Ocena zgodności progów słyszenia w badaniach potencjałów słuchowych stanu ustalonego (ASSR), audiometrii tonalnej i słuchowych potencjałów wywołanych pnia mózgu (ABR) u młodych osób z prawidłowym słuchem

The estimation of behavioral audiograms, auditory brainstem response (ABR) thresholds and auditory steady-state response (ASSR) thresholds of young adults with normal hearing

Anna Szymańska, Maciej Gryczyński, Anna Pajor

Introduction. One of the basic audiological parameter in estimation of hearing sensitivity is hearing threshold. The need for an objective tool to effi ciently predict the audiogram caused that the use and importance of ASSR method is growing in recent times. However, the technique is quite new and needs to be still improved. Aim of the study was the estimation of behavioral audiogram in comparison with ABR and ASSR threshold of young adults with normal hearing. Material and methods. The study sample included 9 subjects with normal hearing (18 ears) with no abnormalities in otoscopy. Behavioral hearing thresholds and ASSRs to carrier frequencies of 0.5, 1, 2, and 4 kHz were obtained. The ASSRs were assessed with Bio-logic MASTER system by the use of four sinusoidal tones both frequency - and amplitude - modulated given simultaneously to every ear for each carrier frequency. The potentials are collected, averaged and analyzed in this method by the fast Fourier transform to yield statistically signifi cant responses. Electrophysiologic threshold responses for click ABR stimuli for the same carrier frequencies for right and left ear were obtained by the use of Bio-logic Navigator Pro unit. Differences and correlations between the ASSRs, ABRs and the behavioral thresholds were determined. Results. We discovered that the values of pure tone audiograms and ABRs thresholds values differ from ASSRs considerably. We could also observed that the difference between behavioral and ABRs threshold is less than for behavioral and ASSRs threshold. Conclusion. To conclude, this study shows that auditory steady-state responses technique is not useful method in estimating of hearing threshold of young adults with normal hearing.