
Alterations in cue-reactivity and learning mechanism in alcohol dependent patients

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Alcohol addiction is assumed to reflect the endpoint of a series of transitions: from initial alcohol intake that causes hedonic feelings, through loss of control over this behaviour, such that it becomes compulsive. Alcohol dependent patients are dominated by their addiction despite the negative consequences and experience other stimuli as providing little reward. Still, some patients manage to abstain from alcohol, whereas others relapse quite often. Two recent studies (Beck et al., 2012; Charlet et al., 2013) could show that relapsers not only display greater atrophy in limbic and prefrontal areas, but also seem to have attenuated functional connectivity of these areas during cue-reactivity and emotional tasks. It has been proposed that habitual stimulus-triggered responses result in the compulsive nature of alcohol consumption (Everitt and Robbins, 2005), the formation of these inflexible stimulus-response associations being described as habit-based learning which is commonly seen as the counterpart of outcome-directed actions, so called goal-directed learning. Our current research project therefore aims to comprehensively assess how learning alterations might contribute to the assignment of aberrantly high value in the development and recurrence of alcoholism. The project compares alcohol-dependent patients to healthy controls on a battery of tasks assessing Pavlovian, habitual and goal-directed reward-dependent learning behaviourally and with functional MRI. We are going to report preliminary results of our ongoing research.