Editorial

http://doi.org/10.33279/jkcd.v13i04.649

DIAGNOSTIC BIOMARKERS IN ORAL CANCER: CURRENT APPROACHES

Oral cancer is due to over expression of growth of abnormal cells which rapidly multiply and divide. oral cancer is the sixth most common tumour in the world and the highest mortality and morbidity rate amongst all the human malignancies. Betal nut, chewing pan and smokeless tobacco, intake of alcohol and chronic viral infections like human papilloma virus are some of the etiological factors of oral cancer. The pathogenies of oral cancers depend upon the interaction between the genetic, epigenetic and carcinogenetic factors and their association with tumour growth and the progression of cancer. Genetic alteration changes give rise to a multiplex of oral mucosal changes like cellular and architectural and dysplastic changes which help in grading of tumour (well-differentiated, moderately differentiated and poorly differentiated) oral cancer. K-67 and cyclin D1 are strong genetic changes taking place in oral malignancies. Diagnostic biomarkers are an essential tool for the early detection and better prognosis of oral cancer. There are invasive and non-invasive procedures for the diagnosis of oral cancer which include invasive procedures like biopsy and the non-invasive or minimally invasive procedures are blood, plasma, serum and saliva. The oral cancer biomarkers can be detected by taking the samples from cancer patients and running the molecular laboratory techniques like real time PCR for liquid biopsy, DNA sequencing, hybridization technique, single nucleotide polymorphism analysis and immunofluorescence for FFPS.

Methylation includes hypermethylation and hypomethylation in which there is a defect in the promotor region of CPG island. The methylation process takes place in the early phase of the initiation of cancer so it is an important biomarker for the early detection of oral cancer. HOXA9, NID2, P16 AND PTEN are the genes of interest for hypermethylation in early cancer detection.

Viral infection load like Epstein bar virus (EBV)and human papilloma virus (HPV) DNA load have specific biomarkers which can help in the early detection of oral cancer when combines with hypermethylation. Interferon and microRNA related gene are also upregulated in tumour and a biomarker for early detection of oral cancer.

Dr. Samrina Mohammad
Associate Professor,
Oral Pathology Department,
Khyber College of Dentistry (KCD)
Peshawar