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Alcohol-related cue-reactivity predicts abstinence duration in individuals with severe alcohol-use disorders

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Introduction Alcohol use disorder (AUD) is an important global public health problem with complex aetiology and relapsing remitting course. Clinical measures of alcohol dependence severity and alcohol-craving, are largely unreliable in identifying individuals at high-risk for relapse. Functional human neuroimaging methods that employ symptom provocation paradigms have shown promise in identifying critical brain regions with cue-elicited alcohol-craving response.
Objective The present study aimed at examining the utility of fMRI cue-reactivity (CR) in predicting relapse risk.
Methods The study was conducted on inpatients of a tertiary care neuropsychiatric hospital. Thirty-two treatment-seeking right-handed men were recruited for the study after informed consent. Following detoxification and 3-day drug-washout period, they underwent a task-based fMRI while viewing images of alcohol-related and control cues presented to them using a previously validated fMRI paradigm. All patients received anti-craving medications (baclofen: 60–80 mg/d, $n = 16$; naltrexone: 50–100 mg/d, $n = 16$) and were prospectively followed-up till their first alcohol lapse.
Results Random-effect analysis using one-sample test revealed significant CR to alcohol-related cues (relative to implicit baseline) with activation in salience-reward related regions [insula, cingulate, dorsal striatum (DS)], visual-attention regions [occipito-temporal] and deactivation of default-mode regions [posterior cingulate (PCC)] (all significant at $P_{FWE} < 0.05$, whole-brain corrected). Cox-proportional hazard regressions revealed that greater CR in Insula ($Chi^2 = 10.33$; $P = 0.001$; HR = 3.1; 95% CI = 1.5–6.3) and DS ($Chi^2 = 10.87$; $P = 0.001$; HR = 2.8; 95% CI = 1.5–5.2) predicts faster subsequent time to first drink after accounting for the role of clinical measures.
Conclusion These findings indicate that CR can serve as potential marker to identify individuals at high-risk for relapse. Further examination of intervention-related CR change may aid in personalizing treatment of AUD.
Disclosure of interest The authors have not supplied their declaration of competing interest.

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Modafinil: A smart drug with psychiatric implications

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Introduction Modafinil is approved to treat excessive somnolence but it is also off-spec used as a treatment for ADHD and as a cognitive enhancer. Research on the effects of modafinil on cognitive function have yielded mixed results. Modafinil interact with dopamine, noradrenaline, serotonin, glutamate, orexin, histamine and GABA levels. The regulation of these neurotransmitters is widely known to be implicated in most of the neuropsychiatric disorders.
Methodology A review was conducted aiming to clarify the biological mechanisms of action of modafinil; its effects on attention, learning, executive functions and creative thinking; as well as possible neuropsychiatric disorders associated to its intake. The literature search was conducted in PubMed data reviewing articles dating between 2015 and 2016.
Results (1) Empirical evidence for cognitive enhancing effects of one of the most frequently used substances, modafinil, is sparse. Studies suggest that with more protracted and complex testing, more benefits are associated to modafinil use.
(2) Modafinil may be implicated in alterations of reward-related behaviour. Compared to placebo, modafinil leads to an enhanced tendency to make previously rewarded choices compared to the avoidance of previously punished choices. This pattern of altered choice behaviour is probably induced by an increase of the dopamine level and a potential contribution of elevated noradrenaline.
Conclusions Some people share information about this drug in social network. Off-label use of this drug may be implicated in alterations of reward-related behaviour and patients with previous psychiatric disorders should be aware of its possible adverse effects.
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Nootropics: Emergents drugs associated with new clinical challenges

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Introduction The "nootropic" or simplified as a "smart drug", is a common term that will tag along with the compound responsible for the enhancement of mental performance. Certain individuals with a history of mental or substance use disorders might be particularly vulnerable to its adverse effects.
Methodology A review was conducted aiming to clarify the mechanisms associated of how these drugs increase mental functions including memory, motivation, concentration, and attention; and which kind of individuals are at risk of developing adverse effects when taking these drugs. The literature search was conducted in PubMed data reviewing articles dating between 2015 and 2016.
Results – Glutaminergic Signalling, Cholinergic System, Amyloid Precursor Protein and Secondary Messenger may be related to the cognitive enhancement achieved by Nootropics. Others, like insulin and angiotensin receptor may involved too.
– Some of them, like Ginkgo biloba, seem to have neuroprotective effects observed in human and animal models, acting as antioxidant and antiapoptotic, also inducing inhibition effects against caspase-3 activation and amyloid-aggregation toward Alzheimer's disease.
– Synthetic nootropics, a lab created compound such as piracetam, especially in people with history of drug abuse, may be associated with psychiatric exacerbations of some patients.
Conclusions Young adults all over Europe, especially university students, are starting to use nootropic drugs to improve their academic results. Some of them seem to have beneficial effects over mental health but others are sometimes related with sudden and unexplained exacerbations in stable psychiatric patients. It is important to early identify symptoms and to treat them properly.