

A study of No-go N2 on partial error trials

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Recent studies have elucidated the neural basis of performance monitoring in human brain. Performance monitoring is responsible for the remedial function including error detection, behavioral inhibition, and adjustment. It has been suggested that the anterior cingulate cortex (ACC) is associated with performance monitoring and may modulate the error-related negativity (ERN). The ERN is elicited by partial errors as well as overt errors. Although partial error trials are behaviorally classified as correct trials, wrong muscular activities preceding correct responses are observed. In this study, we will examine partial errors in a Go/No-go task. Participants are asked to respond to a Go stimulus as fast as possible, but to withhold response to a No-go stimulus.

When they succeed in withholding response to the No-go stimulus, the No-go N2 that is

time-locked to the No-go stimulus should be observed over frontocentral regions. The No-go N2 is thought to reflect behavioral inhibition. On the other hand, when participants fail to withhold response to the No-go stimulus, ERN that is time-locked to erroneous response should emerge. Therefore, it is plausible that ERN may be superimposed on the No-go N2 on partial error trials. According to our previous study, the No-go N2 was not modulated by avoidance motivation (i.e., monetary punishment). However, it remains unclear if the No-go N2 is modulated by monetary reward. Thus, we are motivated to examine if the partial-error ERN is superimposed on the No-go N2 and whether or not the No-go N2 is modulated by affective-motivational aspects, manipulating monetary reward.