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Audiological Profiling In Hyperlipidemic Patients

Sanchit Bajpai

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Background

Hyperlipidemia is defined as elevation of fasting total cholesterol concentration which may or may not be associated with elevated triglycerides concentrations. Lipids are transported as lipoproteins, hence the classification of hyperlipidemia are based on abnormalities of lipoproteins. Hyperlipidemia is a silent gateway to many diseases. Many studies have tried to correlate hyperlipidemia with hearing disorders, although none have proven the hypothesis.

Purpose

The purpose of the study was to evaluate the effect of hyperlipidemia on auditory functions.

Materials and methods

Cross sectional study over a period of 2 years, among 150 subjects which included 75 cases of hyperlipidemia and 75 healthy controls was conducted. All the participants underwent fasting lipid profile, pure tone audiometry (PTA)and distortion product otoacoustic emissions (DPOAE) testing. Data was collected and statistical analysis was done using chi square test, Mann Whitney U test and Wilcoxon Signed Rank test.

Results

Total 150 subjects were included in our study of which 75 cases had hyperlipidemia and rest 75 were healthy controls. Both the groups had 42 males and 33 females. The subjects in case group had increased levels of more than one lipid parameter, showing maximum derangements in total cholesterol (TC), triglycerides (TG) and low density lipoprotein levels (LDL). We found statistically significant association of hyperlipidemia with PTA and DPOAE findings. The PTA thresholds were high in the case group at higher frequencies (4 khz and 8khz with p value : 0.008 and 0.022 respectively). DPOAE were absent at frequencies from 2 khz – 8 khz (p values < 0.05) For comprehensive outlook and statistical analysis the case group was further subdivided into individuals with high total cholesterol and triglycerides levels and those with high total cholesterol with low density lipoprotein levels. We noticed in the subgroup with high TC and TG levels the median pure tone thresholds were raised (at 4 khz and 8 khz) as compared to controls (p value : 0.006 and 0.003 respectively) and similarly DPOAE were absent at 4 khz and 8khz. In the subgroup with high TC and LDL levels there was so significant statistical association noted with PTA and DPOAE findings.

Conclusion

Based on the results our study concluded that there is a strong association of hearing loss among patients with hyperlipidemia, specially in cases with elevated total cholesterol and triglyceride levels, and it should thus be dealt timely so as to stop the progression of sensorineural hearing loss.

Key Words: Hyperlipidemias,puretone audiometry, Otoacoustic emissions