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Is Sensorineural Hearing Loss A Sequelae To Obstructive Sleep Apnoea Syndrome?

Background: Obstructive sleep apnoea syndrome (OSAS) is a condition that is characterised by frequent apnoea and hypopnoea attacks occurring during sleep. The cochlea and acoustic nerve receive blood supply from terminal arteries without collateral circulation, hence they are very sensitive to reduced oxygen concentration. Our study purpose was to compare the audiological profiles in patients with obstructive sleep apnoea according to the severity of Apnoea Hypopnoea index (AHI) score and study the pattern of hearing impairment.

Methods: Our study included 32 patients with obstructive sleep apnoea syndrome (OSAS). These patients were divided into mild (5-15), moderate (15-30), severe (>30) according to their AHI score. The hearing evaluation was done using Pure tone Audiogram (PTA) at 250-8000 Hz, and Distortion product Otoacoustic emission test (DPOAE) at 1000-8000Hz. We compared the results between the groups and then analysed.

Results: Moderate and severe OSAS participants had elevated hearing thresholds at higher frequencies (4kHz and 8 kHz) in pure tone audiometry (P.T.A), although findings were not statistically significant. There was a tendency towards absent DPOAE responses with increase in the severity of OSAS. The statistical significance was noted in the higher frequencies (4k, 6k, 8k) of DPOAE (p value <0.05).

Conclusion: The results of the present study indicate that in moderate and severe OSAS patients auditory transduction and transmission mechanisms may be affected. OAE recording and high frequency audiometry can be valuable tools in identifying early cochlear damage in OSAS patients

Key words : Obstructive sleep apnoea syndrome, cochlea, acoustic nerve, collateral circulation, hearing impairment, high frequency audiometry, pure tone audiometry.