The effects of rise/fall time and plateau time on ocular vestibular evoked myogenic potentials.

Abstract:
Ocular vestibular evoked myogenic potentials (oVEMP) are strongly influenced by recording conditions and stimulus parameters. Throughout the published literature, a large variety of stimuli is used for eliciting oVEMP. Our objective was to determine the effects of different rise/fall times and plateau times on oVEMP amplitudes and latencies. 32 healthy subjects were enrolled in the study. 500 Hz air-conducted tone bursts with the parameters rise-plateau-fall time 0-4-0, 4-0-4, 2-2-2 and 2-4-2 ms were used for eliciting oVEMP. For all stimuli, response prevalences were 100 %. The 4-0-4 ms stimulus generated the smallest amplitudes, whereas the 2-2-2 and 0-4-0 ms stimuli achieved the largest amplitudes. n1 and p1 latencies were significantly shorter for the 0-4-0 ms than for the other stimuli, whereas latencies in response to the 4-0-4 ms stimulus were prolonged. Hence, a variety of stimuli is suitable for evoking oVEMP in healthy subjects. We recommend a 2-2-2 ms stimulus for clinical testing of oVEMP elicited by air conducted sound, because it reproducibly generates oVEMP without exposing the ear to unnecessary amounts of acoustic energy.