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Application of ABRs elicited by tone pips in diagnosis of retrocochlear hearing loss

Kochanek, K (1), Orkan-E&ecka, E. (2), Durrant, J. D. (3), Œeliwa, L. (1), Skar&y&nski, H. (1)

(1) Institute of Physiology and Pathology of Hearing, Warsaw, Poland

(2) ENT Department of the Medical University of Warsaw, Poland

(3) Department of Communication Science and Disorders, University of Pittsburgh, U.S.A.

The purpose of this study was to assess the sensitivity and specificity of a test of ABR elicited by short tone-pips, compared to test results using click-evoked ABRs, in the application to retrocochlear hearing loss diagnosis.

The group of subjects examined included patients with acoustic neuroma and cerebello-pontine angle tumours. Two methods of eliciting the ABRs were used: the standard click-ABR method and the ABR Tone method. For the latter, the stimuli were tone-pips of Gaussian envelopes. In the test measurement parameter was the latency of wave V and the inter-aural latency difference – IT5, both referred to the respective mean values observed in a normal control group and group of subjects with cochlear hearing loss.

The sensitivity of ABR Tone method was better than that of standard ABR method for all tone pips. The combinations of indices gave, for all the stimuli concerned, an improvement of sensitivity (up to 100%) over the sensitivity with single indices.

It is concluded that ABRs evoked by tone-pips of relatively long rise times offer greater sensitivity in detecting changes in the cochlear nerve and the brainstem than the sensitivity achievable when a click is used as the stimulus.

