Oral Cancer Screening in High-Risk Individuals: The Need for Awareness by the Primary Care Physician

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INTRODUCTION

Oral cancer is an important and growing global health problem that currently accounts for about 3% of worldwide malignancies. It is usually synonymous with squamous cell carcinoma of the oral cavity. Most potentially malignant disorders are found on the buccal mucosa, lower gingiva, tongue, and floor of the mouth, with the remaining cases distributed throughout the rest of the oral cavity (Epstein et al., 2008). The American Cancer Society has estimated that in the United States there were 23,000 new cases of oral cancer, with 5,300 deaths, in 2010 (Steele and Meyers, 2011). Incidence and mortality are even higher in developing countries, where cancer of the oral cavity ranks among the three most common types of cancer. In India, the age-standardized incidence rate of oral cancer is reported at 12.6 per 100,000 people (Petersen, 2009). Such staggering numbers have led organizations across the globe, including the World Health Organization, to take steps to ensure prevention of oral cancer is an integral part of national cancer-control programs (Petersen, 2009).

Despite the increased attention to oral cancer and the great strides made in treatment options, the five-year survival rate has not changed appreciably in the past several decades, remaining at 50–60% since 1974 (Steele and Meyers, 2011). One major factor that has prevented improvement in the survival rate is that presentation is often symptomatic only at a late stage, when five-year survival rates are close to 20% (Steele and Meyers, 2011). The ability to diagnose oral squamous cell carcinoma at early stages is crucial to improving survival rates, quality of life, and treatment efficacy. Visual inspection and physical examination continue to be the predominant initial means of screening for oral cancer. In a systematic review of the literature, Kujan et al. (2005) concluded that there was insufficient evidence either to support or to refute the use of screening for oral cancer in the general population. However, a randomized trial in India of more than 100,000 high-risk patients found a 34% reduction in mortality due to oral cancer in people who underwent regular visual screening by trained healthcare workers, compared to those who did not undergo regular visual screening (Sankaranarayanan et al., 2005). Based on these findings, it is evident that the oral cavity is an easily accessible site for screening by physicians and other healthcare workers in order to detect early oral neoplasia.

Unfortunately, most Americans, particularly populations at increased risk of oral cancer, do not receive routine oral healthcare. It is incumbent upon the medical community, particularly primary care physicians, to conduct opportunistic screenings on high-risk patients presenting for healthcare services in nondental settings. Although many physicians are not trained to screen for oral cancer (Mouradian et al., 2005), this does not imply a reluctance to learn about the importance of screening or to adopt the tools necessary to screen patients. A recent pilot study found that after undergoing a one-day training program, physicians indicated that they “definitely intended to change their clinical practice as a result of the training” (LeHew et al., 2009).

This commentary undertakes to review and update the risk factors for oral squamous cell cancer, to review the nature of oral precancerous lesions, to describe effective techniques that can be used in screening, and to help educate primary care physicians to screen high-risk patients effectively for oral cancer at early stages to decrease mortality and increase the five-year survival rate from oral cancer.

EPIDEMIOLOGY OF OROPHARYNGEAL SQUAMOUS CELL CARCINOMA

Oral cavity cancer is a major contributor to the global burden of cancer (Petersen, 2009). Each year an estimated 263,000 new cases of oral cavity cancer arise worldwide, resulting in approximately 127,000 deaths (International Agency for Research on Cancer, 2008). Oral squamous cell carcinoma is associated with a number of risk factors, of which tobacco and alcohol use present the greatest opportunity for intervention. To date it has been difficult to discern the contribution of these risk factors to oral cancers because of their associated comorbidities. Additionally, several studies have shown a synergistic effect of tobacco and excessive use of alcohol on the incidence of oropharyngeal squamous cell carcinoma (Petersen, 2009). Furthermore, a history of prior upper aerodigestive tract cancer confers a nine-fold increase in the relative risk of subsequent oropharyngeal carcinoma compared to the general population. Other known risk factors include betel nut chewing, oral human papillomavirus infection, chronic immunosuppression following solid organ transplant, hematopoietic cell transplant, and possibly HIV infection and AIDS (Warnakulasuriya, 2009). It is essential for the specialist...
and primary care physician alike to be aware of all the risk factors in establishing a patient history.

A number of clinical lesions in the oral cavity have been described as premalignant, and are specifically regarded as precursors to oral squamous cell carcinoma. These include leukoplakia, erythroleukoplakia, dysplastic leukoplakia, dysplastic lichenoid lesion, oral submucous fibrosis, and lichen planus (Epstein et al., 2008). About 5–18% of epithelial dysplasias undergo malignant transformation (Axéll et al., 1996). Several factors are associated with the increased progression of premalignant lesions to cancer: these include color (red, red/white), irregularity (lack of homogeneity), surface texture (granular, verrucous), and location (floor of the mouth, ventral or post-terolateral border of the tongue) (Shiboski et al., 2000). Thus, the well-described appearance of premalignant lesions in the oral cavity further underscores the value of a thorough physical exam.

Estimates suggest that in the year 2011, 39,400 new cases of oropharyngeal cancer were diagnosed in the United States. In addition, 7,900 deaths were associated with oropharyngeal cancer. Despite the ready accessibility of the oral cavity to direct examination, these malignant nancies are often still not detected until a late stage and, as a result, the survival rate for oral cancer has remained essentially unchanged over the past three decades. The five-year survival rate for early-stage tumors approaches 80% but falls below 30% for stage 4 tumors (National Cancer Institute, 2011).

**CURRENT GUIDELINES FOR SCREENING**

There are currently no definitive guidelines for screening for oral cancer. In 2004, the U.S. Preventive Services Task Force report found that there was not enough evidence to recommend for or against screening for oral cancer of smokers older than 50 and those at low risk (U.S. Preventive Services Task Force, 2004). Despite the lack of evidence to support screening of the general population, there is evidence that screening high-risk patients does decrease mortality and may be a more viable strategy (Sankaranarayanan et al., 2005). The question often arises: which medical providers should be conducting these screenings? Early-stage cancers in the oral cavity are more often identified by dentists, while late-stage disease is more likely to be discovered by medical physicians (LeHew et al., 2009). Unfortunately, many of those who are at high risk—smokers, African Americans, men, and individuals of low socioeconomic status—will not regularly see dentists and will be more likely to have late-stage diagnoses. Therefore, incidental screening of high-risk patients has been suggested when patients are seen for other examinations by healthcare providers.

Primary care physicians can provide this type of screening for premalignant and squamous cell carcinomas in target individuals.

**CONCLUSION**

Oral squamous cell carcinoma is a life-threatening disease with high morbidity and mortality costs. However, it is potentially easily detectable; neither heavy and expensive machinery nor invasive procedures are required to identify early lesions. This easy accessibility of the oral cavity to exam renders it an ideal target for improved screening practices. Due to the modest investments of time and cost required by screening exams, we recommend that primary care physicians assume a frontline role in the battle against oral squamous cell cancer. By actively defining those at high risk based on the aforementioned risk factors, primary care physicians can screen such patients when they come to the office and help refer appropriate patients to an otorhinolaryngologist. Screening and educating patients about lifestyle modifications can help significantly decrease the prevalence of and mortality from oral squamous cell carcinoma.

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**REFERENCES**


