

Caring for oral cancer patients: Hygienists can adjust dental treatment protocols

Kathryn Gilliam, RDH, outlines treatment protocols for dental hygienists who care for patients with oral cancer.

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As dental professionals, we're in a unique place to serve our patients during challenging times. We see them more often than their physicians do, and we often have deeper personal relationships. Because of this intimacy, we have the opportunity to help those who are fighting oral cancer in a very practical day-to-day way. We can give both professional and personal support that can make a significant difference in their ability to survive this devastating disease.

Before medical treatment

Perhaps you were the one who discovered the signs of oral cancer in your patient. If so, you have the opportunity to prepare the patient before treatment starts. Your part in their treatment is a quality-of-life issue as oral cancer and its treatment affects all aspects of a patient's life.

If possible, prepare a comprehensive dental assessment before medical intervention begins. If potential issues aren't addressed before medical treatment begins, they could cause very serious problems later¹ (see sidebar titled, "Prior to cancer treatment").

During and after medical treatment

Be extremely empathetic to cancer patients, because they are suffering. They can't eat or swallow even saliva - if they have any - without pain. They can't speak comfortably. Sometimes even breathing is painful if their mouths are ulcerated and dry. Often, at this point, they are not social. It's very uncomfortable to interact with others when one can't speak or eat. To help your patient, offer products to increase comfort and protect against

further mucosal breakdown, as well as prevent caries and periodontal infection.

Several issues arise for an oral cancer patient that you can help alleviate including pain, mucositis, xerostomia, nutritional challenges, and psychosocial issues. The side effects must be cured or alleviated so the patient can continue cancer treatment (see sidebar titled, “Guidelines for pain control during cancer treatment”).

Pain - Pain from treatment side effects can be absolutely debilitating.² Dental patients undergoing cancer treatment often require narcotic pain medications and steroids for postoperative recovery. As dental professionals, we may want to offer a natural option for those times when patients feel they don’t want to use narcotics. The StellaLife Vega Oral Care Recovery Kit is a homeopathic treatment formulated as adjunctive therapy for postsurgical treatment that can significantly reduce or, in some cases, eliminate the need for narcotic pain medications and steroids. It can also be used to treat mucositis.³

Mucositis - Mucositis, an inflammation of the mucosal tissues, is the most common debilitating side effect of cancer treatment. It can be so severe as to prevent the patient from getting proper nutrition and hydration. If too much weight or hydration is lost, it can result in the early cessation of cancer treatment because the patient isn’t strong enough to withstand the treatment. Postponing treatment may risk the life of the patient. Mucositis affects up to 40% of chemotherapy patients according to the American Society of Clinical Oncology.⁴

A good self-care routine may help prevent or decrease the severity of mucositis, and it may also help prevent infection through the ulcerations caused by mucositis, according to the Oral Cancer Foundation.⁵ The mainstays of a mucositis regimen are mouth rinses. Rinses assist in clearing debris from the mouth and moistening oral tissues. Simple salt water is an effective and low-cost way to prevent and treat mucositis (see sidebar titled, “General guidelines for prevention and treatment of mucositis”).

Several gentle, neutral commercial treatment agents are available to alleviate the inflammation and ulceration of mucositis:

- Gelclair and Zilactin are mucosal protectants that coat the mucosa, forming a protective barrier for exposed nerve endings.
- SalivaMax is a supersaturated calcium phosphate rinse with a high concentration of electrolytes similar to natural saliva.
- StellaLife homeopathic products provide anti-inflammatory, pain-relieving, and healing effects.
- OraSoothe rinse is all-natural, drug-free, and made with food-grade ingredients that protect tissues, soothe pain, and promote healing.
- Oxyfresh Super Relief Healing Gel soothes tissues with aloe, folic acid, zinc, xylitol, and chlorine dioxide.

Xerostomia/hyposalivation - Xerostomia caused by chemotherapy is the result of saliva becoming thicker and is typically a short-term problem. Xerostomia due to radiation therapy can be a persistent quality-of-life problem. Oncologists often prescribe either pilocarpine (Salagen) or Cevimeline (Evoxac) to stimulate salivary flow.

If salivary glands are completely destroyed by radiation treatment, there's nothing left to stimulate, so these salivary simulants are not beneficial. A saliva substitute may be helpful in adding moisture. Most saliva substitutes contain either carbomethyl cellulose or hydromethyl cellulose as a lubricant in addition to a variety of artificial sweeteners, preservatives, and fluoride salts. Products containing mucin have better wetting and lubricating properties than cellulose preparations but they have a limited duration of action, making frequent applications necessary.⁶

You can best support your patients who suffer from dry mouth by sharing the recommendations from the American Cancer Society. It's also helpful to give instructions for making mouth rinses at home (see sidebar titled, "Simple mouth rinse recipe to make at-home neutral rinse") as well as information about commercially available mouth rinses.⁷

It's worth noting here some of the recommendations regarding xerostomia from the American Cancer Society:

- Drink eight to 10 cups of liquid a day, and take a water bottle wherever you go. (Drinking lots of fluids helps thin mucus.)

- Take small bites and chew food well.
- Eat soft, moist foods that are cool or at room temperature. Try blended fruits and vegetables, soft-cooked chicken and fish, well-thinned cereals, popsicles, and smoothies.
- Avoid foods that stick to the roof of the mouth like peanut butter or soft bread.
- Moisten foods with broth, soup, sauces, gravy, yogurt, or creams.
- Suck on xylitol candy or chew xylitol gum to stimulate saliva. Citrus, cinnamon, and mint flavors often work well (not recommended for patients with mucositis). Xylitol is beneficial for preventing decay and moisturizing the mouth.
- Keep your mouth clean. Rinse before and after meals with plain water or a mild mouth rinse (made with one quart water, one teaspoon salt, and one teaspoon baking soda; shake well before using). Use a soft-bristle toothbrush and gently brush tongue as well. Ask dentist or oncologist if it's OK to floss or to use interdental soft toothpicks.
- Avoid commercial mouthwashes, alcoholic and acidic drinks, and tobacco.
- Limit caffeine intake from coffee, tea, energy drinks, or caffeinated soft drinks. Caffeine can be dehydrating.
- Use a cool mist humidifier to moisten room air, especially at night. (Be sure to keep the humidifier clean to avoid spreading bacteria or mold in the air.)
- Fresh pineapple or papaya may help to thin saliva, but only try this if your mouth is not sore.
- Saliva substitutes such as SalivaMax are helpful if your salivary glands have been removed by surgery or damaged by radiation therapy. These products add moisture to your mouth.
- Nutritional supplements, such as liquid meal replacements, may be helpful. If you can't get enough calories and nutrition through solid foods, you may need to use liquid supplements for some time.

Oral moisturizers can help when prepared with natural enzymes to help reinforce the functions of healthy saliva. Commercially prepared oral moisturizers should not contain alcohol or menthol that may burn and

sting the tissues. Moisturizers can neutralize mouth acids, help keep breath fresh, promote healthy gums, and clean away the bacteria associated with halitosis, sore gums, caries, and plaque.

I've found it's important to have a list of several different products that patients with dry mouth can try because not every product works for every patient for a variety of reasons. Products such as CariFree CTx Spray (CariFree Oral Biotech), Spry Rain Oral Mist Spray (Xlear), SalivaMax (Forward Science), Allday Dry Mouth Spray (Elevate Oral Care), Oral7 Moisturizing Products (Oral7 International), and the StellaLife Vega Recovery Kit (StellaLife, Inc.) have been endorsed by cancer patients and dental professionals alike.^{8,9}

Products with stabilized chlorine dioxide may be helpful for cancer patients. They do not contain alcohol, do not cause staining or alter taste, and can be used long term without a prescription. Chlorine dioxide is an excellent bactericide, fungicide, and antimicrobial agent. Products containing chlorine dioxide already mixed in a bottle lose their effectiveness after being open for two weeks and no longer have bactericidal benefits.¹⁰ A two-part system such as OraCare, in which ingredients are mixed and activated for 30 seconds prior to rinsing, solves that problem.¹¹

In the past, both hydrogen peroxide and chlorhexidine rinses have been used. Neither is recommended now. Hydrogen peroxide is not recommended as it may delay wound healing, promote emesis, cause demineralization, promote fungal growth, and contribute to dry mouth, thirst, and discomfort. Chlorhexidine is not recommended as it may interfere with healing, alter oral flora, promote bacterial (pseudomonas) growth, has an unpleasant taste and results in taste distortion, stains teeth and cosmetic restorations, and contains alcohol. Chlorhexidine is not effective in the presence of blood or toothpaste, and nystatin reduces its effectiveness.^{12,13}

Caries - Dry mouth leads to a dramatically increased risk of dental caries. For those patients undergoing cancer treatment and dealing with this long-term side effect of head and neck radiation treatment, recommend any of the following:

- CariFree toothpaste and rinse (Oral Biotech) contains fluoride and calcium phosphate to remineralize teeth, xylitol to inhibit bacteria and plaque formation, an antimicrobial agent to control bacteria, and pH neutralizing to prevent decay, inhibit periodontal inflammation, and enhance oral moisture.
- Fluoride 1,100 ppm with nanohydroxyapatite calcium and phosphate remineralize teeth and is used daily in custom trays.
- BasicBites, a sugar-free oral care soft chew produced by Ortek Therapeutics, contains arginine bicarbonate/calcium carbonate technology that is effective in reducing caries and treating dentinal sensitivity. It may disrupt dental plaque by altering the ability of biofilms to stick together.

Nutritional challenges - Oral cancer patients have to deal with nutrition issues caused by trouble swallowing, loss of or change in taste sensations, dry mouth, and/or loss of teeth, tongue, or jaw. Any of these issues can make it hard to eat, which can lead to weight loss and weakness due to poor nutrition.

Here are some general tips from the American Cancer Society:¹⁴

- Chemotherapy can weaken the immune system. When immune systems are weak, cancer patients should be careful to avoid eating foods that may contain unsafe levels of germs.
- Store foods in a refrigerator or freezer (below 40°F) right after buying them to limit the growth of germs.
- When eating out, avoid salad bars, sushi, and raw or undercooked meat, fish (including shellfish), poultry, and eggs - these foods are more likely to contain harmful bacteria.
- If you are concerned about the safety (purity) of the well water in your home, ask your public health department to check it for bacteria.

- Studies have linked eating large amounts of red meat and processed meats (bacon, hot dogs, deli meats) with increased risk of colorectal, prostate, and stomach cancers.
- Limit intake of processed and red meats and discourage cooking these and other higher fat sources of protein at high temperatures.
- Eat small meals every two to three hours to avoid nausea.
- Eat antioxidant-rich foods such as vegetables and fruits as they have been found to lower risk of some cancers, including head and neck and esophageal cancers.
- Eat healthy fats such as olive oil, avocados, fish, nuts, and seeds.
- Limit sugar intake.
- Avoid alcohol.
- In general, cold or room-temperature foods and beverages will be more palatable.
- Hot foods produce more aromas and stronger flavors so may be good for those with affected taste issues.
- Use plastic utensils and dishes.
- Pour nutrition supplements into a glass and over ice to increase appeal.

Dysgeusia “chemo mouth” - These tips are for patients without mucositis; if the mouth is sore, raw, or ulcerated, these tips will cause pain. To help with the sensation of “chemo mouth,” add flavorings to foods: lemonade/lemon, lime, cranberry juice, vinegar. Add seasonings/mild spices: onion, garlic, chili powder, rosemary, tarragon, basil, mint, mustard, ketchup, barbeque sauce. Marinated meats often taste better: sweet juices, fruits, honey, wine, acidic marinade (for example: sweet and sour pork with pineapple, honey glazed chicken, London broil with Italian dressing marinade).

Malnutrition in cancer patients - Malnutrition is a common problem in cancer patients. It has been recognized as an important component of adverse outcomes, including increased morbidity and mortality and decreased quality of life. Weight loss has been identified as an indicator of poor prognosis in cancer patients. Nutrition and nutritional supplements can help¹ (see sidebar titled, “Nutritional support for cancer patients”).

Psychosocial problems - Cancer patients may also suffer psychosocial problems including depression, communication challenges, low self-esteem, and social isolation. As we treat the whole patient, be aware of these issues so you can offer help. Know when to refer to a psychologist and have referrals available. Be attuned to your patients' emotional needs. Studies show that delivering health care with kindness and empathy leads to faster healing, reduced pain, increased immune function, lowered blood pressure, and decreased anxiety. Kindness can increase compliance with treatment recommendations when patients feel they are being treated with empathy. This is the time to love your patients and treat them with your heart.¹⁵

Fatigue - Many cancer patients experience extreme chronic fatigue that may not be relieved by rest and sleep.¹⁶ They may be simply too fatigued to perform optimal home-care procedures. Offer, without judgment, an alternative plan (such as the one listed below) for effective cleaning and protection without undue effort.

- Eat BasicBites twice daily.
- Rinse mouth twice daily with CariFree CTx4 Treatment Rinse, if possible.
- Clean interproximally with Butler GUM Soft-Picks or TePe EasyPicks twice daily, if possible.

Recurrence

Patients with cancer of the oral cavity or oropharynx may develop recurrences or new cancers in the head and neck area or lungs. Recurrences happen most often in the first two years after treatment, so patients are usually examined every few months during the first two years and then less often after that. According to the NYU Oral Cancer Center, up to 40% of oral cancer survivors experience a cancer recurrence or develop a new cancer. Incidence rates vary depending on the patients' exposure to various risk factors. The risk of recurrence is higher for people who use tobacco or drink excessive amounts of alcohol.¹⁷ Remain vigilant and repeat head and neck cancer examinations every time you see the patient.

Prior to cancer treatment

- Treat all potential areas of concern (restorative, endodontic, periodontal, extraction). Deep decay needing endodontic treatment or extraction could end up in osteonecrosis, or bone death, especially if bisphosphonates are part of the chemotherapy, which is common in patients with bone pain, when cancer has spread to bone, or in patients with multiple myeloma.
- Teach impeccable home care.
 - Suggest a power toothbrush unless blood count is low, then only use a sponge brush.
 - Encourage subgingival flossing and/or interdental rubber picks or brushes, as long as blood counts allow.
 - Recommend CariFree toothpaste and rinse (fluoride, calcium phosphate, xylitol, antimicrobial agent, neutral pH) to prevent caries and to enhance oral moisture. Fluoride trays and gel can be substituted for CariFree but are an added step and compliance may be challenging once treatment begins and fatigue sets in. Over-the-counter mouth rinses are not recommended due to their alcohol and chemical content.
- Schedule oral health maintenance procedures every eight to 12 weeks during cancer treatment, as blood count allows.
- Recommend that the patient avoid alcohol and tobacco during treatment.
- Teach the patient how to gently stretch the mastication muscles three to five times daily to prevent trismus.
- Maintain a close communication with the patient's oncology team.
- If you don't have the chance to prepare the patient before medical intervention, treat the patient in a palliative way.

Guidelines for pain control during cancer treatment

Avoid the following to reduce oral pain:

- Tobacco
- Alcohol
- Commercial mouthwash that has alcohol and/or other harsh chemicals (such as Scope and Listerine)

- Salty foods and foods that contain strong spices (such as pepper, chili powder, horseradish, curry powder, and Tabasco sauce)
- Citrus fruits and juices (such as tomato, orange, lemon, lime, grapefruit, and pineapple)
- Hard, dry, or coarse foods (such as toast, crackers, raw vegetables, potato chips, and pretzels)
- Very hot or cold foods and liquids

General guidelines for prevention and treatment of mucositis

- Rinse regularly with a salt-water solution or a commercially available neutral, soothing rinse.
- Do not rinse with over-the-counter products that contain alcohol or other harsh chemicals.
- Brush teeth thoroughly with a soft toothbrush. (Always check with the oncologist once cancer treatment has started to be sure blood levels are safe.)
- When blood counts are low, sponge brushes dipped in an antimicrobial rinse such as CariFree CTx3 or CTx4 may be recommended by the oncologist.
- Gentle toothpastes with mild flavor and without harsh chemicals such as SLS are recommended. CariFree CTx3 tooth gel is an optimal choice as it prevents tooth decay as well as gently cleans.
- Avoid toothpastes with whitening ingredients.
- Clean between the teeth daily with dental floss and interdental brushes or picks such as TePe Easy Picks, as blood counts allow.
- If tissues are too tender for commercial mouth rinse and/or toothpaste, make a rinse by mixing one teaspoon of salt in four cups of water or by mixing one teaspoon of baking soda in two cups of water.
- Regular rinsing before and after meals and before bed with a simple saline solution (one teaspoon salt in one quart of warm water) or a salt-soda rinse (one teaspoon salt and one teaspoon baking soda in one quart warm water) can soothe and clean tissues.
- Avoid alcohol and spicy, acidic, and coarse foods.
- Avoid smoking.

- Keep lips moist and smooth with moisturizer that does not contain oil or petroleum products. Avoid lip treatments that contain menthol as it can be irritating to tender tissues. Eau Thermale Avène Cold Cream Nourishing Lip Balm and Eau Thermale Avène Care for Sensitive Lips are two of the most gentle on the market. Cancer patients have lauded Korres Lip Balm. Some dermatologists recommend Aquaphor and A+D Ointment. Do not apply lip moisturizers four hours prior to radiation therapy to the head and neck.
- Increase fluid intake.
- Cryotherapy, or sucking on ice chips during chemotherapy, has been shown to be helpful in preventing mucositis.
- Chlorhexidine gluconate rinses are not recommended.

Nutritional support for cancer patients

- Omega 3 fish oil
 - Anti-inflammatory (head and neck cancer patients are obviously very inflamed)
 - Promotes healing and helps maintain muscle and weight
- Vitamin D3
 - Helps strengthen immune system and fights cancer, among other things
 - Contained in cod liver oil, sardines, mackerel, salmon, tuna, eggs, mushrooms
- Zinc may stimulate taste
- Phytonutrients (also called phytochemicals)
 - Help fight cancer, support heart health, support DNA, support the immune system, bone health, brain health, cell health, liver function, wound healing, gum health, lung health, eye health, etc.
 - Green tea and red berries have been shown to fight cancer cells
- Protein shakes
 - Choose protein powder with whey or soy if there are no food allergies; vegetable (pea) protein powders are available for those with allergies or vegetarian preferences

- Use milk, soy milk, almond milk, cashew milk, or rice milk
- Add fruits or flavorings such as dark chocolate for palatability and added nutrition
- Soft diet
 - Puree cooked meats and veggies into soups
 - Mash sweet potatoes
 - Soften and moisten foods with mild sauces and gravies
- Probiotics
 - Yeast is a big problem for many oral cancer patients. Cancer patients usually have multiple rounds of antibiotics, so probiotics are important to replenish the critically important gut bacteria. One of my cancer patients recommends FiveLac products, which are dietary probiotics with five important strains of probiotics to help control *Candida albicans* and support healthy digestive function.

Simple mouth rinse recipe to make at-home neutral rinse

Ingredients:

- 1/4 tsp baking soda
- 1/4 tsp salt (omit for mucositis)
- 1 quart water

Directions:

- Rinse every 4 hours as needed
- Do not swallow

Results:

- Dissolves thick, ropy saliva
- Soothing to irritated tissues

- Dislodges food debris when patient can't brush due to low blood counts
- Neutralizes gastric acids following emesis

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