

THE INFLUENCE OF STIMULUS INTENSITY LEVEL ON TONE-EVOKED POST-AURICULAR MUSCLE RESPONSE (PAMR) IN NORMALLY HEARING ADULTS

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ABSTRACT

Introduction: Post-auricular muscle response (PAMR) is a promising electrophysiological test and more research efforts are required to unveil its basic properties. The purpose of this study was to investigate the influence of the stimulus level on tone-evoked post-auricular muscle response (PAMR) among normally hearing adults.

Methods: In this repeated measures study, 20 healthy adults (40 ears) were enrolled. All of them had normal hearing bilaterally and reported no otological disease or neurological deficit. Using Biologic Navigator Pro Auditory Evoked potential (AEP) system, PAMR was recorded according to the recommended test protocols. Participants were instructed to gaze their eyes laterally towards the stimulated ear and PAMR was recorded with tone bursts (500, 1000, 2000 and 4000 Hz). For each frequency, PAMR was recorded at three supra-threshold levels (60, 40 and 20 dB SL) and at thresholds.

Results: The first negative-going peak (Pi) of PAMR was sighted between 12.81 ms and 16.44 ms, while the positive-going peak (Ni) occurred between 15.81 ms and 21 ms. Descriptively, as the intensity level decreased (from 60 to 20 dB SL), the latencies of Pi and Ni increased almost linearly, but no significant differences in PAMR latencies were found between the intensity levels at all tested frequencies ($p > 0.05$). At 60 dB SL, the PAMR amplitude was the largest and can be as high as 42.54 μ V. For each frequency, when the intensity level decreased, the PAMR amplitude also decreased significantly ($p < 0.05$).

Conclusions: The PAMR latency does not appear to be influenced by the stimulus intensity level. On the other hand, decreasing the stimulus level produced PAMR with smaller amplitudes. The possible reasons for this are discussed accordingly. Future large-scale research is encouraged to further support the present study outcomes.

Keywords: auditory evoked potential, post-auricular muscle response, myogenic evoked potential, post-auricular muscle

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