

Recent Advances in Oral Cancer Research

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3.1 Introduction

Head and Neck Squamous Cell Carcinoma (HNSCC) is a heterogeneous disease and the sixth most prevalent malignancy with an annual incidence of 800,000 and 350,000 deaths worldwide [1–3]. With over 200,000 incidences, HNSCC accounts for 30% of all the cancers in India and 57% of HNSCC globally [4]. According to the GLOBOCAN 2018, carcinoma of the lip and oral cavity is the most commonly reported malignancy in South-East Asia including India and accounts for the highest cancer mortality [3]. Oral squamous cell carcinoma (OSCC), the major subtype of HNSCC, accounts for 275,000 cases worldwide and over 100,000 cases in India. Recent global estimates have revealed an annual incidence of 246,420 males and 108,444 females being registered worldwide. While the incidences of smoking/alcohol-associated HNSCCs are decreasing, epidemiological studies over the last 20 years have shown a steady rise in the inci-

dence of oropharynx and oral cavity cancers in younger adults. Interestingly, these studies collaborate with the increasing prevalence of human papillomavirus (HPV)-associated oropharyngeal cancers (OPC) [5]. Surprisingly though, the incidence of HPV-associated OPCs is expected to surpass cervical cancers in the USA by 2020 [6].

HNSCC/OSCC is characterized by increased invasion, lymph node metastasis, and frequent recurrence. In addition, due to the field cancerization effect, many of these patients with HNSCC develop multiple primary tumors at the same site or at different sites. While the surgery in conjunction with radiotherapy and chemotherapy remains the most common treatment modality, altered physical appearance and disruption in their daily activities are associated with immense psychological trauma and overall poor patient prognosis. Advancement in oral cancer research has provided an immense understanding of etiology, risk factors, carcinogenesis, molecular markers, and targeted therapies. This chapter deals with the recent advancements in the field of HNSCC, their application, and future directions.

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3.2 Risk Factors of OSCC/HNSCC

Risk factors include the presence or absence of particular aspects that either increase the chance of contracting a disease or worsen the existing condition. While both genetic and environmental