

Study of Relation between Tobacco Addiction and Sensorineural Hearing Loss in Bundelkhand Region

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ABSTRACT

Introduction: In developing countries like India, smoking and tobacco consumption is common health problem and it is associated with sensorineural hearing loss. Therefore aim of present study is to evaluate the correlation between tobacco addiction and SNHL in individuals who have consumed tobacco related products for at least 20 years.

Methods: Present study was conducted on in the Department of E.N.T at tertiary care hospital in Banda on normal healthy individuals addicted to various tobacco products like cigarette, bidi, oral tobacco addiction etc. for at least 20 years. All the participants underwent routine ENT examination. People between age group 30-60 years were included in the study and there were divided into three subgroups i.e., between 30-40 years, 40-50 years, and 50-60 years. People of these age groups without tobacco consumption are designated control group while people of same age groups with smoking and tobacco consumption were designated subject groups. Both the groups were compared for sensorineural hearing loss.

Results: Out of 45 cases of tobacco addiction, 55.5% cases showed no sensorineural hearing loss while 44.5% cases showed sensorineural hearing loss while in control group, 77.8% cases showed no sensorineural hearing loss while 22.2% cases showed sensorineural hearing loss.

Conclusion: There is a correlation between smoking and sensorineural hearing loss. Therefore by spreading awareness among people regarding harmful effects of smoking and tobacco, we can prevent or reduce development of sensorineural hearing loss.

Keywords: Tobacco Addiction, Sensorineural Hearing Loss, Correlation, Smoking

INTRODUCTION

In developing countries like India, smoking and tobacco consumption is common health problem. Globally about 130 crore peoples are addicted to various tobacco products.^{1,2} Nicotine, tar products etc are various tobacco products which are injurious to health. These products have linkage with various lung cancers, oral cancers, heart diseases etc. Tobacco consumption is very common in Buldelkhand region of Uttar Pradesh. In recent time, studies done by various authors had shown correlation between tobacco addiction and sensorineural hearing loss (SNHL).

Hearing is one of the important tools of effective social communication. Various factors like aging, smoking, tobacco consumption, environmental factors etc. may affect hearing sense and can cause hearing impairment. Therefore aim of present study is to evaluate the correlation between tobacco

addiction and SNHL in individuals who have consumed tobacco related products for at least 20 years.

MATERIAL AND METHODS

Present study was conducted on in the Department of E.N.T at tertiary care hospital in Banda over the period of one year i.e. February 2019- January 2020. In this study, normal healthy individuals addicted to various tobacco products like cigarette, bidi, oral tobacco addiction etc. for at least 20 years were included in the study. People having CSOM, inner ear diseases, history of ototoxic drug usage etc. were excluded from the study. After basic history taking especially for smoking and tobacco consumption, all the participants underwent routine ENT examination. Audiometry tests like tuning fork test and pure tone audiometry were conducted in all patients. Basic screening and audiometry tests were done by same surgeon in the same audiometric setup room. People between age group 30-60 years were included in the study and there were divided into three subgroups i.e., between 30-40 years, 40-50 years, and 50-60 years. People of these age groups without tobacco consumption are designated control group while people of same age groups with smoking and tobacco consumption were designated subject groups. Both the groups were compared for sensorineural hearing loss.

RESULT

Table 1 shows the relationship between tobacco use and sensorineural hearing loss. In present study, out of 90 cases, 66.7% cases showed no sensorineural hearing loss while 32.3% cases showed sensorineural hearing loss. Out of 30 cases, 20 cases showed mild hearing loss, 6 cases moderate hearing loss and 4 cases showed severe hearing loss. Sensorineural hearing loss was higher among tobacco user in comparison of non-tobacco user.

Table 2 shows the relationship between age group with sensorineural hearing impairment in tobacco user. In present study, out of 45 cases, 55.5% cases showed no sensorineural hearing loss while 44.5% cases showed sensorineural hearing loss. Out of 20 cases, 13 cases showed mild hearing loss,

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S. No.	Group	Sensorineural hearing impairment				Total
		No	Mild	Moderate	Severe	
1	Tobacco user (n=45)	25	13	4	3	45
2	Control group (n=45)	35	7	2	1	45
	Total	60(66.7%)	20(22.2%)	6 (6.66%)	4 (4.44%)	90

Table-1: Relation of Tobacco use with sensorineural hearing impairment

S. No.	Age Group	Sensorineural hearing impairment				Total
		No	Mild	Moderate	Severe	
1	31-40 years	10	4	1	0	15
2	41-50 years	9	4	1	1	15
3	51-60 years	6	5	2	2	15
	Total	25 (55.5%)	13 (28.9%)	4 (8.89%)	3 (6.66%)	45 (100%)

Table-2: Relation of age group with sensorineural hearing impairment in tobacco user

S. No.	Age Group	Sensorineural hearing impairment				Total
		No	Mild	Moderate	Severe	
1	31-40 years	13	2	0	0	15
2	41-50 years	12	2	1	0	15
3	51-60 years	10	3	1	1	15
	Total	35 (77.8%)	7 (15.5%)	2 (4.44%)	1(2.22%)	45 (100%)

Table-3: Relation of age group with sensorineural hearing impairment in control group

4 cases moderate hearing loss and 3 cases showed severe hearing loss.

Table 3 shows the relationship between age group with sensorineural hearing impairment in control group. In present study, out of 45 cases, 77.8% cases showed no sensorineural hearing loss while 22.2% cases showed sensorineural hearing loss. Out of 10 cases, 7 cases showed mild hearing loss, 2 cases moderate hearing loss and 1 case showed severe hearing loss.

DISCUSSION

Tobacco consumption is injurious to health and studies done by various authors³⁻⁸ have shown direct correlation between tobacco addiction and sensorineural hearing loss (SNHL). Nicotine increases the carbon monoxide levels in blood, which in turn converts hemoglobin to carboxy-hemoglobin. Carboxy-haemoglobin reduces the oxygen availability to cochlea and causes destruction of hair cells of cochlea. Toxic products in cigarette cause oxidative damage to hair cells. Nicotine has direct vasospastic action and causes atherosclerosis of vessels supplying cochlea. Various studies also suggest that with increase in age and increase in years of tobacco addiction directly correlate with the degree of hearing loss.

In our study, tobacco users were matched with age specific control groups (30-60 years age group) and people > 60 years were excluded from study. Reason for this was people >60 years may have physiological presbycusis. Result of present study does not coincide with the study done by Gates GA et al.⁹ in which no correlation was found between smoking and SNHL. Reason behind this was that in this study, mainly elderly population was included which was associated with many risk factors. Study done by Brant LJ et al¹⁰ also showed

no association between smoking and hearing loss.

Results of studies done by various authors coincide with the result of present study and showed definitive association between tobacco use and SNHL. Study done by Cruickshanks et al.¹¹ show that smokers have about two time higher risk of development of SNHL in comparison of non-smokers. Studies done by various authors¹²⁻¹⁵ found smoking as a major risk factor for SNHL and smoking causes high frequency SNHL. Noorhassim I et al.¹⁶ also found that smoking and age have multiplicative effect in causing SNHL.

CONCLUSION

Results of present study concluded that there is a correlation between smoking and sensorineural hearing loss. Our study also showed that tobacco chewing (without cigarette addiction) also has higher risk of development of sensorineural hearing loss. Therefore by spreading awareness among people regarding harmful effects of smoking and tobacco, we can prevent or reduce development of sensorineural hearing loss.

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