

Original article:

Study of relationship of duration of disease and sensorineural component of hearing in Maharashtrian population

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Abstract:

Introduction: It was decided to study all cases of chronic suppurative otitis media with mixed hearing loss to find out the causes and ways of preventing sensorineural hearing loss in chronic suppurative otitis media.

Methodology: The patients were carefully selected after proper history and careful examination to exclude the above mentioned criteria to rule out the other possible causes of sensorineural loss. Type of pathology in each of these ears was the main factor taken into consideration. Age group and duration of illness were also considered.

Results: The mean bone conduction threshold values were obtained by mean value of threshold at frequencies 250, 500, 1000, 2000 and 4000 Hz. These mean bone conduction thresholds were studied in various pathological lesions in middle ear.

Introduction:

To focus attention on the problem of sensorineural hearing loss in chronic suppurative otitis media, in the First International Workshop held in December 1974, Paparella M.M and Prado S. presented their study on sensorineural hearing loss secondary to bacterial infection especially in chronic suppurative otitis media. In the past few years, continuous work has been done to study cochlear function in chronic suppurative otitis media. According to some, both 'safe' and 'unsafe' types of chronic suppurative otitis media are equally likely to cause sensorineural hearing loss whereas some doubted the clinical significance of sensorineural hearing loss in benign type of chronic suppurative otitis media.¹

With this idea in mind, it was decided to study all cases of chronic suppurative otitis media with mixed hearing loss to find out the causes and ways of preventing sensorineural hearing loss in chronic suppurative otitis media.

Methodology:

The present work was approved by Institutional ethical committee. The sample size was determined with the help of expert with previous papers published concern with this issue. The routine OPD patients were included in present work. One hundred patients of chronic suppurative otitis media with sensorineural hearing loss, either alone or more commonly, with mixed loss were studied in this series. The patients were carefully selected after proper history and careful examination to exclude the above mentioned criteria to rule

out the other possible causes of sensorineural loss. Type of pathology in each of these ears was the main factor taken into consideration.

Age group and duration of illness were also considered.

Results:

Table No. 1 : CORRELATION OF SNHL COMPONENT WITH DURATION OF CSOM

DEAFNESS	DURATION OF CSOM (IN MONTHS)					No. of Cases
	Upto12	13-24	25-36	37-48	49-60	
20-25 dB	1	0	0	1	0	2
26-30 dB	0	2	0	1	1	4
31-35 dB	0	0	1	1	0	2
>35 dB	0	3	3	3	0	9

Table No. 2 : DEGREE OF SENSORINEURAL HEARING LOSS

BONE CONDUCTION THRESHOLD RANGE	No. of Patients with SN component of hearing loss
5 dB -10dB	-
10dB-15dB	-
15dB-20dB	-
20dB-25dB	2
25dB-30dB	4
30dB-35dB	2
>35dB	9

In our study the degree of sensorineural component of hearing loss was >35db in majority of the cases

The mean bone conduction threshold values were obtained by mean value of threshold at frequencies 250, 500, 1000, 2000 and 4000 Hz. These mean bone conduction thresholds were studied in various pathological lesions in middle ear.

Table No.3: INCIDENCE OF SENSORINEURAL COMPONENT OF HEARING LOSS AT SPEECH FREQUENCIES

FREQUENCY (Hz)	NO. OF CASES WITH INCREASED THRESHOLD
250	2
500	2
1000	3
2000	6
4000	4

In our study, higher speech frequencies were affected in majority of patients.

Discussion:

The degree of sensorineural hearing loss was studied based on duration of disease by correlating bone conduction threshold at different frequencies and duration of CSOM and was found to have increasing hearing loss with increasing duration of disease. This was in agreement with studies done by Mac Andie C et al (1999) , de Azevedo (2007), KhalmanovaluV and Kosiakov Sla (2012) and E S Kolo et al (2012) , whereas studies by Munker G (1981), Dumich PS et al (1983), Cusimano F, Cocita VC (1989), and Podoshin L et al (1989). showed no significant correlation with increasing duration of the disease.^{2,3,4}

Sensorineural hearing loss was seen in CSOM with and without cholesteatoma (Dumnich PS et al,1983, MacAndie C, 1999),^{5,6} Levine et al (1989), Neeraj Kasliwal et al (2004), Irwan (2010) observed a definite correlation between severity of sensorineural hearing loss and

presence of cholesteatoma^{7,8}. Our study shares similar observation. Handa et al (1996) found that in cases of cholesteatoma a relative sensorineural hearing loss was greater when disease was present in the mesotympanum⁷. In our study also, we had two cases of cholesteatoma extending upto round window and 4 cases of granulation involving oval window area with greater threshold of >30 db sensorineural hearing loss.

Conclusion:

In our study, the incidence of sensorineural hearing loss increased with advancing age, indicating that increasing age was risk factor in evolution of sensorineural hearing loss in patient with chronic suppurative otitis media. Chronic suppurative otitis media is associated with mixed hearing loss with degree of sensorineural hearing loss being 35dB in majority of patients.

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