

Otoemisja DPOAE u osób z szumami usznymi i niedosłuchem ślimakowym z uwzględnieniem nadwrażliwości na dźwięki i misophonii

DPOAE in tinnitus patients with cochlear hearing loss considering hyperacusis and misophonia

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Summary

The most probable place generating tinnitus in auditory pathway are outer hair cells (OHC) inside cochlea. To assess their activity otoacoustic emission is used. The goal of the investigation was estimation of the features of otoemission DPOAE in groups with tinnitus patients with cochlear hearing loss, estimation of diagnostic value of DPOAE parameters for analysis of function of the cochlea in investigated patients emphasizing DPOAE parameters most useful in localizing tinnitus generators and estimation of hypothetical influence of hyperacusis and misophony on parameters of DPOAE in tinnitus patients with cochlear hearing loss. The material of the study were 42 tinnitus patients with cochlear hearing loss. In the control group there were 21 patients without tinnitus with the same type of hearing loss. Then tinnitus patients were divided into three subgroups — with hyperacusis, misophony and without both of them, based on audiologic findings. Method: after taking view on tinnitus and physical examination in all the patients pure tone and impedance audiometry, suprathreshold tests, ABR and audiometric average and discomfort level were evaluated. Then otoemission DPOAE was measured in three procedures. First the amplitudes of two points per octave were assessed, in second — „fine structure” method — 16—20 points per octave ($f_2/f_1 = 1,22$, $L_1 = L_2 = 70$ dB). Third procedure included recording of growth rate function in three series for input tones of value $f_2 = 2002, 4004, 6006$ Hz ($f_2/f_1 = 1,22$) and levels $L_1 = L_2$, growing by degrees of 5dB in each series. Results: DPOAE amplitudes in recording of 2 points per octave and fine structure method are very valuable parameters for estimation of cochlear function in tinnitus patients with cochlear hearing loss. Decreasing of DPOAE amplitudes in patients with cochlear hearing loss and tinnitus suggests significant role of OHC pathology, unbalanced by IHC injury in generation of tinnitus in patients with hearing loss of cochlear localization. DPOAE fine structure provides us the additional information about DPOAE amplitude recorded in two points per octave, spreading the amount of frequencies f_2 , where differences are noticed in comparison of two groups — tinnitus patients and control. Function growth rate cannot be the only parameter in estimation of DPOAE in tinnitus patients with cochlear hearing loss, also including subjects with hyperacusis and misophony. Hyperacusis has important influence on DPOAE amplitude, increases essentially amplitude of DPOAE in the examined group of tinnitus patients.