
IMPAIRED REACTIVITY TO FRUSTRATION IN OPIOID ADDICTS: AN FMRI STUDY.

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Background. Opioid addiction is a serious mental health problem with substantial impact on society and healthcare. The diagnosis and monitoring of its treatment are almost exclusively clinical tasks and their efficacy is often unsatisfactory. This suggests a need to study potential biomarkers of opioid addiction. In this study, we used functional magnetic resonance imaging (fMRI) and our modification of the Stroop-task to investigate patients' reactivity to emotionally relevant (drug-related) stimuli and its impact on their cognitive performance as a potential biomarker for opioid dependence syndrome.

Methods. 40 patients with opioid addiction aged 25.9 ± 2.6 years with mean narcotization period of 9 ± 3.4 years were included. The control group consisted of 25 age- and gender-matched healthy subjects. fMRI was performed on 1.5T scanner Toshiba Vantage Titan. The original Stroop-task was modified to investigate the effect of emotionally relevant distractor on the task performance by changing the background of the stimuli: emotionally neutral (furniture and everyday objects) and relevant (pictures of drugs, and drug paraphernalia). Group comparison of the activation maps was performed using two-sample T-test.

Results. In comparison to the control group, patients with opioid addiction showed worse task performance, accompanied by the increased response of the left insula, dorsolateral prefrontal cortex, right amygdala and hippocampus.

Conclusion. We found that emotionally relevant stimuli worsen Stroop-task performance in drug addicts, which is accompanied by the increased activation of structures involved in emotional reactivity and cognitive control. The applicability of this combined imaging-neuropsychological task in practice is the matter of our future research.