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A STUDY ON EFFECT OF SMOKING ON HEARING IN POPULATION VISITING IN TERTIATRY CARE HOSPITAL OF WESTERN UTTAR PRADESH

Otorhinolaryngology

Dr. Anubhav Aggarwal PG Resident

Dr. Prof. Chandresh Agarwal Head Of Department, ENT, Saraswathi Institute Of Medical Sciences, Hapur

Dr. Debabrata Ray PG Resident

ABSTRACT

Introduction: Few of the studies advocate that cigarette smoking is highly associated with the development of hearing loss both Conductive and Sensorineural type. However, comprehensive audiological evaluation on smokers has been scarce. Thus there is an extremely important need to assess the hearing status in smokers and to view pathophysiology of auditory system in greater detail which has been carried in this study. **Aims and Objective of the study :** To study the incidence of hearing loss in rural population by pure tone audiometry and to study the effect of smoking on hearing loss **Methodology:** The population included in the study was from the rural area of various age groups in Western Uttar Pradesh and were screened for hearing loss. Their detailed history was taken. Their personal history and life style habits like smoking and consumption of alcohol were noted. The rate of smoking was calculated by number of Pack Years. Following a complete examination to rule out any disease the individuals were subjected to pure tone audiogram under the frequencies 500,1000,2000,4000. The data was collected in the Performa and was evaluated by statistics. **Result:** According to our analysis, individuals in the smoking group had significantly increased hearing loss compared to those in the nonsmoking group. These results are consistent with early clinical studies reporting decreased hearing sensitivity in smokers compared with nonsmokers. In the present study, pathological auditory involvement is clearly evident in smokers. The pure tone audiometric finding indicated reduced hearing sensitivity. Sensorineural hearing loss was more prevalent in smokers. Mild sensorineural hearing loss occurs in cigarette smokers.

KEYWORDS

INTRODUCTION

Hearing loss is one of the most common sensory impairments, and results from pathological conditions along the auditory pathway.[1] Hearing impairment hampers the ability to understand speech, and leads to difficulties in communication and social connectivity. The prevalence of hearing impairment is increasing and the WHO reported that 360 million people, of the worlds' population, have disabling hearing loss, & that one-third of people over 65 years old are affected by disabling hearing loss.[2]

There are various risk factors for hearing loss, genetic causes, complications at birth, infectious disease, chronic ear infections, the use of ototoxic medications, exposure to noise, sex, ageing and so on. Age-related hearing loss usually begins in the third decade of life, progresses gradually, and typically involves the hearing threshold at high frequencies. On the other hand, while smoking is a well-known risk factor for many health problems, the association of cigarette smoking and hearing loss has been inconsistent[3]. Other studies found that smoking pack-years and ageing have multiplicative effects on developing hearing impairment[4]. However, older people have mostly smoked cigarettes for a longer period than younger people, and therefore a longer duration of smoking would have affected the cochlear circulation more and could thereby result in a high prevalence of hearing loss. From this perspective, it is essential to evaluate the hearing loss among smokers categorized by age and with adjustment for the age.

In this present study, we aimed study of prevalence hearing loss in various age groups by Pure tone audiometry.

AIM

To study on effect of smoking on hearing in population visiting in tertiary care hospital of western Uttar Pradesh.

MATERIALS AND METHODS

300 individuals of various age groups (20 to 50 years) selected with history of smoking. Detailed history taken recorded. The personal history and life style habits like smoking and consumption of alcohol was emphasized on. The rate of smoking was calculated by pack years. After complete examination, the individuals were subjected to pure tone audiogram at by bone vibrator placed on mastoid process. Measurements were restricted to frequencies up to 4000HZ only.

OBSERVATION AND RESULTS

The study was conducted at ENT Department ,Saraswathi Institute of Medical Sciences and Hospital, Hapur, UP.

Table 1: Age Distribution Of Subjects In The Study

AGE	SMOKER	NON SMOKER	TOTAL
20 YEARS	7.2%	4.4%	5.2%
20-25 YEARS	24.5%	25.5%	25.2%
26-30 YEARS	16.5%	23.3%	21.6%
31-35 YEARS	10.1%	12.7%	12%
36-40 YEARS	18%	15.8%	16.4%
41-45 YEARS	14.4%	6.6%	8.8%
>45 YEARS	9.4%	11.4%	10.4%

Fig.1 Pie Diagram Showing Cigarette Smoking Among Subjects

Table.2 Association Between Cigarette Smoking And Conductive Hearing Loss On Right And Left Ear

CONGENITAL HEARING LOSS	RANGE	CIGARETTE SMOKING PRESENT(%)	CIGARETTE SMOKING ABSENT(%)
RIGHT	NORMAL	96.4	98.1
	MILD	0	0.8
	MODERATE	3.6	1.1
LEFT	NORMAL	95	98.1
	MILD	3.6	1.7
	MODERATE	1.4	0.2

Table 3. Association Between Smoking And Sensorinural Hearing Loss On Right And Left Ear

Sensorineural hearing loss	Range	Cigarette smoking present (%)	Cigarette smoking absent(%)
RIGHT	Normal	63.3	83.9
	Mild	15.8	7.2
	Moderate	10.1	4.7
	Moderately severe	7.9	1.7
	Profound	1.4	0.8
	severe	1.4	1.7
LEFT	Normal	64	82.5
	Mild	17.3	8.6
	Moderate	5	2.8
	Moderately severe	9.4	2.5
	Profound	0.7	1.4
	Severe	3.6	2.2

DISCUSSION

Age distribution of subjects in the study: In 2015 , Jamal et al showed prevalence in cigarette smoking was higher among adult how were male ; were aged 25-44 years (17.7%).[5] Rani et al showed the prevalence of cigarette smoking use in India was estimated to be 37 percent among the population of 15 years and above .In our study majority of subjects were in the age group 21 to 25 years (25.2%), followed by 26 to 30 years (21.6%). Among smokers and non smokers majority of subjects were in the age group 21 to 25 years (24.5% and 25.5% respectively). There was no significant difference in age distribution between two groups.[6]

Smoking History Among Subjects: S.K.Jindal et al reported smoking habit was present in 28.5% of men and 2.1% of women. In our study 27.8 % were smokers and 72.2% were non smokers. [7]

Association Between Smoking And Conductive Hearing Loss On Right And Left Side : The conductive pathology observed in minority of subjects could be due to histopathological changes in the mucosal lining of the middle ear. In our study on right ear among smokers, 3.6% had moderate conductive hearing loss and non smokers 1.1% had moderate and 0.8% had mild conductive hearing loss.There was no significant association between conductive hearing loss and smoking on right ear. On Left ear among smokers, 4.3% had moderate and 0.7% had conductive hearing loss and non smokers. 1.1% had mild conductive hearing loss. There was significant association between conductive hearing loss and smoking on Left ear.

Association Between Smoking And Sensorineural Hearing Loss On Right And Left Ear : There are few available studies conducted in adults , but these report that passive exposure to cigarette smokers is more likely to result in hearing loss. The reported PTA there shold measured after exposure to cigarette smokers is around 20 – 25 Db , indicating that passive smoking is related in to mild or minimal sensorineural hearing loss . In the present study , among subjects with hearing loss , majority had SNHL (87%) and only 13% had mixed hearing loss. A study done by Kumar et al on 108 smokers revealed similar findings.[8] In their study , 77.5% of smokers had SNHL and only 18.3% had mixed hearing loss.In our study on right ear among smokers, 15.8% had mild, 10.1% had moderate, 7.9% had moderately severe, 1.4% had profound and severe SNHL. Among non smokers, 7.2% had mild, 4.7% had moderate, 1.7% had moderately severe, 0.8% had profound and 1.7 severe SNHL. There was significant association between Sensorineural hearing loss and smoking on right ear. On Left ear among smokers, 17.3% had mild, 5% had moderate, 9.4% had moderately severe, 0.7% had profound and 3.6% had severe SNHL. Among non smokers, 8.6% had mild, 2.8% had moderate, 2.5% had moderately severe, 1.4% had profound and 2.2% severe SNHL. There was significant association between Sensorineural hearing loss and smoking on Left ear.

CONCLUSION

According to our analysis , individuals in the smoking group had significantly increased hearing loss compared to those in the nonsmoking group. These results are consistent with early clinical studies reporting decreased hearing sensitivity in smokers compared with nonsmokers. In the present study, pathological auditory involvement is clearly evident in smokers. The pure tone audiometric finding indicated reduced hearing sensitivity. Sensorineural hearing loss was more prevalent in smokers. Mild sensorineural hearing loss occurs in cigarette smokers.

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