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TINNITUS AND HYPERCUSIS
COGNITIVE APPROACHES

Cochlear Function in Patients with Normal Hearing and Tinnitus

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Abstract

Tinnitus is defined as the perception of sound that and not related to external stimulation of any kind. It disrupts the daily life of 1 out of every 200 adults. Tinnitus is a symptom whose pathophysiology remains still unclear. The generation of tinnitus is commonly linked with the impaired functioning of the outer hair cells inside the cochlea.

DPOAE measures and extended high frequency hearing test can be used with at least partial success to distinguish controls from patients with tinnitus, hyperacusis, or both tinnitus and hyperacusis.

Objectives

The aim of our study was to analyze cochlear function in normal hearing patients with tinnitus.

Materials and Methods

25 normal hearing participants with tinnitus underwent Pure Tone Audiometry (PTA) at the standard 250-8000Hz frequency range as well as at 12000Hz, the discomfort level threshold and Distortion Product Otoacoustic Emission (DPOAE). The participants were divided into 2 groups. One group had only tinnitus (15 patients), the other group had hyperacusis alongside tinnitus (10 patients). A control group of 25 participants also underwent the same tests.

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Results

Significantly low thresholds were registered during PTA at 12000Hz for patients with tinnitus. The discomfort level threshold was lower in patients with tinnitus and hyperacusis compared to those with tinnitus alone and the control group. DPOAE levels were significantly higher in patients with tinnitus and hyperacusis compared to the tinnitus and control groups.

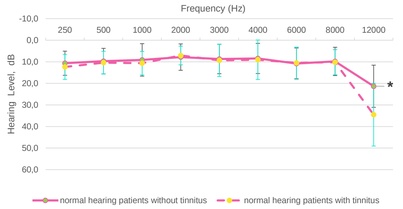

Fig. 1. Pure tone hearing thresholds at the conventional PTA frequencies (250-8000 Hz) and 12000 Hz.

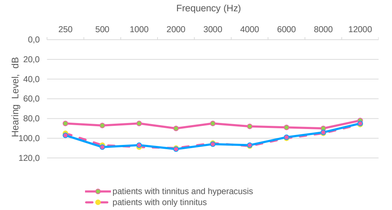

Fig. 2. Discomfort thresholds at the conventional PTA frequencies (250-8000 Hz) and 12000 Hz.

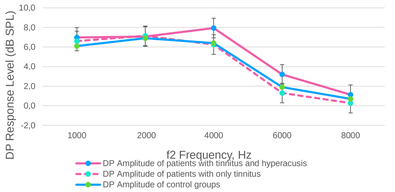

Fig. 3. DPOAE thresholds at different tested frequencies.

Conclusion

Our findings reveal that patients complaining of tinnitus should undergo not only the standard hearing tests, but also, if available, hearing threshold testing at high frequencies alongside DPOAE: This is emphasized especially in the cases where tinnitus is accompanied by hyperacusis

References

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