
P3-like wave occurs in diverse contexts of the target and nontarget ERPs elicited in human brain during visual oddball task

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Abstract

This study concerns the P3-like wave in the context of the target and nontarget event-related potentials (ERPs) recorded in cortical and subcortical regions. Electrical activity from 152 brain regions of 14 epileptic patients was recorded by means of depth electrodes during a visual oddball task. P3-like wave as one of the target ERP components was generated in 34 regions of 12 patients. Among these regions the target ERP varied: (1) in configuration (the number of the components - from 1 to 5, most often 2; the latency of the earliest component - from 86 to 594 ms after the stimulus onset; the symmetry in polarity of the components - number of positive and negative components either differed or not), and (2) in similarity with the nontarget ERP (the number, latency, and polarity of the nontarget components were almost identical in 10 and different in 24 brain regions). The study showed that the P3-like wave may be elicited as a component of various target ERPs, which either differ or not from the nontarget ones. The fact that the active regions generated the P3-like wave in such diverse contexts could signify that these regions are engaged in the task differentially.

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