connectivity (FC) differences across some of the more prevalent mental disorders, namely mood disorders.
Objectives: The current study aimed at investigating the alterations of the functional connectivity of major seeds of the Salience Network (SN) (the Anterior Cingulate Cortex (ACC), and Anterior Insula (AI) in patients with unipolar (Major Depressive Disorder-MDD) or bipolar (Bipolar Disorder-BD) depression as compared to healthy controls (HC).
Methods: For this study 103 adult subjects underwent resting-state Magnetic Resonance Imaging of whom 60 were patients with a depressive episode (MDD: n=35; BD: n=25), and 43 were healthy controls (HC). The individuals in both groups were matched for age and gender. Each participant has provided written informed consent (Ethics Committee: P186/22.01.2021). Seed-to-voxel analysis was performed via the CONN toolbox running on MATLAB. Random Field Theory parametric statistics was used with a cluster-level FWE correction $p<0.05$.
Results: Both the ACC and the right AI demonstrated a statistically significant increase in the FC to the somatosensory cortex and the motor cortex in patients as opposed to HC. In addition, there was hyperconnectivity between ACC and the right Superior Frontal Gyrus, Precuneus, and the Superior Parietal Lobule bilaterally in patients as well. A reduced FC between the ACC and the hippocampus and parahippocampus was observed in depression in comparison to HC. The analysis of the left AI seed yielded no statistically significant between-group differences.
Conclusions: Our results demonstrate aberrant connectivity between nodes of the SN, the Default Mode Network, and the Limbic Network which might provide clarification on the mechanisms of impaired balance between internally and externally oriented attention, affective and cognitive control in depression. In addition, the alterations of the FC between SN and the somatosensory and motor cortices may be suggested as a possible explanation of the disturbances in the psychomotor activity in mood disorders.

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EPP0999

Novel mitochondrial mechanisms of cognitive regulation in subjects with cognitive impairments

B. Bigio[1]*, R. Lima-Filho[2], O. Barnhill[3], F. Sudo[2], C. Drummond[4], N. Assunção[4], B. Vanderborght[4], F. Tovar-Moll[4], P. Mattos[4], S. Ferreira[2], F. De Felice[5], M. Lourenco[2] and C. Nasca[1,6]

[1]Department of Psychiatry, New York University Grossman School of Medicine, New York, United States; [2]Institute of Medical Biochemistry Leopoldo de Meis, Rio de Janeiro, Brazil; [3]Rockefeller University, New York, United States; [4]D'Or Institute for Research and Education (IDOR), Rio de Janeiro, Brazil; [5]Queen's University, Kingston, Canada and [6]Department of Neuroscience and Physiology, New York University Grossman School of Medicine, New York, United States
*Corresponding author.
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Introduction: Prior mechanistic studies in rodents showed decreased levels of the pivotal mitochondrial metabolite acetyl-L-carnitine (LAC) in relation to cognitive deficits and depressive-like behavior (Neuron 2017, 10.1016/j.neuron.2017.09.020, PNAS 2013, 10.1073/pnas.1216100110), providing the basis for the current translational study.
Objectives: The main objective of this work was to ascertain the role of this specific mitochondrial signaling pathway in subjects with cognitive impairments (CI), and potential sex differences in these mechanisms.
Methods: We used computational approaches, ultraperformance liquid chromatography–tandem mass spectrometry (UPLC-MS/MS) and available plasma samples from a well-characterized cohort of 71 subjects, including subjects with CI and age- and sex-matched cognitively healthy controls (HC).
Results: Our newest findings showed decreased levels of LAC in subjects with CI as compared to age- and sex-matched HC. We also found important sex differences in carnitine levels in relation to cognitive function as assessed by using the Mini Mental Status Exam (MMSE). Specifically, the degree of carnitine deficiency reflected the severity of cognitive dysfunction in a sex-specific manner. Using computational approaches, we found that the integration of these mitochondrial measures with canonical biomarkers improves diagnostic accuracy.
Conclusions: The current findings of sex differences in carnitine deficiency in subjects with CI suggest a possible sex-specific mitochondrial phenotype of vulnerability to cognitive dysfunction, and point to LAC-related mitochondrial metabolism as a new signaling pathway of cognitive regulation.

Disclosure of Interest: None Declared

EPP1000

Resting-state gamma oscillations in adult Autism spectrum disorder: A High-Density EEG study

B. Kakuszi[1]*, B. Szuromi[2], M. Tóth[1], I. Bitter[1] and P. Czobor[1]

[1]Psychiatry and Psychotherapy, Semmelweis University and [2]OMIII Nyírő Gyula Hospital, Budapest, Hungary
*Corresponding author.
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Introduction: Autism is neurodevelopmental disorder with a heterogeneous presentation of symptoms, which include disturbances in sensory, motor and cognitive processes, among which social cognitive impairments and social interaction difficulties play prominent role. Despite the fact that these impairments can lead to lifelong disability and difficulties in everyday functioning, their neurobiological basis remains largely unknown. Neural oscillations in the gamma band have been shown to be an important candidate neurobiological marker of higher order cognitive processes and

social interactions. Yet, alterations of gamma oscillations in ASD have received little attention in the literature.
Objectives: The aim of the current study was to investigate resting state gamma oscillations in the EEG in order to delineate alterations in ASD as compared to typically developing (TD) subjects in the intrinsic activity of the neural networks that have been linked to social cognitive functioning.
Methods: Resting-state EEGs were obtained in an ongoing study investigating ASD (N=19) and TD subjects (N=15), based on eyes closed condition. EEGs were recorded using a 128-channel BioSemi system. EEG absolute power was investigated in the gamma 30-48Hz frequency band.
Results: Gamma activity was significantly ($p<0.05$) diminished in multiple brain regions in ASD as compared TD subjects. The diminished gamma activity had a distinctive topographical distribution, which included the left and right inferior temporal gyrus, the right superior temporal gyrus, the TPJ and the right extrastriate areas. Additionally, we found a hemispheric asymmetry in the occipital brain areas with a decrease of gamma activity on the right and an increase in the left hemisphere as compared to TD.
Conclusions: Diminished gamma activity in the above brain areas may represent a cortical dysfunction which can be present due to a reduced capacity to process socially relevant information and a decreased capacity to omit irrelevant stimuli.
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EPP1001

Identifying a predictive model of cognitive impairment in bipolar disorder patients: a machine learning study

C. Monopoli[1]*, L. Fortaner-Uyà[1,2], F. Calesella[1,2], F. Colombo[1,2], B. Bravi[1,2], E. Maggioni[3,4], E. Tassi[3], I. Bollettini[1], S. Poletti[1,2], F. Benedetti[1,2] and B. Vai[1,2]

[1]IRCCS San Raffaele Hospital, Psychiatry and Clinical Psychobiology Unit; [2]University Vita-Salute San Raffaele; [3]Politecnico di Milano, Department of Electronics - Information and Bioengineering and [4]Department of Neurosciences and Mental Health, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy
*Corresponding author.
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Introduction: Bipolar patients (BP) frequently have cognitive deficits, that impact on prognosis and quality of life. Finding biomarkers for this condition is essential to improve patients' healthcare. Given the association between cognitive dysfunctions and structural brain abnormalities, we used a machine learning approach to identify patients with cognitive deficits.
Objectives: The aim of this study was to assess if structural neuroimaging data could identify patients with cognitive impairments in several domains using a machine learning framework.
Methods: Diffusion tensor imaging and T1-weighted images of 150 BP were acquired and both grey matter voxel-based morphometry (VBM) and tract-based white matter fractional anisotropy (FA) measures were extracted. Support vector machine (SVM) models were trained through a 10-fold nested cross-validation with subsampling. VBM and FA maps were entered separately and in combination as input features to discriminate BP with and without deficits in six cognitive domains, assessed through the Brief Assessment of Cognition in Schizophrenia.
Results: The best classification performance for each cognitive domain is illustrated in Table 1. FA was the most relevant neuroimaging modality for the prediction of verbal memory, verbal fluency, and executive functions deficits, whereas VBM was more predictive for working memory and motor speed domains.

Table 1. Performance of best classification models.

	Input feature	Balance Accuracy (%)	Specificity (%)	Sensitivity (%)
Verbal Memory	FA	60.17	51.31	43
Verbal Fluency	FA	57.67	62	53.33
Executive functions	FA	60	63.33	56.67
Working Memory	VBM	56.50	56	57
Motor speed	VBM	53.50	47.67	59.33
Attention and processing speed	VBM + FA	58.33	49.17	67.5

Conclusions: Overall, the tested SVM models showed a good predictive performance. Although only partially, our results suggest that different structural neuroimaging data can predict cognitive deficits in BP with accuracy higher than chance level. Unexpectedly, only for the attention and processing speed domain the best model was obtained combining the structural features. Future research may promote data fusion methods to develop better predictive models.

Disclosure of Interest: None Declared

EPP1002

Brain functional connectivity and local coherence in non-converters with clinical high risk for psychosis

Y. Panikratova, E. Abdullina*, I. Lebedeva, M. Omelchenko, D. Tikhonov and V. Kaleda

Mental Health Research Center, Moscow, Russian Federation
*Corresponding author.
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Introduction: Investigation of resilience mechanisms in patients with clinical high risk for psychosis (CHR) may inform clinical practice for the development of early intervention programs. Resilience mechanisms in CHR who did not transit to psychosis for a long period of observation may be more pronounced than in CHR converters.
Objectives: We aimed to compare CHR who did not convert to psychosis for 7.3 ± 1.7 years, patients with first-episode psychosis (FEP), and healthy controls (HC) in terms of brain functional connectivity and local coherence.
Methods: Twenty-seven CHR (mean age 27.5 ± 3.1), 24 FEP (mean age 20.6 ± 3.6), and 27 HC (mean age 27.3 ± 4) underwent resting-