**SDM**
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# "ROLE OF SERUM NICOTINE AND EGFR IN ORAL PREMALIGNANCY AND CANCER: A COMPARATIVE ASSESSMENT AMONG TOBACCO USERS AND CONTROL GROUPS"

By

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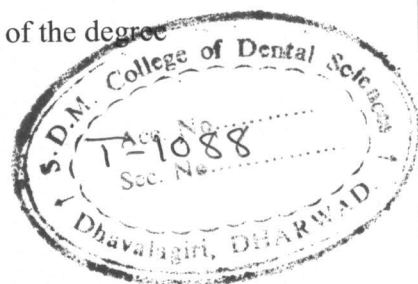
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# ABSTRACT

*Background*: Tobacco related adversities are manifold. The role of nicotine in oral potentially malignant lesions and cancer is relatively unexplored and the effect of nicotine on Epidermal Growth Factor Receptor is yet to be reported from India where tobacco related disorders constitute a major public health problem. *Objectives*: Keeping in view this lacuna in research, this study was taken up with the intention to establish the role of serum nicotine levels in tobacco induced Potentially Malignant Lesions (PMLs) and nicotine and EGFR levels in Oral Cancer.

1 Determine the serum nicotine levels in smokers and chewers with potentially malignant lesions, those with cancer and also control groups who are free from habit and lesions.

2. Determine the grades of EGFR in smokers and tobacco chewers with oral cancer.

*Method:* 120 Individuals with Potentially malignant lesions (PML) and Oral Cancer were screened and their history of tobacco use recorded; sample subcategorised into 4 groups based on smoking and chewing habits. For the purpose of comparison, 30 individuals free from habit and free from the lesions were also selected. Blood draw was performed in all the individuals and tissue samples were collected from the cancer patients. Serum was isolated for the analysis of nicotine levels using High Purification Liquid Chromatography (HPLC) and the tissue samples from cancer group were processed for assessing the EGFR grades using Immuno Histo Chemistry (IHC).

*Results:* Serum Nicotine level was detected in about 47% of the study population and the mean Nicotine Levels in the PML group (105.5 ng / ml) were higher than that in the Cancer group (28.9 ng / ml). ($p < 0.05$) Although smokers had a nicotine level of 54.2ng / ml and chewers 48 ng / dl, this difference was not statistically significant.

The EGFR was positive in 61% of the study population and it was significantly influenced by the cancer stage, cancer site and the type of habit: (chewers > smokers) However, the level of nicotine was not a significant determinant of the EGFR Grade.

*Conclusion* Serum Nicotine levels in the Potentially Malignant Lesions group were higher than that in patients with cancer. The difference between smokers and chewers though numerically significant (smokers > chewers), was not statistically significant. The levels correlate significantly to the duration of tobacco consumption and the type of lesion detected clinically. EGFR was positive in a majority of cancer cases. However, correlation with nicotine levels needs to be explored further.

**Key words: Nicotine, EGFR, Oral Cancer, Potentially Malignant Lesions**