EVALUATION OF SERUM MOLYBDENUM AS A BIOCHEMICAL MARKER IN ORAL CARCINOGENESIS: A PILOT STUDY

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Abstract: Oral cancer the sixth most common cancer worldwide continues to be the most prevalent cancer related to the consumption of tobacco and other carcinogenic products. Histologically, over 95% of oral cancers are oral squamous cell carcinomas (OSCC). Leukoplakia is the most common pre-cancer representing 85% of such lesions. Amongst the various precancerous lesions and conditions, Oral Sub Mucous Fibrosis (OSMF) is on a marked rise in the younger population. Alterations in trace elements form the biochemical basis of oral carcinogenesis, which may provide critical clues for diagnosis, prognosis, individualization of therapy, and risk assessment. Molybdenum is regarded as an essential trace element and acts as cofactor of antioxidant enzymes. In the present study serum levels of molybdenum were evaluated in patients (n=100) with OSMF, oral leukoplakia, OSSC groups and controls. Serum molybdenum levels demonstrate significant differences within oral pre-cancer and cancer groups and from those of controls. A significant decrease in serum molybdenum in OSCC group is observed. The present study reveals that molybdenum has diagnostic value in differentiating precancer and malignancies from normal. This may also serve as biomarkers of disease progression. However, the role of this element in the etiopathogenesis of aerodigestive tract and oral carcinomas warrants further investigation.

Key words: Trace elements, oral pre-cancer, oral cancer, molybdenum, antioxidant