

EDITORIAL

The Neoteric Trends of Oral Cancer

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Oral Cancer is one of the most challenging malignancy and leading cause of mortality worldwide. It is the eighth most common cancer in the world with a greater male predilection. According to epidemiologic data India alone is estimated to have 6 million cancer patients at any point of time and nearly 2 million new cases detected every year. Hence the need of the hour is to nip this evil in the bud by early diagnosis and appropriate treatment. The major risk factors are tobacco, alcohol, areca nut, and betel quid with age, family history, immunosuppression, HPV infection or other systemic illnesses further modifying the course of the disease. Over the past few years there have been a shift in the incidence of oral cancer. A part from the earlier notion/observance of people in old age group being inflicted with cancer, recent cases of cancer in young adults have been reported.

The transformation of normal cells to pre neoplastic cells and finally to cancer cells is a multi-step process involving various genetic and molecular changes resulting in an increased cellular proliferation, loss of cell cohesiveness, local tissue infiltration and distant metastasis. Despite the multidisciplinary therapeutic approach, oral cancer has a poor prognosis and also a high recurrence rate. Hence it is very essential to grasp the exact etiopathogenesis of the disease as various molecular or genetic pathways involved in oral cancer initiation as well as progression will not only allow us to make a more accurate diagnosis but also help to predict the course of the disease thereby opening vistas for more novel approaches in treatment and prevention.

Currently there has been a paradigm shift in the diagnostic process of oral cancer from traditional histopathological examination towards the specific biomarkers which provide information regarding status of cell at any point of time thereby helping in early diagnosis and intervention. Also the sensitivity and specificity of these biomarkers are very high. In this post-genomic era, scientists are conducting numerous researches on the changes occurring in nucleic acids (DNA/RNA) or proteins to analyse the progression of normal cell to neoplastic cell.

Various genetic alterations which occur during the process of carcinogenesis include mutations, amplifications, rearrangements, deletions and Loss of Heterozygosity leading to increased cellular activity. One of the initial genetic changes found in DNA of oral cancer cells was a mutation of the *TP53* gene leading to increased growth of abnormal cells and formation of cancers. Another important genetic mutation is that of Epidermal Growth Factor Receptor (EGFR) which may initiate a cascade of cellular events resulting in progression of the disease. Likewise there are various other biomarkers, some are yet to be identified which can change the expression of disease.

Hence identifying these genetic markers will be beneficial in targeting the specific gene therapy thereby curing the disease at an infancy stage and subsequently improving the quality of life of patients.