>

Reference sources



- Cancercare Connect ---booklet Mouth Pain and Discomfort. All you need to know about oral mucositis
- Eilers J. nursing interventions and supportive care for the prevention and treatment of oral mucositis associated with cancer treatment, Oncology nursing forum online 31(4suppl):13-23 2004 July.
- Sonis ST, oral mucositis in cancer therapy. The Journal of Supportive Oncology 2(6 suppl3) 3-8, Nove 2004



**Thank
You!**