Epidemiology and Demographics of the Head and Neck Cancer Population

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KEYWORDS

• Risk factors • Epidemiology • Cancer • HPV • Head and neck

KEY POINTS

- Head and neck malignancies affect the oral cavity, pharynx, larynx, salivary glands, and sinonasal cavities.
- Risk factors for head and neck malignancies vary based on subsites. These include tobacco smoke exposure, alcohol use, HPV, marijuana, and smokeless tobacco.
- The incidence of head and neck cancers is mostly declining because of successful public health smoking cessation campaigns with the exception of HPV-related malignancies.
- Demographic factors are linked to increased incidence, advanced stage at presentation, and poor prognosis.
- Early detection can help prevent significant functional and cosmetic morbidity and mortality. To date, no evidence-based screening protocols have been validated.

INTRODUCTION

Malignancies of the head and neck affect a variety of anatomic subsites, including the skin, oral cavity, oropharynx, nasopharynx, hypopharynx, larynx, paranasal sinuses, and salivary glands. Although malignancies of the epithelial origin, namely squamous cell carcinoma, are most common, neoplasms of mesenchymal, neural, and other cellular origins do occur. The use of tobacco and alcohol have been long recognized as major risk factors for the development of squamous cell carcinoma in the head and neck. Human papilloma virus (HPV) has also been found to be a major contributor to the development of oropharyngeal squamous cell carcinoma.[1] Other risk factors include genetics, toxic exposures, diet, and environmental factors. This article discusses the epidemiology of head and neck cancer (HNC), including risk factors, incidence, prognosis, survival, and health advocacy measures to be considered when caring for patients with HNC.

EPIDEMIOLOGY OF HEAD AND NECK CANCER

HNC is a heterogeneous entity, comprising malignancies arising above the thoracic inlet and below the level of the skull base. According to the definition from the American Joint Committee on Cancer, head and neck oncology encompasses malignancies arising from mucosal surfaces from the oral cavity, pharynx, larynx, and paranasal sinuses, and cancers originating from major and minor salivary glands.[2] Much of the

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data regarding risk factors for HNC presented in this article are derived from a multicenter, international endeavor known as the International Head and Neck Cancer Epidemiology Consortium (INHANCE), which pooled the data collected from 35 epidemiologic studies of HNC. The aggregate data were collected from case-control studies and case series comparing a total of 25,000 patients and 37,100 control subjects from the Unites States, Europe, Brazil, Latin America, and Asia, and this aggregate data was used to inform epidemiologic conclusions with the statistical power needed to confidently understand HNC risk.[3]

Oral Cavity and Pharynx

According to the Surveillance, Epidemiology, and End Results Program database, the prevalence of oral cavity and pharyngeal cancer (OCPC) in the United States in 2014 was 340,902.[4] Based on data collected between 2010 and 2014, the number of new cases or incidence of OCPC for women and men was 11.2/100,000.[4] Moreover, men were overall more likely to be diagnosed with these malignancies with 16.9 new cases out of 100,000 people, compared with 6.2/100,000 new cases for women. The rate of death for OCPC was similarly found to be increased in men compared with women (overall, 2.5 per 100,000; men, 3.8 per 100,000; women, 1.3 per 100 000), but interestingly black men were found to have the highest rate of death at 5.0 per 100,000. The American Cancer Society estimates that in 2017 the number of new OCPC diagnosed will be 49,670 (35,720 men, 13,950 women), and 9700 deaths will occur as a result of OCPC (7000 men, 2700 women).[5] These estimates make OCPC the ninth most commonly diagnosed cancer in men, comprising 4% of all new cancer cases diagnosed in men. In fact, according to data collected between 2009 and 2013, men are diagnosed 2.7 times more frequently with and die 2.8 times more often of OCPC than women.[5] Overall 5-year survival for all OCPC was 64.7% based on 2007 to 2013 data.[4]

The incidence of OCPC has been rising on average by 0.6% per year for the last decade, with the incidence of oropharyngeal and tonsillar cancers increasing on average by 2.9% per year (**Fig. 1**). This is largely driven by a well-recognized increased prevalence of HPV-related malignancies, which mainly affect the oropharynx. In fact, Surveillance, Epidemiology, and End Results Program data show that between 2005 and 2014, the incidence of malignancies associated with HPV infections, such as those of the tonsil, oropharynx, other oral cavity, and oropharynx and tongue cancers have increased by 3%, 2.3%, 3.9%, and 1.7% per year, respectively, whereas the incidence of malignancies associated with traditional HNC risk factors (eg, tobacco, alcohol), such as cancers of the gums and other oral cavity, floor of mouth, and hypopharynx, have decreased by 0.1%, 3.0%, and 2.5% per year, respectively, over that same period of time.[6] Moreover, HPV-positive malignancies are

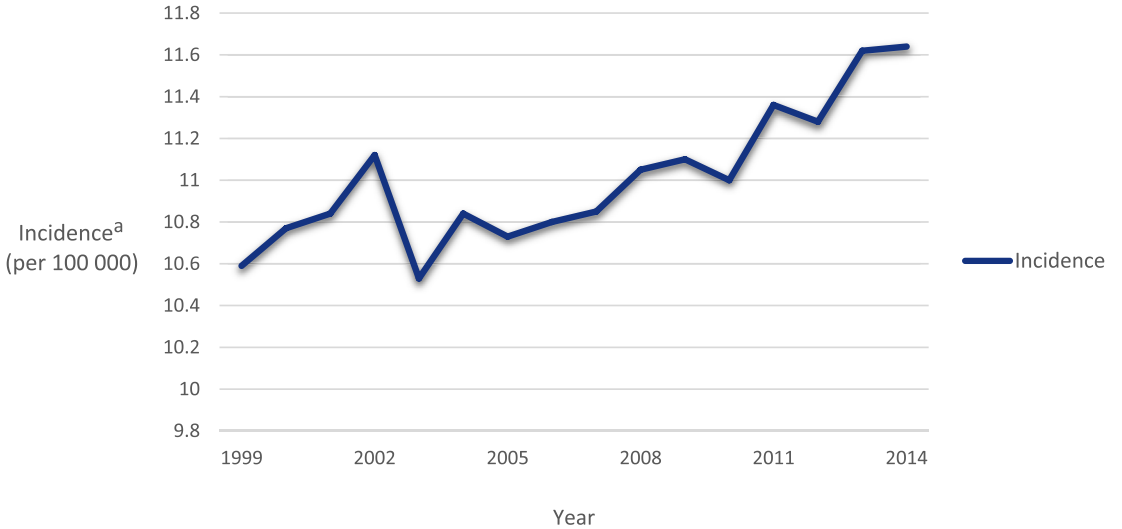

Fig. 1. US incidence of oral cavity and pharyngeal cancer. [a] Age- and delay-adjusted incidence rate per year. (*Data from* Howlader NNA, Krapcho M, Miller D, et al. SEER cancer statistics review, 1975-2014. 2017. Available at: https://seer.cancer.gov/csr/1975_2014/.)