CHAPTER 1

Overview

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Introduction

Head and neck cancer is often a devastating and debilitating cancer. Although other populations of patients with cancer sustain similar morbidity with treatment, the unique physiologic and psychosocial needs of patients with head and neck cancer often are magnified by the facial disfigurement and multiple sensorimotor functional impairments.

Head and neck carcinoma denotes a malignant process that originates in the upper aerodigestive tract. This area includes the lips, oral and nasal cavities, paranasal sinuses, pharynx, and larynx. It also comprises malignancies found in the salivary, thyroid, and parathyroid glands (Scarpa, 2014). About 90% of tumors found in the upper aerodigestive tract are pathologic squamous cell carcinomas (Rousseau & Badoual, 2011). Other pathologic findings more common in salivary tissue include mucoepidermoid carcinomas, adenocarcinomas, and adenoid cystic carcinomas. Common thyroid carcinomas include papillary, medullary, and anaplastic cell types (American Cancer Society [ACS], 2014c).

According to ACS (2014b), head and neck cancers account for about 3% of all cancers in the United States, with rates twice as high for men than for women. ACS estimates approximately 39,500 new cases of cancer of the oral cavity and pharyngeal carcinomas in 2015 (ACS, 2014b). This is a decrease of approximately 27,000 new cases compared to data recorded in 2005. Incidence rates from 2006 to 2010 were unchanged in men and had decreased by 0.9% annually in women (ACS, 2014a). It is important to note, however, that incidence rates are increasing for cancers in the oral cavity including the oropharynx. This is related to human papillomavirus (HPV) infection. From 2006 to 2010, death rates from oral cancer decreased annually by 1.2% in men and 2.1% in women (ACS, 2014a).

Head and neck cancer is considered to be one of the most debilitating cancers. These malignancies affect basic survival needs (e.g., breathing, eating, communicating) and result in considerable cosmetic and functional deficiencies associated with treatment modalities such as surgery, radiation therapy, and chemotherapy.

Risk Factors

Risk factors for head and neck cancers that originate in the oral cavity and larynx are associated with the combined use of tobacco in any form (e.g., cigarettes, cigars, pipes, chewing tobacco) and alcohol (Turati et al., 2013). The carcinogens found in tobacco products are prone to have a synergistic effect when combined with alcohol, increasing the risk of developing this type of malignancy (Allam, Zhang, Zheng, Gregory, & Windsor, 2011). Other risk factors may include exposure to wood dust, nickel, nitrogen mustard, and asbestos.

Current research has shown a strong link between HPV and oral cancer (Chaturvedi et al., 2011; Jayaprakash, 2011). HPV is a very common sexually transmitted infection in both men and women. About 79 million people are currently infected with this virus, and 14 million are newly infected each year in the United States (Satterwhite et al., 2013). Of more than 150 different HPV strains, about 40 are transmitted through sexual contact. The most common of these HPV strains are types 16 and 18 (Dunne et al., 2014).

Malignant tumors can arise in salivary and endocrine glands in the head and neck region as a result of radiation exposure. This exposure can come from diagnostic procedures or from previous radiation therapy. Inhalation of wood or nickel dust increases the risk of malignancies developing in the nasal cavity and paranasal sinuses. Infection from the Epstein-Barr virus, exposure to wood dust, and ingestion of certain preservatives or dried, salted foods are associated with an increased risk of nasopharyngeal carcinomas (MedicineNet.com, 2014).

The U.S. Surgeon General recently reported that "very large disparities in tobacco use remain across groups defined by race, ethnicity, educational level, and socioeconomic status and across regions of the country" (U.S. Department of Health and Human Services, 2014). This may account for disparities in the risk of head and neck cancers as well. Few studies address the issue of race and the incidence of head and neck cancers. A Surveillance, Epidemiology, and End Results (SEER) database analysis from 1973 to 2001 found an increased incidence of oral and pharyngeal carcinoma among young Caucasians compared with young African Americans. However, conflicting yet smaller studies report higher incidences for African Americans (Blair, 2014). Cancers of the larynx and hypopharynx seem to be more frequent among African Americans and Caucasians than among Asians and Latinos (ACS, 2014a).

Cancer Staging

Patients with head and neck cancer most often present with complaints of a lump or mass, otalgia, dysphagia, voice change, or oral pain. Cervical adenopathy may be present. A workup will include a biopsy or needle aspiration of any suspicious area. Once a malignant diagnosis has been established, additional workup may include a computed tomography scan, positron-emission tomography scan, magnetic resonance imaging scan, or ultrasound. These radiographic studies are done to determine the extent of disease and if any distant metastatic disease is present. The tumor is staged, specific to the primary site, using the data obtained from the biopsy or needle aspiration and radiographic data according to the American Joint Committee on Cancer tumor-node-metastasis staging system. This system gives healthcare professionals a common language to use when describing a malignant process (American Joint Committee on Cancer, 2015). The healthcare provider recommends a treatment plan once the stage is determined (Scarpa, 2009).

Treatment Modalities

Surgery remains the oldest and most successful treatment for malignancies in the head and neck region. Outcomes are determined by disease stage, functional and cosmetic impairments, and the experience of a multidisciplinary team. Advances in surgical techniques, such as robotic-assisted surgery and endoscopic approaches, have led to improved functional outcomes. Radiation and chemotherapy play an important role in adjuvant treatment. Recent advances in radiation therapy, along with the development of new biologic agents and targeted therapies, have improved survival and functional results. In some early-stage carcinomas, radiation therapy may be used alone or in combination with chemotherapy. The combination of two or more treatment modalities may be necessary for advanced-stage tumors (Scarpa, 2014).

Summary

For patients with head and neck malignancies, advanced surgical techniques combined with conservative treatment approaches are leading to more favorable outcomes with improved function, cosmetic outcomes, and symptom management. However, caring for these patients continues to present tremendous nursing challenges in all practice settings. Oncology nurses play a critical role in coordinating patient care and providing appropriate interventions and patient education.

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References

Allam, E., Zhang, W., Zheng, C., Gregory, R.L., & Windsor, J.L. (2011). Smoking and oral health. In D. Bernhard (Ed.), *Cigarette smoke toxicity: Linking individual chemicals to human diseases* (pp. 257–280). Hoboken, NJ: John Wiley & Sons.

American Cancer Society. (2014a). Laryngeal and hypopharyngeal cancers. Retrieved from http://www.cancer.org/acs/groups/cid/documents/webcontent/003108-pdf.pdf

American Cancer Society. (2014b). Oral cavity and oropharyngeal cancer. Retrieved from http://www.cancer.org/acs/groups/cid/documents/webcontent/003128-pdf.pdf

American Cancer Society. (2014c). Salivary gland cancer. Retrieved from http://www.cancer.org/acs/groups/cid/documents/webcontent/003137-pdf.pdf

American Joint Committee on Cancer. (2015). What is cancer staging? Retrieved from http://cancerstaging.org/references-tools/Pages/What-is-Cancer-Staging.aspx

Blair, E.A. (2014). Head and neck carcinoma in the young patient. Retrieved from http://emedicine.medscape.com/article/855871-overview

Chaturvedi, A.K., Engels, E.A., Pfeiffer, R.M., Hernandez, B.Y., Xiao, W., Kim, E., … Gillison, M.L. (2011). Human papillomavirus and rising oropharyngeal cancer incidence in the United States. *Journal of Clinical Oncology, 29,* 4294–4301. doi:10.1200/JCO.2011.36.4596

Dunne, E.F., Markowitz, L.E., Saraiya, M., Stokley, S., Middleman, A., Unger, E.R., … Iskander, J. (2014). CDC grand rounds: Reducing the burden of HPV-associated cancer and disease. Retrieved from http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6304a1.htm?s_cid

Jayaprakash, V., Reid, M., Hatton, E., Merzianu, M., Rigual, N., Marshall, J., … Sullivan, M. (2011). Human papillomavirus types 16 and 18 in epithelial dysplasia of oral cavity and oropharynx: A meta-analysis, 1985–2010. *Oral Oncology, 47,* 1048–1054. doi:10.1016/j.oraloncology.2011.07.009

MedicineNet.com. (2014). How common are head and neck cancers? Retrieved from http://www.medicinenet.com/head_and_neck_cancer/page3.htm

Rousseau, A., & Badoual, C. (2011). Head and neck: Squamous cell carcinoma: An overview. *Atlas of Genetics and Cytogenetics in Oncology and Haematology.* Retrieved from http://atlasgeneticsoncology.org//Tumors/HeadNeckSCCID5090.html

Satterwhite, C.L., Torrone, E., Meites, E., Dunne, E.F., Mahajan, R., Ocfemia, M.C., … Weinstock, H. (2013). Sexually transmitted infections among U.S. women and men: Prevalence and incidence estimates, 2008. *Sexually Transmitted Diseases, 40,* 187–193. doi:10.1097/OLQ.0b013e318286bb53

Scarpa, R. (2009). Surgical management of head and neck carcinoma. *Seminars in Oncology Nursing, 25,* 172–182. doi:10.1016/j.soncn.2009.05.007

Scarpa, R. (2014). Surgical care of head and neck cancers. In G.W. Davidson, J.L. Lester, & M. Routt (Eds.), *Surgical oncology nursing* (pp. 65–78). Pittsburgh, PA: Oncology Nursing Society.

Turati, F., Garavello, W., Tramacere, I., Pelucchi, C., Galeone, C., Bagnardi, V., … Negri, E. (2013). A meta-analysis of alcohol drinking and oral and pharyngeal cancers: Results from subgroup analyses. *Alcohol and Alcoholism, 48,* 107–118. doi:10.1093/alcalc/ags100

U.S. Department of Health and Human Services. (2014). *The health consequences of smoking—50 years of progress: A report of the Surgeon General, 2014.* Retrieved from http://www.surgeongeneral.gov/library/reports/50-years-of-progress