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Preferred type of presentation: Oral

Topic: Auditory brainstem responses

Title: Comprehensive recording of auditory evoked potentials by projecting over a base of functions

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Abstract

Objectives: To develop a stimulus and a processing algorithm that allows the recording of all auditory evoked potentials from the cochlea to the auditory cortex, thus obtaining a single signal consisting of the ABR, MLR and CAEP components.

Methods: Stimulus consisted of 400 bursts of 7 clicks (ISI [10-40] ms) presented at an average rate of 1 Hz. Analysis consisted of averaging a time window of 500 ms, and projecting over a base of functions uniformly distributed in the logarithmic time scale.

Results: The signals resulting from projecting over the base of functions show replicable auditory evoked potentials with latencies compatible with ABR, MLR and CAEP components in all subjects and recording conditions.

Conclusion: Projecting over the defined base of vectors is a reliable method for latency-dependent filtering, which, together with the proposed stimulation paradigm, allows the simultaneous recording and visualization of ABR, MLR and CAEP components.