Cochlear Conduction in Individuals with Conductive Pathology : A Study Using the Principle of Remote Masking

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The present study was aimed at comparison of cochlear conduction in ears with conductive pathology (CNG) with that of ears with normal hearing (NHG), simulated conductive hearing loss (SCG), and sensorineural hearing loss (SNG) using the principle of remote masking (RM).

A total number of 40 ears comprising ten ears in each group (NHG, SCG or CNG & SNG) were studied. Simulations of conductive hearing loss were done on normal hearing subjects using ear plugs (Maximum attenuation of 34 dB HL). Subjects of NHG and SCG were three males & three females with mean age of 20 years (range 18-22 yrs). Subjects of CNG were four males and four females with a mean age of 25.2-yrs. (range 16-40yrs.) and the last group (SNG) consisted of four males and four females with mean age of 33.2 yrs. (range 25-45 yrs.). Using indigenously developed instrument (by Dept. of Electronics, AIISH, Mysore). RM values were obtained at 250, 500 & 1000 Hz for pulse pure tones in the presence of NBN at three different intensity levels (50, 60, 70 dBSL or equivalent). NBN used was centered at 3KHz (upper cut-off frequency of 3150Hz lower cut-off frequency of 2850 Hz and side band slope 28 dB/Octave). Obtained data were analysed using T tests, two-way and three-way analysis of variance to find out ear & gender differences, effect of frequency of test tone & intensity levels of NBN as well as their interaction. Using three-way and two-way analysis of variance and descriptive analysis (Masking growth curve) group differences were evaluated.

Results were as follows :

1. There was no significant ear differences for all the four groups.
2. Effect of gender difference on RM was not significant for all the four groups.
3. Effect of frequency of test tone (Pulsed pure tone) was significant for all the four groups. As the frequency of test tone increased the RM also increased.
4. Effect of intensity NBN was significant for all the four groups. As the intensity of NBN increased the RM values also increased.
5. Interaction Effect was not significant for frequency and group, intensity and group. But significant interactions were observed between frequency of test tone and intensity of NBN on RM values.