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# Evaluation of an Educational Tool to Enhance Outcomes for Patients With Head and Neck Cancer

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According to the American Cancer Society (ACS, 2004), an estimated 38,530 people, 70% male and 30% female, in the United States will be diagnosed with cancer of the oral cavity and pharynx in 2004. Although these cancers more commonly are seen in men, the incidence of women diagnosed with head and neck (H&N) cancer has increased in recent decades related to tobacco use. In 1977, 75% of those diagnosed with H&N cancer were male and 25% were female (ACS, 1976). These cancers frequently present in a locally advanced stage, making treatment difficult for patients and the healthcare team.

## Treatment

Historically, definitive treatment for H&N cancer was surgical excision, which has been in use since the mid-1800s (glossectomy), with increasing success. The invention of mirror laryngoscopy around 1850 led to recognition of hypopharyngeal and laryngeal tumors and subsequent development of surgical techniques for the removal of disease in these areas (often laryngectomy). Shortly after the discovery of the medical usefulness of x-rays in 1896, radiation therapy was being used for H&N cancers (McCarty & Million, 1994). With improvements in surgical techniques as well as radiation advancements, modern therapy for H&N cancer often involves combined modality therapy. For locally advanced disease where surgery is too extensive, primary radiation therapy has been studied using dif-

ferent techniques, including accelerated and hyperfractionated schemas, with improved local control over standard daily fractionation. More recently, the addition of concurrent chemotherapy to hyperfractionated primary radiation therapy has shown improved local control and overall survival in patients with locally advanced H&N cancer (Brizel et al., 1998).

**Key Words:** head and neck neoplasms, patient education

## Toxicity

Oral complications from H&N primary radiation therapy result from normal tissue damage, which most commonly includes mucositis and xerostomia (dry mouth). With the introduction of more intensive radiation and combined modality therapy, direct stomatotoxicity (epithelial damage) occurs, and uncontrolled mucositis often is a limiting factor to successful completion of planned therapy. Radiation therapy-induced mucositis progresses with cumulative doses. Initial symptoms include mu-

cosal erythema with burning or soreness, followed by mucosal breakdown manifested as pseudomembranes or a fibrinous mass overlying necrotic and ulcerated tissue. Finally, full-thickness mucosal ulceration occurs and remains problematic through the end of radiation therapy and for weeks afterward (Sonis & Fey, 2002). Clinical manifestations include difficulty talking, eating, and drinking; managing thick secretions; and oral pain. Patients also cannot perform the oral care needed to reduce risk of infection.

Xerostomia resulting from radiation damage to salivary glands is an acute effect during treatment, but it also can be a chronic, lifelong problem. The degree of xerostomia relates to the volume of salivary gland tissue treated and the dose of radiation given. Generally, glandular changes are reversible when doses of less than 6,000 cGy are administered, but higher doses cause irreversible fibrous and glandular degeneration (Sonis, 1993). Chronic xerostomia significantly increases risk of dental decay, which becomes especially problematic after primary radiation therapy with the added risk of poor healing after tooth extraction. Other acute or late side effects may include

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