PREFACE

Cancer is leading health problem worldwide and accounts for 13% of death each year. Moreover, developing countries have higher rate of cancer as compared to developed countries and its incidence is rising. Globally, Head and Neck Cancer is the sixth leading cancer that includes cancer of oral cavity, oropharynx, larynx or hypopharynx. According to World Health Organization (WHO) cancer statistics 2012, lip and oral cavity cancer is most common site of Head and Neck Cancer and is the third highest cause of death among men worldwide. The prevalence of Head and Neck Cancer in India is 4 times higher than other countries. The latest findings of National Cancer Registry Programme (NCRP) of the Indian Council of Medical Research (ICMR) show that Head and Neck Cancer is the second leading cancer among males across all population based registries. According to hospital based registry of Gujarat Cancer and Research Institute, Head and Neck Cancer is the leading cancer among males in which oral cavity is the most predominant site that constitutes 17.53% of total cancer among males.

Squamous Cell Carcinoma is the most common histological type found in Oral Cancer. More than 90% of Oral Cancer patients are associated with betel quid (BQ) chewing, cigarettes smoking and alcohol consumption concomitantly. Individuals who have BQ chewing, smoking and drinking habits have a higher risk of developing premalignant lesion of oral cavity such as oral leukoplakia (OL) which then progress in to Oral Squamous Cell Carcinoma. Conventional treatments available for Oral Cancer involve surgery, radiotherapy and chemoradiotherapy. Despite advance treatment modalities,
the five year survival rate of Oral Squamous Cell Carcinoma (OSCC) remained below 50% for past 30 years.
The poor prognosis and treatment failure of OSCC is certainly linked with immunosuppression observed in these patients. Alteration of systemic and local immune response has been observed in OSSC patients. Patients with OSCC often developed leukocytosis accompanied with neutrophilia and lymphopenia. In addition, defective function of Lymphocytes, especially T cells play important role in the immune escape of tumor. Altered proportion of Cytotoxic, Helper and Regulatory T cells is frequently observed in circulation and at tumor site of Head and Neck Cancer patients. Further, the prognostic significance of circulating and tumor infiltrating T cells is found to be controversial in Head and Neck Cancer patients and different anatomical sites of Head and Neck Cancer also have different tumor biology. Therefore, it would be interesting to study circulating and tumor infiltrating T cells in OSCC patients and its correlation with clinicopathological parameters and disease outcome.
Further, immune dysfunction has been also found in patients with premalignant lesions. In India, few studies have analysed the functional defects in T cell subsets such as Helper T cells, Cytotoxic T cells and γδ T cells in OSSC and only one study observed high circulating Regulatory T cells in OSCC as compared to healthy controls. However, these studies have not analysed its dysfunction in premalignant conditions. Further, no Indian study has evaluated tumor infiltrating Regulatory T cells and their ratios with Cytotoxic and Helper T cells in OSCC and premalignant conditions. Hence, the study of immune response in premalignant as well malignant oral lesions is useful to understand the immune escape during carcinogenesis process.
Further, the understanding of interaction of host immune system with premalignant and malignant oral lesions will help in providing effective treatment of OSSC as new immunotherapeutic treatments have been developed and improving disease free and overall survival of OSCC patients.