

Results EEG power analysis showed that FTD group had increased frontal and temporal theta as compared to the BD group. There were no consistent group differences for other bands.

Conclusion Based on this result we conclude that quantitative EEG may help differentiating BD from FTD and may eliminate diagnostic uncertainty.

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

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EV0692

The effects of medication on default mode network (DMN) connectivity in attention deficit/hyperactivity disorder (ADHD): Bibliographic review

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Introduction ADHD is a neurodevelopmental disorder comprising brain structural and functional alterations, especially in default mode network (DMN), as MRI studies have recently shown. However, it is not clear in which extent medication for ADHD may influence the activity of these networks.

Objectives The main purpose is to look up published evidence about the effects of ADHD medication on the connectivity of DMN in patients as measured with functional-MRI.

Methods A review was conducted with Pubmed, using search terms 'default mode network'+ 'ADHD'+ 'medication'/ 'methylphenidate'/ 'atomoxetine'/ 'stimulant'/ 'lisdexanfetamine'. Original research studies in English using f-MRI to assess DMN connectivity in ADHD patients were included in a more comprehensive review.

Results The searches found 124 articles, 8 meeting the review criteria. A total size of 146 ADHD patients was comprised (mean size: 18.25 patients). Three studies used specific resting-state f-MRI. Seven were drug trials, 3 of them short-term, randomized and controlled ones. Six included methylphenidate, 2 atomoxetine, 1 lisdexanfetamine and 3 amphetamines. Two also assessed drugs clinical effects. Evidence seems heterogeneous, but mostly consistent with normalizing drug effects on DMN in patients (in some studies also compared with healthy controls), associated with a measured clinical improvement in one study with amphetamines and one with atomoxetine. One trial found little differences on DMN activity.

Conclusions Psychostimulant drugs and atomoxetine are clinically effective medications; DMN connectivity may partially explain their action mechanisms and constitute a potential response predictor. Further f-MRI studies might more deeply assess the imaging-clinical relationships for each drug.

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

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Dynamic of NAA and BOLD after single short stimulus in motor cortex of Schizophrenia patients

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Introduction The aim of this study was the analysis of dynamics of motor cortex metabolite in the norm and in early stage of schizophrenia in period of BOLD response to event related single stimulus.

Objectives The patients group consisted of 9 mails of 16–28 years old in initial stage of schizophrenia and in remission. The group of 9 age matched healthy mails was used as a control.

Methods Phillips Achieva 3.0T scanner was used for the study. Volume of interest in motor cortex was localized on the base of fMRI. 1H MR spectra were run using synchronization of FID signals acquisition (PRESS, TE = 30 ms TR = 3000 ms) with dynamics of BOLD response at the same paradigm.

Results The BOLD signal in both groups demonstrated maximum at the 6th s after target stimulus, however its value was reliably lower in schizophrenia in comparison with the control. The only [NAA] in normal motor cortex was changed after stimulation. The stable values of [NAA], [Cr] and [Cho] were observed in dynamic of resting state as well. [NAA] in normal cortex statistically significantly decreased at the 12th s after stimulus presentation and returned to initial value at the 15th s.

Conclusion Different behavior of [NAA] in the norm and schizophrenia might be related with a difference in location (or activity) of aspartoacylase (ASPA). Decreased expression of glutamate transporters in schizophrenia could also reduce consumption of NAA as a source of acetate in synthesis of AcCoA which is used for restoration of ATP.

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

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Normal pressure hydrocephalus as a possible reversible cause of dementia, neuroimaging findings

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Introduction Normal pressure hydrocephalus (NPH) occurs in 0.5% of persons over 65 years old. The etiology of NPH is still unknown. Clinically NPH is characterised by cognitive deterioration, gait impairment and urinary incontinence. NPH is a possible reversible cause of dementia. Neuroimaging techniques such as computed tomography (CT) and magnetic resonance imaging (MRI) allow to assess typical brain changes in this disorder.

The objectives are to present the typical findings of NPH on CT and MRI and to demonstrate differences between NPH and central brain atrophy in neuroimaging.

Results The imaging features of NPH include: supratentorial ventriculomegaly with callosal angle less than 90°, tight sulci at the vertex and considerable out of proportion enlargement of Sylvian fissures. In case of central brain atrophy there may be a predominance of ventriculomegaly and/or widened sulci without crowding of the gyri at the vertex and callosal angle greater than 90°. In both entities, the decrease of density in periventricular region may be seen: in NPH could be a sign of transependymal oedema or in brain atrophy as an accompanying leukoaraiosis. Additionally, it is possible to assess changes in flow of cerebrospinal fluid (CSF) on MRI: in NPH an increased pulsatile CSF circulation in aqueduct as flow void sign may be observed.

Conclusions Correct diagnosis of NPH on CT or MRI in relation to clinical data is very important. Treatment with ventriculoperitoneal shunt or third ventriculostomy may partially improve the

quality of life in some patients with cognitive impairment due to NPH.

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

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EV0695

Rural and urban childhood environment effects on episodic memory

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Introduction Childhoods in urban or rural environments may differentially affect risk for neuropsychiatric disorders. Here, we leveraged on dramatic urbanization and rural-urban migration since the 1980s in China to explore the hypothesis that rural or urban childhoods may differentially influence memory processing and neural responses to neutral and aversive stimuli.

Objectives Explore the underlying mechanisms of childhood environment effect on brain function and neuropsychiatric risk.

Methods We examined 420 adult subjects with similar current socioeconomic status and living in Beijing, China, but with differing rural ($n = 227$) or urban ($n = 193$) childhoods. In an episodic memory paradigm scanned in a 3 T GE MRI, subjects viewed blocks of neutral or aversive pictures in the encoding and retrieval sessions.

Results Episodic memory accuracy for neutral stimuli was less than for aversive stimuli ($P < 0.001$). However, subjects with rural childhoods apparently performed less accurately for memory of aversive but not neutral stimuli ($P < 0.01$). In subjects with rural childhoods, there was relatively increased engagement of bilateral striatum at encoding, increased engagement of bilateral hippocampus at retrieval of neutral and aversive stimuli, and increased engagement of amygdala at aversive retrieval ($P < 0.05$ FDR corrected, cluster size > 50).

Conclusions Rural or urban childhoods appear associated with physiological and behavioural differences, particularly in the neural processing of aversive episodic memory at medial temporal and striatal brain regions. It remains to be explored the extent to which these effects relate to individual risk for neuropsychiatric or stress-related disorders.

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e-Poster Viewing: Neuroscience in Psychiatry

EV0696

Possible Involvement of Endogenous Opioids and Nitric Oxide in the Anticonvulsant Effect of Acute Chloroquine Treatment in Mice

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Introduction Chloroquine, a 4-aminoquinoline derivative, has long been used for the treatment of malaria and rheumatological

disorders, including rheumatoid arthritis and systemic lupus erythematosus. Accumulating evidence now suggests potential use of chloroquine as a neuroprotectant. Studies have shown that nitric oxide (NO) pathway is involved in the chloroquine actions. Considering the fact that nitrenergic neurotransmission plays a crucial role in the central nervous system functioning, in the present study we evaluated whether nitrenergic system is involved in the anticonvulsant effects of chloroquine in a model of clonicseizure in mice.

Methods Clonic seizure threshold was determined by infusion of pentylenetetrazole (PTZ, 0.5%) at a constant rate of 1 mL/min into the tail vein of male Swiss mice (23–29 g). Minimal dose of PTZ (mg/kg of mice weight) needed to induce clonicseizure was considered as an index of seizure threshold.

Results Chloroquine (5 mg/kg, acutely 30 min before test, intraperitoneally), i.p significantly increased the seizure threshold. Acute co-administration of a non-effective dose of the non-selective NO synthase (NOS) inhibitor, L-NAME (L-NG-Nitro-L-arginine methyl ester hydrochloride, 5 mg/kg, i.p.) or the selective inhibitor of neuronal NOS, 7-NI (7-nitroindazole, 40 mg/kg, i.p.) with an effective dose of chloroquine (5 mg/kg) inhibited its anti-convulsant effects. Co-administration of a non-effective dose the selective inducible NOS inhibitor, aminoguanidine (100 mg/kg, i.p.) with chloroquine 5 mg/kg did not alter its anticonvulsant effects.

Conclusion Chloroquine increases the PTZ-induced clonic seizure threshold in mice. We demonstrated for the first time that nitric oxide signaling probably through neuronal NOS could be involved in the anticonvulsant effects of chloroquine in this model of seizure in mice.

Disclosure of interest The author has not supplied his/her declaration of competing interest.

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Cannabis and confabulation: An intrusive relationship

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Introduction The association between the neurocognitive impact of cannabis use and deficits in working and declarative memory is well documented. Studies with cannabis users suggest that recognition memory is particularly susceptible to cannabinoid acute intoxication. Studies carried out in the 1970s using free memory tests, showed that cannabis users not only named fewer words having also a tendency to evoke intrusive memories. Interestingly, a recent study has exposed an association between cannabis consumption and increased likelihood of creating fake memories.

Objectives The main objective of this work is to do literature revision, framing old data with recent works, exposing the relationship between cannabis consumption and memory confabulation/intrusion.

Methodology Literature review, comparison and description of empirical data [1].

Results Recent studies show that both cannabis users and abstinent are more susceptible to create false memories, not being able to identify trap stimuli as events that never occurred.

Discussion/conclusions Changes in perception and memory deficits are two common consequences of acute marijuana intoxication. The fact that these deficits remain during drug abstinence demonstrates the relevance of better understanding the mechanisms by which cannabinoids alter such cognitive functions. Reductions in the activation of brain areas comprised in the lateral and temporal lobe and in frontal cortex zones involved in the processes of attention and performance monitoring may be a possible explanation.