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Study of Effect of Smoking on Auditory Acuity

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ABSTRACT

Background: The relationship between smoking and hearing loss has been debated. Smoking appears to have an effect on auditory acuity and the proposed mechanisms are the direct oxidative damage on cochlea caused by toxic substances inhaled with the cigarette smoke or to the acceleration of the atherosclerotic process in the cochlear artery.

Objectives: To record the auditory thresholds of age matched male smokers and non-smokers of age group 20-40 yrs, using pure tone audiometer and compare the auditory thresholds between the groups.

Method: Age matched male 100 smokers and 100 non-smokers were subjected to pure tone audiometric assessment. The smoking history in terms of pack-years was also noted. The data was statistically analyzed.

Results: Smokers group were significantly hearing impaired than the non-smokers group. The hearing impairment was noted at all frequencies tested. Higher frequencies were more affected than the lower frequencies. The auditory thresholds of smokers had significant positive correlation with smoking history, indicating that auditory thresholds rise as the number of pack-years increase.

Conclusion: Smoking causes hearing impairment. The higher frequencies are more affected. The auditory thresholds rise as the number of pack-years increase.

Keywords: *Smoking, Hearing Loss, Pure Tone Audiogram, Auditory Thresholds, Sensorineural Hearing Loss*

INTRODUCTION

Smoking is an addiction that has been accepted by the community despite its harmful effects. It is extensively practiced from time immemorial. As per World Health Statistics-2006 42.3% of males and 8.3% of females of age group e"15yr are smokers in India (2003).[1] According to a nationwide survey, 184 million used tobacco, of which 112 million smoked tobacco. It kills 8 lakh people every year according to Indian Council of Medical Research (ICMR) which amounts to 2200 people dying every day from tobacco related diseases.[2]

Though smoking is well known as a risk factor for various diseases, little is known about its association with hearing loss. Evidence on relation of smoking to hearing loss have been found from health screening programmes,[3, 4] occupational programs of hearing conservation[5, 6] and a few population based surveys.[7,8] In general, these have suggested that smokers have a greater risk of hearing loss than non-smokers.

While hearing loss is common among the elderly, the young also suffer from hearing impairment, which according to the impaired spectrum of frequencies, is not induced by noise. The medical literature describes the relationship between hearing loss and smoking. The causes probably arise from a combination of genetic and environmental factors. An experimental study has concluded that cigarette smoking results in structural modification of cochlea and tuba acoustica, i.e. degenerative lesions and vascular lesions.[9]

The present study is aimed to examine the association between smoking and hearing loss in a sample population from South India which is genetically different than subjects of other studies that

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