

EFFECT OF STIMULUS ENVELOPE ON AUDITORY MIDDLE LATENCY RESPONSE (AMLR) AND COMPARISON BETWEEN AMLR THRESHOLD WITH PTA THRESHOLD

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Auditory Middle Latency Response (AMLR) is an electrophysiology test that has good clinical implications especially in threshold determination at low frequency by using tone burst stimulus. AMLR is a test that is not highly dependent on neural synchrony. Stimulus envelopes that are used in tone burst are to find the "best compromised" stimulus that would maximize both frequency specificity and neural synchrony. Due to that, this study was performed in order to compare between two stimulus envelopes as well as comparing between AMLR thresholds with PTA. The two stimulus envelopes tested were 2-1-2 and 3-1-3 at 500 Hz and 1000 Hz. A total of 20 normal hearing young adults (20 ears) were divided into two groups, which are 500 Hz and 1000 Hz. Each group consists of 10 normal hearing young adults. Mean age for the 500 Hz group was 22 years and 6 months old, while the mean age for 1000 Hz group was 21 years and 7 months old. All subjects had to go through otoscopic examination, tympanometry, pure tone audiometry (PTA) and Distortion Product Otoacoustic Emissions (DPOAE) testing to ensure the all subjects fulfills the inclusion criteria prior to AMLR test. AMLR were recorded using one channel recording to the ear that performed better than the other ear in PTA threshold either at 500 Hz or 1000 Hz. The PTA thresholds showed no significant different ($p>0.05$) between group 500 Hz and 1000 Hz. Mean amplitude NaPa showed there is no significant difference ($p>0.05$) between stimulus envelope 2-1-2 and 3-1-3 in both 500 Hz and 1000 Hz frequencies. Results for interaction between stimulus envelope 2-1-2 and 3-1-3 showed there is no significant difference ($p>0.05$) between groups 500 Hz and 1000 Hz. The value of observed power is 21% (< 80%) while the partial eta squared obtained is 0.077 (<0.14). In this study, ABR thresholds were within 10 dB from the PTA thresholds. In conclusion, this study suggests both stimulus envelope 2-1-2 and 3-1-3 can be used in order to perform tone burst AMLR especially to obtain AMER thresholds at low frequency such as at 500 Hz.

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