
Alcohol-related context modulates performance of social drinkers in a visual Go/NoGo task: an event-related potentials study

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Abstract

Objective- Heavy alcohol drinking is associated with cognitive biases toward alcohol-related cues associated with the development and maintenance of alcoholism. Poor response inhibition has been associated with addictive behaviours, and could represent a general vulnerability factor. Standard tests of response inhibition have mostly used neutral stimuli. This study used contextual inhibitory paradigm approach to examine the interaction of bias and response inhibition, to help eliciting approach or withdrawal tendencies.

Method- 17 Heavy Drinkers and 18 Light Drinkers performed a Go/NoGo task in which neutral Go and No/Go cues were superimposed on the centre of background pictures, so that they performed the task during three different conditions: a No-context generated by a black screen background and two different contexts generated by pictorial backgrounds: Alcohol and Non-Alcohol-related.

Results- Behavioral analyses revealed that during Alcohol-Related Contexts, Heavy Drinkers showed poorer inhibition capacities than Light drinkers. ERP analyses showed that in Heavy Drinkers, suppressing responses to Nogo cues within the Alcohol-Related Contexts elicited longer Nogo-P3 latencies than Light Drinkers. Analyses of pictures' evaluation used as contexts revealed that the heavy Drinkers Group reported Alcohol-Related scenes as more arousal than Non-alcohol Related ones.

Conclusions- Results indicated that Alcohol-Related Contexts has a modulatory effect on response inhibition at the behavioral and neural levels, in Heavy Drinkers: withholding a prepotent response within Alcohol-Related contexts is more difficult and requires more inhibitory control for Heavy Drinkers than within Neutral or Non-Alcohol-related Contexts.

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