

The focus of this column is to describe published research studies of interest to professional oncology nurses. This issue highlights two studies on head and neck cancer.



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Patients Need Pretreatment Help for Dysphagia

A comprehensive clinical review by Russi et al. (2012) focused on dysphagia as a prevalent and debilitating symptom associated with head and neck cancer (HNC). At diagnosis, as many as two-thirds of patients with HNC present with dysphagia, and about one-third of those may develop aspiration pneumonia with associated mortality rates of 20%–65%. Prior studies have shown pretreatment deficits common in patients with advanced-stage HNC and indicated a poor correlation between measurable deficits and patient deficit perception. The article provides a detailed overview of anatomic and physiologic swallowing mechanisms, along with recommendations for pretreatment swallowing assessments by speech and language therapists to identify the potential syndrome of silent dysphagia, as well as the risk of concomitant aspiration.

This work was supported with an extensive literature review by a supportive care task force of the Head and Neck Group of the Italian Association of Radiation Oncology. The time frame for the electronic search was from January 1990 to June 2011, with supplementation by manual examination of reference lists from articles and expert consensus meeting notes. The review focused on dysphagia assessment pre- and post-multimodality treatment. Interventions were recommended based on the tumor type, treatment regimen, and host performance status.

The article's most pivotal aspects were the evidence-based recommendations for pretreatment assessment for patients treated with radiotherapy and the effects of concurrent therapies (i.e., surgery and chemotherapy) on the development of dysphagia. Clinicians caring for patients with HNC will find the following clinical guidelines invaluable.

- All patients with HNC must be clinically evaluated for signs and symptoms of dysphagia and for one or more items as listed in "Murphy's trigger symptoms" (Murphy, 2011).
- Detailed swallowing evaluations must be conducted before treatment and should include a battery of diagnostic tests such as flexible endoscopic evaluation of swallowing, video-fluoroscopy, and modified barium swallowing as predictors of aspiration pneumonia.
- Quality of life must be rated subjectively by the patient and clinician.
- The meaningfulness of health function should be accounted for, as the authors identified a gap between actual patient performance status and the patients' desired performance status.
- Pretreatment recommendations must be given using the Total Dysphagia Risk Score, which predicts swallowing dysfunction with a numeric rank for risk and helps to determine modification of interventions to avoid dysphagia.

Extensive clinical guidelines were provided for treating postoperative patients, including the controversial use of enteral feeding tubes (because of disuse atrophy and late-effect dysphagia), as well as the nuances of a potential risk for dysphagia related to the type of surgical procedure. Of particular value to practicing radiation oncology nurses was a discussion of treatment with conventionally fractionated radiation therapy (1.8–2 Gy per day) with curative intent total dose 66–70 Gy over 6–7 weeks, compared with altered fractionation schedules at a higher dose per fraction, and concern for increased toxicity risk directly related to dysphagia. Overall, the article emphasized the need for comprehensive, multiprofessional team diagnosis and treatment of HNC together with development of prospective studies to identify preven-

tive and therapeutic strategies that focus on swallowing function in patients with HNC and the concomitant management of potentially life-threatening dysphagia.

Murphy, B.A. (2011). Approaches to supportive care. In J. Bernier (Ed.), *Head and neck cancer: Multimodality management* (pp. 255–256). New York, NY: Springer Science and Business Media.

Russi, E.G., Corvò, R., Merlotti, A., Alterio, D., Franco, P., Pergolizzi, S., . . . Bernier, J. (2012). Swallowing dysfunction in head and neck cancer patients treated by radiotherapy: Review and recommendations of the Supportive Task Group of the Italian Association of Radiation Oncology. *Cancer Treatment Reviews*, 38, 1033–1049. doi:10.1016/j.ctrv.2012.04.002

Smoking Proves Highly Predictive of Distant Metastasis

A moderate-sized retrospective study focused on the clinical evolution of distant metastasis in a patient population with locally advanced oropharyngeal cancer (McBride, Ali, Margalit, & Chan, 2012). Distant metastasis occurs in about one-third of these individuals, and the authors identified a lack of documented associated risk factors; therefore, they evaluated 132 patients with a median follow-up time of 52 months treated with definitive radiation and chemotherapy for stages III–IVA/B oropharyngeal cancer. Patients were assessed prospectively at diagnosis for tobacco use, including cigarettes, cigars, and pipes. Thirty-three percent were nonsmokers, 51% were former smokers, and 16% were active smokers (i.e., smoking at diagnosis). Cumulative lifetime tobacco use was quantified in pack-years (a pack-year is equal to smoking one pack or 20 cigarettes per day for one year).

As noted by the authors, a clinical correlation has evolved from 1997–2007 between human papillomavirus (HPV) infection and a rise in oropharyngeal carcinoma (Brown, Check, & Devesa, 2011). Multimodality treatment with radiation therapy, concurrent chemotherapy, and the exquisitely radiosensitive HPV-positive disease has led to dramatic increases in overall survival (80%–85%) and locoregional control (90%–96%) rates. Patterns of failure have, therefore, shifted,

with increasing percentages of patients developing distant metastasis at the site of first failure.

The impetus for this study was based on a large, national, phase III randomized trial that reported about 32% of HPV-positive patients developing distant metastasis at the site of first relapse. In addition, literature identifying factors specific for development of distant metastasis in this patient population has been limited to advanced primary tumor and nodal status. Tobacco exposure has been linked to general disease recurrence, so the retrospective review was tailored to document the specific relationship between tobacco use and distant metastasis.

Median age of the patient cohort was 58 and median Karnofsky performance at presentation was 90 on a scale of 0 (dead) to 100 (normal), so these individuals were able to carry on normal activity with minor signs or symptoms of disease. HPV status was known for 38 of the 132 participants and, of those, 92% were positive. Every patient received a course of definitive radiation therapy, with concomitant boost or intensity-modulated treatment with simultaneous boost. Median dose-to-gross tumor was 70–72 Gy over 6–6.5 weeks. Concomitant chemotherapy was administered to 95% of patients with cisplatin, carboplatin and taxol, or cetuximab regimens. The study end points were distant metastasis and distant metastasis-free survival (DMFS).

Overall results (follow-up time frame of 52 months) for all patients included 10 (8%) developing distant metastases post-treatment at nine months. The four-year rate of distant metastasis was 8%, and the four-year rate of DMFS was 77%. Active smoking and nodal status category were predictive of higher rates of distant metastasis (including never and former smokers [31% versus 3%, $p = 0.001$]). After adjusting for nodal status category, active smoking remained the most significant predictor for increased risk of distant metastasis (hazard ratio = 12.7, $p = 0.001$).

Overall, active smoking at diagnosis was significantly associated with increased risk of distant metastasis. The authors adjusted for covariates, including primary tumor and nodal status, and found active smoking to be the most powerful predictor of distant relapse (11.4-fold increase) of distant failure compared to nonactive smokers. For limited cohorts who were HPV positive, no statistically significant relationship was found between HPV status and distant failure.

In the interest of completion, the authors provided commentary on active

smoking and chemotherapy efficacy. Accordingly, cigarette smoking is known to affect the pharmacokinetics of many systemic agents, specifically cisplatin and taxol (commonly used to treat oropharyngeal cancer). Smokers also were found to physiologically clear systemic agents quicker than nonsmokers, which ultimately could lead to compromised systemic exposure.

Nursing implications of this study are innumerable. Practicing clinicians and researchers are in pivotal positions to assess patients thoroughly along the trajectory of care and, more specifically, to ensure that patients are fortified with obligatory self-management skills (such as smoking cessation) to facilitate their own care and ultimately enhance survival.

Brown, L.M., Check, D., & Devesa, S. (2011). Oropharyngeal cancer incidence trends: Diminishing racial disparities. *Cancer Causes and Control*, 22, 753–763.

McBride, S.M., Ali, N.N., Margalit, D.N., & Chan, A.W. (2012). Active tobacco smoking and distant metastasis in patients with oropharyngeal cancer. *International Journal of Radiation Oncology, Biology, Physics*, 84, 183–188.

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