

EV0711

The relationship between responsiveness to social and monetary rewards and ADHD symptoms

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Introduction Alterations in reward processing are frequently reported in ADHD. One important factor that affects reward processing is the quality of reward, as social and monetary rewards are processed by different neural networks. However, effect of reward type on reward processing in ADHD was not extensively studied.

Aims We aimed to explore the effect of reward type (i.e., social or monetary) on different phases of reward processing and also to test the hypothesis that ADHD symptoms may be associated with a problem in processing of social rewards.

Methods We recorded event-related potentials (ERPs) during a spatial attention paradigm in which cues heralded availability and type of the upcoming reward and feedbacks informed about the reward earned. Thirty-nine (19 males and 20 females) healthy individuals (age range: 19–27) participated in the study. ADHD symptoms were measured using ADHD self-report scale (ASRS).

Results The feedback related potentials, namely feedback related negativity (FRN), P200 and P300 amplitudes, were larger for social rewards compared to monetary rewards (Fig. 1). There was a consistent negative correlation between the hyperactivity subscale of ASRS and almost all feedback related ERPs. ERP amplitudes after social rewards were smaller for individuals with more hyperactivity.

Conclusions Our findings suggest that hypo responsiveness to social rewards may be associated with hyperactivity. However, the results have to be confirmed with clinical populations.

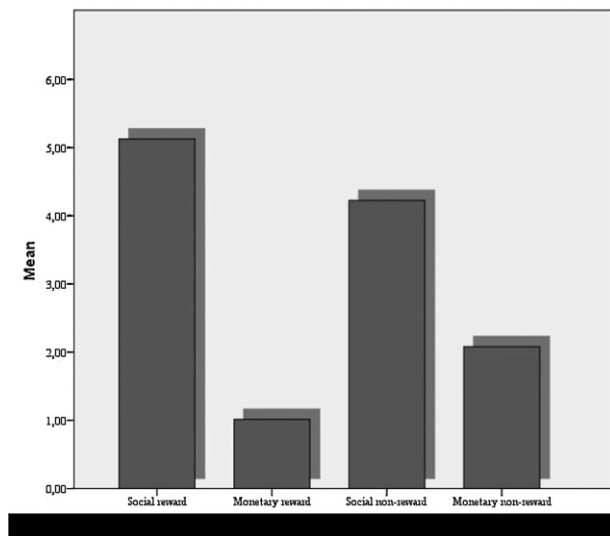


Fig. 1 FRN amplitudes.

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EV0712

The differential effect of event rate on pupil dilation patterns suggests effort dysregulation problems in ADHD

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Introduction The state regulation model postulates that ADHD performance difficulties result from failures to regulate activation states in response to changing environmental conditions – producing poor performance under sub-optimal conditions. Behavioral and electrophysiological studies involving the manipulation of event rate (ER) lend support to this idea.

Aim In this preliminary study, we extended this investigation by comparing pupil dilation, an established marker of cognitive effort allocation, in individuals with ADHD, and controls, in response to varying ERs on a simple cognitive task.

Methods Nineteen children with ADHD (age range: 8–14 years) and 21 controls (age range: 10–16 years) completed a target detection task under three different ERs (1300, 4000, and 8000 msec). Pupil dilation was monitored using an eye-tracker.

Results Our results show that for controls, pupil dilation to targets varied as a function of ER according to a “U” function – with fast and slow ERs inducing greater phasic dilation than the moderate ER. However, for children with ADHD the relationship was linear with dilation increasing as ER decreased.

Conclusions The results provide the first pupillary evidence suggestive of effort allocation dysregulation in ADHD especially under fast event rate conditions. Future studies should explore interventions to overcome effort allocation problems.

Disclosure of interest The authors have not supplied their declaration of competing interest.

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EV0713

Interrelationships between cortisol, cognition and dementia: A review of the literature and new own findings

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Introduction Cortisol exerts effects on the brain via two different receptors, producing complex and sometimes opposite effects on the brain structures involved with the different cognitive functions. **Objective** To scrutinize the interrelationships between cortisol, cognition and dementia.

Methods Review of the literature and new own findings.

Results Animal and clinical studies showed an association between increased cortisol and poorer overall cognitive performance, declarative memory, language, processing speed, executive functioning, spatial memory, as well as social memory. High cortisol may exhibit neurotoxic effects on the hippocampus, and exacerbate oxidative injury and amyloid β peptide toxicity. Increased CSF cortisol levels have been found in subjects with dementia and Mild Cognitive Impairment (MCI) due to Alzheimer's disease (AD) compared to control subjects with normal cognition. In MCI due to AD, high CSF cortisol may also predict a more rapid cognitive decline. Higher cortisol levels have been also observed in delirium. Increased cortisol levels interact with inflammatory mediators, neurotransmitters, and growth factors, and may mediate the effects of depression, stressful life events, and personality traits, sleep disturbances, and cardiovascular risk factor on cognitive performance and cognitive decline.

Conclusions High cortisol levels may exert deleterious effects on cognition and exacerbate AD pathology. Further studies are needed to explore glucocorticoid-based interventions in the management of cognitive disorders.

Disclosure of interest The authors have not supplied their declaration of competing interest.

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EV0714

Plastic surgery treatment of post-bariatric patients cannot remain “brainless”

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Introduction The aim of this study was to investigate the presence of executive difficulties due to a lack of the management of cognitive conflict, inhibition, and cognitive flexibility in this group of patients. If executive difficulties are at the basis of uncontrolled alimentary behavior, these will be present also after a dramatic weight loss and could lead to a poor compliance of the patient after plastic surgery procedures.

Materials and methods We enrolled 21 consecutive post-bariatric patients. This clinical population was compared with a control group ($n=21$) from the general population sharing the same clinical and demographic features. Psychiatric evaluation was performed. Executive difficulties were investigated through electroencephalography using the stroop task, sustained attention to response task, and task switching tests.

Results The patient group reported more frequently psychiatric disorders than control group. Patients had higher prevalence of lifetime major depression (58.3% vs. 14.3%), of lifetime panic disorder (36.1% vs. 4.8%) and generalized anxiety disorder (16.75% vs. 0%). Finally, patients were more frequently affected by body dysmorphic disorder ($\chi^2 = 8.867$, $P = .003$). Electroencephalography confirmed the presence of executive difficulties sustained by a lack of the control of cognitive conflict and cognitive flexibility, and a difficulty of the inhibitory control in the patient group.

Conclusion Electroencephalography confirmed for the first time the high prevalence of psychological/psychiatric problems in post-bariatric patients. Patients showing high values of executive difficulties will need a psychological/psychiatric support to sustain a positive outcome after post-bariatric plastic surgery.

Disclosure of interest The authors have not supplied their declaration of competing interest.

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EV0715

Cognitive functions recovery after traumatic brain injury of mild severity in adolescents

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Introduction The effect of the traumatic brain injury of mild severity (mTBI) on the cognitive functions influences on the educational activities of adolescents in school and the quality of life in general.

Objectives To study the violations and to track the dynamics of recovery higher mental functions (HMF), after mTBI in adolescents with neuropsychological syndrome in the range of up to one year.

Materials and methods The study is based on the original set of techniques designed by A.R. Luria. We focused on assessing the

status of various components of the HMF. We also studied of the mental activity in its regulatory and dynamic aspects. Thirty-one patients with mTBI (mean age was 11.5 ± 1.3) and 20 healthy subjects (mean age was 12 ± 1.5) took part in the study.

Results Analysis of the results showed that violations of HMF in the acute period were represented by three types of syndromes. The leading place in each syndrome is occupied by deficiency symptoms of non-specific brain structures. Research of dynamics of recovery HMF demonstrated the symptoms related to deficiency of parietal-temporal-occipital area are reducing for the first month, as well as the symptoms of the anterior brain. After six months we observed the decrease all symptoms from cortical structures, but the symptoms persist in the form of fatigue, reduction the rate of mental activity, difficulty in concentration.

Conclusions Application of neuropsychological approach (Luria school) to the diagnosis and recovery of deficit cognitive function allows to describe the symptoms and to identify their hierarchy in the structure of violations.

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EV0716

Phenocopy frontotemporal dementia: A case series from a national memory clinic and a review of the literature

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Introduction The existence of a frontotemporal dementia phenocopy (phFTD) syndrome remains controversial. Opinions differ on whether the phenocopy presentation represents the neuropsychological manifestation of a mid-life decompensation in vulnerable pre-morbid personalities or an indolent prodrome of behavioral-variant FTD (bvFTD). Literature on this topic is sparse and clinicians and patients have little guidance around prognosis and management.

Objectives To describe the demographic, neuropsychological and biomarker profiles of a case series of phFTD patients, attending the memory clinic and review relevant literature.

Methods Retrospective review of all cases diagnosed with phFTD. **Results** Eleven cases were identified (male = 9, female = 2). Mean age 55.8 years. Subjective complaints comprised memory and language difficulties. Collateral reports described apathy, aggression, impulsivity, disinhibition, hyperorality. Function was relatively preserved though motivation or supervision for higher-level tasks was sometimes required. All had non-neurodegenerative MRI and PET scans. Neuropsychological test (NPT) findings predominantly showed executive dysfunction and fluency impairment. A total of 3/11 had non-amnesic memory impairment. Follow-up imaging and NPT were invariably unchanged; 1/11 had a pre-morbid psychiatric diagnosis; 5/11 had unusual personality traits pre-morbidly. Major psychosocial stressors were documented in 7/11. Management consisted of psychosocial interventions to support function and interpersonal relationships.

Conclusions The literature describes the phFTD syndrome as predominantly affecting males though we include 2 females who meet the criteria. In keeping with our findings, personality traits and psychosocial stressors may be more common in phFTD than bvFTD. More severe symptoms, memory impairment at presentation and C9ORF72 gene mutation may predict eventual progression. Those who do not progress have minimal long-term functional impairment though behavioral symptoms persist.