IMPACT OF HEAD AND NECK CANCER THERAPY ON THE ORAL CAVITY

The goal of head and neck cancer therapy is to improve cancer outcomes for patients while minimizing long-term effects of treatment. There are potential short and long-term effects of therapy on the soft and hard tissues of the oral cavity. Some of the complications of treatment are preventable and reversible. An example of a reversible but not preventable effect is radiation mucositis where the patient experiences a sore mouth and sore throat. However, some effects may be irreversible. For example, poor adherence to oral hygiene measures can lead to irreversible decay. Therefore, every effort is made to prevent dental complications by optimizing dental care prior to starting treatment, during treatment, and after treatment.

Changes in salivary function may occur if the saliva glands and oral mucosa is in the irradiated area. The salivary glands are particularly sensitive to the effects of radiation, resulting in changes to saliva, including decreased output leading to dry mouth, decreased pH, buffering and remineralizing capacity and decreased antimicrobial capacity. These changes increase the risk for recurrent oral candidiasis and dental caries, specifically along the cervical margins and interproximally.

Radiation may also result in hypovascular bone with diminished healing capacity, which in some cases can result in a condition called osteoradionecrosis. The risk of osteoradionecrosis also depends on the dose of radiation to the bone and the amount of bone that receives radiation. Therefore, the risk of this condition is different for each patient and discussion with the radiation oncologist may help to identify those at higher risk for osteoradionecrosis. While this condition can develop spontaneously, dental extractions and oral surgical procedures are known to increase the risk. For this reason, all non-restorable teeth, teeth with advanced periodontal involvement, and teeth with questionable long-term prognosis should be extracted prior to the start of radiation therapy. Any necessary restorative and/or periodontal treatment should be performed prior to cancer therapy because your patient may not be able to tolerate dental care for many months following chemoradiation therapy.

Chemotherapy (especially when combined with radiation therapy) places the patient at a higher risk for developing oral mucositis, and in some cases low blood counts. Mucositis, while impossible to prevent, may be exacerbated by pre-existing dental disease and poor oral hygiene. If a patient develops low blood counts, chronic dental infections may have an acute flare-up, and in severe cases can lead to septicemia. This is another reason why it is critical to eliminate all existing and potential sites of infection.

Soft tissue fibrosis resulting in trismus can be a complication from surgery, radiation, or a combination of both. Patients with limited opening have significant difficulty in maintaining oral hygiene, and along with decreased salivary gland function are at high risk for developing rampant dental caries. These patients may require more frequent dental visits, and any areas of decay should be identified as early as possible and treated aggressively.
SOME GENERAL GUIDELINES FOR ORAL AND DENTAL HEALTH NEEDS DURING AND AFTER CHEMORADIATION THERAPY

During
- Continue oral hygiene regimen and fluoride toothpaste.
- Manage mucositis discomfort with analgesics and topical anesthetics.
- Manage xerostomia and hyposalivation using Biotene™ rinse/gel, sugar free candies, and frequent sips of water.
- Clean removable dental appliances worn during treatment daily.
- Treat acute dental emergencies.

After
- Recall the patient for prophylaxis and home care evaluation every 4-8 weeks or as needed in the first 6 months after cancer treatment.
- Dental visits at least twice a year with annual bitewing radiographs.
- Reinforce the importance of optimal oral hygiene and continued fluoride therapy.
- Complete routine restorative treatment, including; early and aggressive treatment of dental caries.
- Avoid elective oral surgery on irradiated bone because of risk of osteoradionecrosis.
  - If unavoidable, tooth extraction should be conservative, using antibiotic coverage, and possibly hyperbaric oxygen therapy.
- Xerostomia and hyposalivation treatment with OTC supplements or sialogogue therapy.
  - Pilocarpine (Salagen™) or cevimeline (Evoxac™).
  - Response is variable and full benefit may take up to 3 months.
- Monitor the patient for trismus.
  - Instruct jaw exercises at least 3 times per day.
  - Opening and closing as far as possible without pain, repeat 20 times.
  - Use of appliances or incremental stacking of tongue depressors.

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