SDM
College of
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"SALIVARY ESTIMATION OF COPPER, IRON, ZINC AND MANGANESE IN ORAL SUBMUCOUS FIBROSIS PATIENTS: A CASE CONTROL STUDY"

By

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ABSTRACT

Background and purpose:

Trace elements (TE) are naturally occurring, inorganic substances required in human in amounts less than 100mg/day to activate more than 25% of the enzymes in the body. Recently, TEs are receiving much attention in the detection of oral potentially malignant disorder and cancer. Oral submucous fibrosis (OSF) is a chronic progressive disorder of the oral mucosa that has aptly been described as a potentially malignant disorder in view of the high rate of malignant transformation (7.6%). Biochemical alterations of such patients are necessary not only in early diagnosis, appropriate treatment but also as indicators of prognosis, as the disease progresses.

The purpose of this study was to estimate the TEs such as copper, zinc, iron manganese and copper/zinc ratio in the saliva of OSF patients and controls. The TEs were also correlated with various factors like age, duration and frequency of habits and clinical stage of OSF.

Methods:

A detailed case history including demographic information, general history, and details of diet, habits and socioeconomic status of the patients were recorded in a preformed performa. 5 ml saliva was collected from OSF cases (n=30) and controls (n=30) and was centrifuged and prepared by using Wet Ashing method. The TEs were estimated in parts per million (ppm) by using Atomic Absorption Spectrometry. The data obtained was statistically analysed using non parametric tests such as Mann Whitney U and Kruskal Wallis tests.

Results:

We observed that there was significant difference of the mean salivary zinc, manganese and iron levels in OSF when compared to that of controls. Mean salivary copper levels were increased in OSF but it was not statistically significant. Copper/ zinc ratio was decreased in OSF when compared to the controls. The TEs did not have a significant relation with age, duration and frequency of habits and clinical stage of OSF.

Interpretation and Conclusion:

The present study shows that the above TE may be associated with the pathogenesis and progression of OSF. Betel quid and areca nut chewing habits are frequently associated with OSF and may play a role in altering the salivary levels of these TE. Concerted efforts would, therefore, help in early detection, management and monitoring the efficacy of treatment.

Keywords: TE, OSF, saliva