

## ◆ Chemotherapy

The oral complications of chemotherapy depend upon the drugs used, the dosages, the degree of dental disease, and adjuvant radiation therapy.

### Before Chemotherapy

- Conduct a pretreatment oral health examination.
- Schedule dental treatment in consultation with the oncologist.
- Schedule oral surgery 7 to 10 days before myelosuppressive therapy begins.
- In patients with hematologic cancers, consult the oncologist before conducting any oral procedures; do not conduct procedures in patients who are immunosuppressed or have thrombocytopenia.

### During Chemotherapy

- **Consult the oncologist before any dental procedure, including prophylaxis.**
- Ask the oncologist to order blood work 24 hours before oral surgery or other invasive procedures. Postpone when the
  - platelet count is less than 50,000/mm<sup>3</sup> or abnormal clotting factors are present.
  - neutrophil count is less than 1,000/mm<sup>3</sup>.
- In patients with fever of unknown origin, check for oral source of viral, bacterial, or fungal infection.
- Encourage consistent oral hygiene measures.
- Before any dental procedures, consult the oncologist about implementing the American Heart Association prophylactic antibiotic regimen in patients with central venous catheters.

## ◆ Chemotherapy (continued)

### After Chemotherapy

- Place the patient on a dental recall schedule when chemotherapy is completed and all side effects, including immunosuppression, have resolved.

### Questions To Ask the Medical Oncologist

- What is the patient's complete blood count, including absolute neutrophil and platelet counts?
- If an invasive dental procedure needs to be done, are there adequate clotting factors?
- Does the patient have a central venous catheter?
- What is the scheduled sequence of treatments so that safe dental treatment can be planned?

## ◆ Blood and Marrow Transplantation

Most blood and marrow transplant patients develop acute oral complications, especially patients with graft-versus-host disease.

### Before Transplantation

- Conduct a pretreatment oral health examination.
- Consult the oncologist about scheduling dental treatment.
- Schedule oral surgery at least 7 to 10 days before myelosuppressive therapy begins.
- Prevent tooth demineralization and radiation caries:
  - Instruct the patient in home application of fluoride gel (not fluoride rinses).

## ◆ Blood and Marrow Transplantation (continued)

- Instruct the patient about an oral hygiene regimen.

### After Transplantation

- Watch for infections on the tongue and oral mucosa. Herpes simplex and *Candida albicans* are common oral infections.
- Monitor the patient's oral health for plaque control, tooth demineralization, dental caries, and infection.
- **Consult the oncologist before any dental procedure, including prophylaxis.**
- Delay elective oral procedures for 1 year.
- Follow patients for long-term oral complications. Such problems are strong indicators of chronic graft-versus-host disease.
- Follow transplant patients carefully for second malignancies in the oral region.

## ◆ Special Care for Children

Children receiving chemotherapy and/or radiation therapy are at risk for the same oral complications as adults. Other actions to consider in managing pediatric patients include the following:

- Extract loose primary teeth and teeth expected to exfoliate during cancer treatment.
- Remove orthodontic bands and brackets if highly stomatotoxic chemotherapy is planned or if the appliances will be in the radiation field.
- Continually monitor craniofacial and dental structures for abnormal growth and development.

## Dental Care for Oral Complications of Cancer Treatment

**Oral Mucositis:** Culture lesions to identify secondary infection. Prescribe topical anesthetics and systemic analgesics. Consult the oncologist about prescribing antimicrobial agents for known infections. Have the patient avoid rough-textured foods and report oral problems early.

**Xerostomia/salivary gland dysfunction:** Advise the patient to soften or thin foods with liquid, chew sugarless gum, or suck ice chips or sugar-free hard candies. Suggest using commercial saliva substitutes or prescribe a saliva stimulant.

**Taste changes:** Refer to a dietitian.

**Etched enamel:** To protect enamel, advise the patient to rinse the mouth with water and baking soda solution after vomiting.

### Complications Specific to Chemotherapy

**Neurotoxicity:** Provide analgesics or systemic pain relief.

**Bleeding:** Advise the patient to clean teeth thoroughly with a toothbrush softened in warm water. Instruct the patient to avoid flossing the areas that are bleeding but to keep flossing the other teeth.

### Complications Specific to Radiation

**Demineralization and radiation caries:** Prescribe daily fluoride gel applications before treatment starts. Continue for the patient's lifetime.

**Trismus/tissue fibrosis:** Instruct the patient on stretching exercises for the jaw to prevent or reduce the severity of fibrosis.

**Osteonecrosis:** Avoid invasive procedures involving irradiated bone, particularly the mandible.

# ORAL CARE PROVIDER'S REFERENCE GUIDE for Oncology Patients

## *Prevention and management of oral complications*

- ◆ Head and Neck Radiation Therapy
- ◆ Chemotherapy
- ◆ Blood and Marrow Transplantation



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
NATIONAL INSTITUTES OF HEALTH  
National Institute of Dental and Craniofacial Research

## PRE-CANCER TREATMENT ORAL HEALTH EXAMINATION

### Objectives

1. Establish a schedule for dental treatment.
  - Begin at least 14 days before cancer therapy starts.
  - Postpone elective oral surgical procedures until cancer treatment is completed.
2. Identify and treat sites of low-grade and acute oral infections:
  - Caries.
  - Periodontal disease.
  - Endodontic disease.
  - Mucosal lesions.
3. Identify and eliminate sources of oral trauma and irritation such as ill-fitting dentures, orthodontic bands, and other appliances.
4. Before radiation treatment, identify and treat potential oral problems within the proposed radiation field.
5. Instruct patients about oral hygiene.
6. Educate patients on preventing demineralization and dental caries.

### ◆ Radiation Therapy

Patients receiving radiation therapy to the head and neck are at high risk for developing oral complications. Because of the risk of osteonecrosis in radiated fields, oral surgery should be performed before radiation treatment begins.

### ◆ Radiation Therapy *(continued)*

#### Before Head and Neck Radiation Therapy

- Conduct a pretreatment oral health examination and prophylaxis.
- Schedule dental treatment in consultation with the radiation oncologist.
- **Extract teeth in the proposed radiation field that may be a problem in the future.**
- Prevent tooth demineralization and radiation caries:
  - Fabricate custom gel-applicator trays for the patient.
  - Prescribe a 1.1% neutral pH sodium fluoride gel or a 0.4% stannous, unflavored fluoride gel (not fluoride rinses).
  - Have patients with porcelain crowns or resin or glass ionomer restorations use a neutral fluoride.
  - Be sure that the trays cover all tooth structures without irritating the gingival or mucosal tissues.
  - Instruct the patient in home application of fluoride gel. Several days before radiation therapy begins, the patient should start a daily 5-minute application.
  - Have patients brush with a fluoride gel if using trays is difficult.
- Allow at least 14 days of healing for any oral surgical procedures.
- Conduct all prosthetic surgery before treatment, since surgical procedures are contraindicated on irradiated bone.

#### During Radiation Therapy

- Monitor the patient's oral hygiene.

### ◆ Radiation Therapy *(continued)*

#### After Radiation Therapy

- Monitor the patient for trismus: check for pain or weakness in masticating muscles in the radiation field. Instruct the patient to exercise 3 times a day, opening and closing the mouth as far as possible without pain; repeat 20 times.
- For the first 6 months after cancer treatment, recall the patient for prophylaxis and home care evaluation every 4 to 8 weeks or as needed.
- Reinforce the importance of optimal oral hygiene.
- After mucositis subsides, consult with the oncology team about use of dentures and other appliances. Patients with friable tissues and xerostomia may never be able to wear them again.
- Watch for trismus, demineralization, and caries. Lifelong, daily applications of fluoride gel are needed for patients with xerostomia.
- Advise against all oral surgery on irradiated bone, because of the risk of osteonecrosis. Tooth extraction, if unavoidable, should be conservative, using antibiotic coverage and possibly hyperbaric oxygen therapy.

### ◆ Advice for Your Patients

- Gently brush teeth, gums, and tongue with an extra-soft toothbrush and fluoride toothpaste after every meal and at bedtime. If brushing hurts, soften the bristles in warm water.
- Floss teeth gently every day. If your gums bleed and hurt, avoid the areas that are bleeding or sore but keep flossing your other teeth.
- Follow instructions for fluoride gel applications.

### ◆ Advice for Your Patients *(continued)*

- Avoid mouthwashes containing alcohol.
- Several times a day, rinse the mouth with a baking soda and salt solution, followed by a plain water rinse. (Use 1/4 teaspoon of baking soda and 1/8 teaspoon of salt in 1 cup of warm water.)
- If dry mouth is a problem, try the following:
  - Sip water frequently.
  - Suck ice chips or use sugar-free gum or candy.
  - If appropriate, use saliva substitute spray or gel or a prescribed saliva stimulant.
  - Avoid lemon glycerin swabs.
- Exercise the jaw muscles 3 times a day to prevent and treat jaw stiffness from radiation treatment.
- Avoid candy, gum, and soda unless they are sugar-free.
- Avoid spicy or acidic foods, toothpicks, tobacco products, and alcohol.

### Questions To Ask the Radiation Oncologist

- What parts of the mandible/maxilla and salivary glands are in the direct path of radiation?
- What is the total dose of radiation the patient will receive, and what will be the impact on these areas?
- Has the vascularity of the mandible been previously compromised by surgery?
- How quickly does the patient need to start radiation treatment?
- Will there be concomitant chemotherapy with the radiation treatment?

Order additional information and patient education materials from

National Oral Health Information Clearinghouse  
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