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Profile of Risk Factors for Sensorineural Hearing Loss in Government Ent Hospital, Visakhapatnam In 2014-15.

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Abstract:
Background: *Sensorineural hearing loss(SNHL) is the one end result of ageing , exposure to loud noise produced by occupational , electronics and industrial machines, infective, traumatic, systemic disease, exposure to ototoxic drugs and idiopathic.*
Aim And Objectives:*1) To know the risk factors producing sensorineural hearing loss in developing districts of coastal Andhra Pradesh.2) To create awareness among population regarding risk factors for SNHL, to take precautions both in lifestyle and also in occupation, to prevent SNHL.*
Observations: *In our study population, males are more affected than females. Bilateral involvement with gradual onset is more commonly seen. Mild and moderate deafness is observed more than moderately severe and severe deafness, the least is the profound deafness .Urban and urban slum are severely involved than the rural population .Out of all the risk factors for SN loss considered in our study NOISE has taken the first most common cause later trauma and systemic infections, ototoxic drugs are last. The use of mobile phones around two hours per day definitely influences the outcome of noise induced SNHL in the population.*
Conclusion: *This study shows that the need of awareness in public and workers at noise producing occupation to undergo regular otological examination. The media both electronic and press should campaign causes of SNHL and how to avoid it. Family doctors and particularly pediatricians should advice preventive measures in infections and prevention of uses of ototoxic drugs.*
Key Words*: SNHL (Sensorineural hearing loss), occupational hazards, noise induced deafness, ototoxic drugs.*

I. Introduction

Sensorinueral hearing loss is a challenging problem for ENT surgeons in their common practice. This study is based on identification of the risk factors for the SNHL for the last six months i.e December 2014 to May 2015 to know the different causes in the persons involved with SNHL. Inspite of latest measures taken to prevent noise pollution and information given by different media to the public regarding the infections, injuries and drugs causing deafness, the number of SNHL patients attending to outpatient department has not come down. At present, SNHL is one of the problems which cannot be satisfied totally to the patient by giving hearing aids or even high quality digital hearing aids. As other measures like bone anchoring hearing aids, vibration sound bridges and the last resort like cochlear implant are not in the reach of a common man. Again unilateral SNHL with moderate, moderately severe and severe degree are the conditions difficult to deal with.

II. Materials And Methods

This study is carried out from December 2014 to May 2015 for a period of last 6 months in outpatient clinics of Ear Nose and Throat department, Government ENT hospital, Andhra medical college, Visakhapatnam, which is a Tertiary care hospital and an academic institution. This hospital receives patients from Coastal Andhra which contains five districts. In this study during above period of 6 months, 1500 patients attended outpatient department. Out of which 100 patients below 60yrs of age were identified with SNHL were included in the study of risk factors of SNHL.

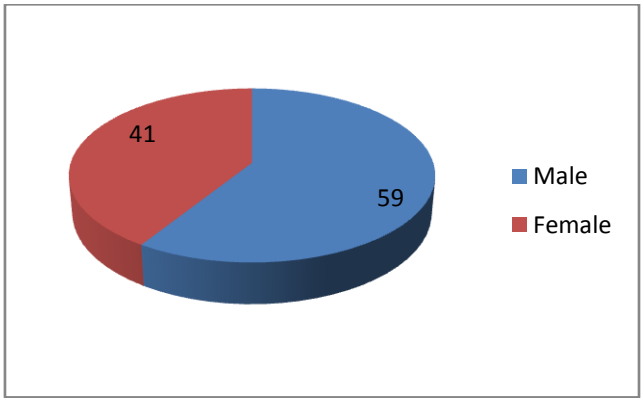
Inclusion and Exclusion Criteria

Patients below 60 years of age, with normal intact tympanic membrane were included in the study. Patients with age above 60 years, with congenital deafness, with history of discharging ear, otosclerosis and diabetes were excluded.100 cases were evaluated after detailed clinical examination of ear, nose and throat with head light, endoscope and also microscope. Routine laboratory tests for blood and urine were carried out. Pure tone audiometry and impedance audiometry were performed and analyzed particularly to exclude cochlear otosclerosis.

III. Results

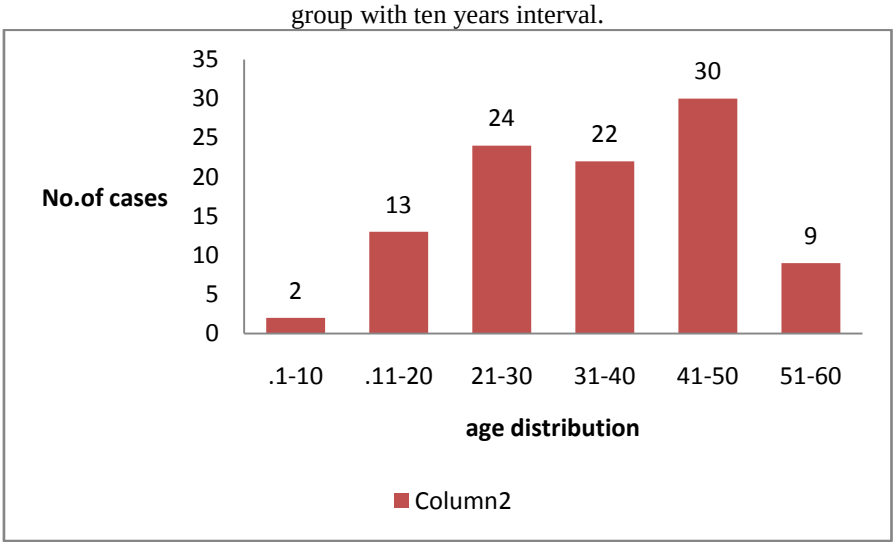
A Total of 100 patients were included in this study.

Table 1: Sex distribution



Males are more commonly involved than females in the ratio of 59:41 was observed.

Table 2: Age distribution .Age of population ranges from 10-60 years. They were divided in to six groups. Each group with ten years interval.



41 to 50 years age group found to be affected majority, in the total population which shows the elderly people in the age group of 41-50 are more experienced with better judgement and still they are active in their profession .Bilateral involvement is 82% when compared with unilateral which is 18%. In unilateral right ear 77.7% is predominant than left ear 22.3%. Sudden onset (31%) is less common than gradual onset (69%).This shows the people are more conscious about hearing and they are attending to consultants immediately after sudden onset of hearing loss; as this era is mostly depend on communication skills.

Table 3-A.Laterality

Deafness	No.of cases
Bilateral	82
Unilateral	18

Table 3-B

Unilateral deafness	No.of cases
Right	14
Left	4

Table 4. Type of onset of deafness

Onset of deafness	No. of cases(%)
Sudden	11U+20B=31
Gradual	7U+62B=69

Table 5.Grading of severity in deafness- 100 cases (200 ears)

Grading		No. of ears	Percentage
Normal	(<20dB)	4R+15L=19	8.5
I. Mild	(21-40dB)	31R+27L=58	29
II.Moderate	(41-55dB)	23R+34L=57	28.5
III.Moderately severe	(56-70dB)	14R+14L=28	14
IV.Severe	(71-90dB)	18R+9L =27	13.5
V.Profound	(>90dB)	10R+1L =11	5.5

Mild (21-40dB) deafness is 29% most common, later Moderate(41-55dB) 28.5% and profound is the least 5.5%.Urban population is affected(39%) more when compared to rural(27%). Noise exposure is the most common (60%) cause of SNHL. Trauma and systemic infections are taking almost equal as next causes for SNHL.

Table 6.Area group of population affected.

Area of residence	No.of cases(%)
Rural	27
Urban slum	34
Urban	39

Table 7: Distribution of study population based on risk factors.

Risk factors	No.of cases(%)
Noise exposure	60
Trauma	16
Systemic infection	15
Ototoxic drugs	7
Idiopathic	2

Table 4: No of persons using mobile and duration of usage in noise induced SNHL.

Mobile users in noise induced SNHL	Duration of usage per day		
	<1 hr	1-<2 hr	2 hr and above
	8 (14.5%)	24 (43.6%)	23 (41.9%)

In noise induced SNHL, it is observed that 41.9% people are using mobile phones more than 2 hours,85.5% using more than 1 hour. Role of usage of mobile phones giving added influence to this SNHL.

IV. Discussion

The sensorineural hearing loss is a dangerous cause among the population which deteriorates the quality of life in both social life and occupational aspects. In our study , Males(59%)are more affected than females(41%), as Males work mostly in outdoor than females. 41 to 50 years age group found to be affected majority, in the total population which shows the elderly people in the age group of 41-50 are more experienced with better judgement and still they are active in their profession . This senior and intellectual people are very much needed to society. Bilateral involvement is 82% when compared with unilateral which is 18% [1]. In unilateral right ear 77.7% is predominant than left ear 22.3%. Sudden onset (31%) is less common than gradual onset (69%). This sudden onset 31% shows the people are more conscious about hearing and they are attending to consultants immediately after sudden onset of hearing loss, as this era is mostly depend on communication skills[2].

In our study of risk factors in SNHL was reported that the exposure to noise in the working environment (60%) is the primary cause of deafness later infective (16%), then traumatic (15%) and lastly ototoxic drug exposure (7%) [3]. It is observed in noise induced deafness, autorickshaw and lorry drivers, house construction employees and stone crush workers are mostly present who are with noise induced occupation . Infections involved in SNHL in this study are Exanthematous fevers like Measles, Mumps, Chickenpox[4]. Seven cases of SNHL were due to ototoxic drug exposure particularly Quinine, which is used in plasmodium falciparum infection treatment, Amikacin and gentamycin. In the severity grading, Mild (21-40dB) deafness is 29% most common, later Moderate(41-55dB) 28.5% and profound is the least 5.5%.In this commonest Moderate grade with 41-50dB loss, patients neither they go for hearing aid nor they are comfortable in hearing, this is the group the efficiency of the work is suffered. We can reduce the hearing disability if we detect in early stages of SNHL. Urban population is affected (39%) more when compared to rural (27%) [5].We opined that urban patients are more affected as they are more accessible to health facilities than rural population. Bilateral SNHL found to be common in with noise induced deafness. Incidence of unilateral SNHL produced in trauma, infection[6].

V. Conclusion

This study emphasizes the need to create awareness in public about occupational hazards of noise induced SNHL. Constant and regular otological evaluation is necessary in those workers who work in noise polluted profession and also need to provide sound protective measures and also to develop machinery which will produce less noise at work place. This study shows that need for assessment of hearing in the drivers of auto rickshaw, Taxi and Heavy vehicles at least every five years by Road Transport Authorities .It alerts the necessity by media to communicate the public about deafness due to excessive mobile phone usage and rule out superstitious beliefs particularly in exanthematous fevers which produce SNHL in childhood. It suggests pediatricians and family doctor to take preventive measures like vaccination and early diagnosis and treatment in both viral, bacterial and infectious diseases and avoidance, if not careful usage of ototoxic drugs.

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