

RESULTS OF OTOACOUSTIC EMISSIONS AND EFFERENT SUPPRESSION IN SUBJECTS WITH CHRONIC TINNITUS AFTER NOISE EXPOSURE DURING RECREATIONAL ACTIVITIES

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Introduction

Noise exposure can cause noise-induced hearing loss (NIHL) as well as tinnitus. NIHL damages primarily the outer hair cells in the cochlea. Therefore, otoacoustic emissions (OAEs) could provide valuable information regarding the cochlear status in subjects with tinnitus. OAEs with contralateral acoustic stimulation can be used to evaluate the efferent auditory system.

Aims

The aim of the study was to compare the results of OAEs and efferent suppression (ES) in subjects with chronic tinnitus due to recreational noise exposure with control subjects.

Patients and methods

The hearing status of 11 ears in each group was evaluated by admittance measures, pure tone audiometry, transient evoked OAEs (TEOAEs), distortion product OAEs (DPOAEs) and ES.

Results

First, the number of present TEOAEs or DPOAEs at most frequency bands was lower in the tinnitus group as compared to the control group. Second, the mean amplitudes of TEOAEs, DPOAEs and ES in subjects with tinnitus was smaller than in the control group. Moreover, there were statistically significant differences in TEOAE amplitudes at 1.0 and 4.0 kHz, and DPOAE amplitudes at 1.5 kHz.

Conclusion

Literature concerning TEOAEs, DPOAEs or ES in subjects with tinnitus is inconclusive. The current study found decreased TEOAE and DPOAE amplitudes and ES in subjects with chronic tinnitus after recreational noise exposure as compared to the control group. OAEs can therefore be used as an objective evaluation of the cochlear hearing status in subjects with tinnitus. The role of the efferent auditory system in subjects with tinnitus should further be explored.