

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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Disclosure of Interest: None Declared

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. Tassi³, I. Bollettini¹, S. Poletti^{1,2}, F. Benedetti^{1,2} and B. Vai^{1,2}

¹IRCCS San Raffaele Hospital, Psychiatry and Clinical Psychobiology Unit; ²University Vita-Salute San Raffaele; ³Politecnico di Milano, Department of Electronics - Information and Bioengineering and ⁴Department 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-

state fMRI (3T). All participants were males. Functional connectivity between 32 regions of interest (components of default mode, sensorimotor, visual, salience, dorsal attention, frontoparietal, language, and cerebellar networks; CONN functional network atlas www.nitrc.org/projects/conn) and whole-brain local coherence (LCOR; Deshpande et al. HBM 2009; 30(1) 13-23) were compared between 3 groups of participants (one-way ANCOVA) with *post hoc* analyses.

Results: CHR and HC demonstrated higher functional connectivity between the occipital cortex (visual network) and right rostral prefrontal cortex (salience network) compared to FEP. CHR also showed higher local coherence in the right calcarine and cuneal cortex than FEP (the following differences did not survive the correction for multiple comparisons: CHR>HC and HC>FEP).

Conclusions: Our findings on brain functional connectivity and local coherence may be considered as the markers of resilience mechanisms in patients with CHR as these parameters were different between CHR and FEP and were similar in CHR and HC.

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EPP1003

Effects of intrahippocampal nmda on re-extinction of an aversive emotional memory task in rats

E. P. Ruiz Gonzalez^{1*}, D. M. Gómez Ordoñez¹, L. F. Cárdenas² and M. N. Muñoz Argel¹

¹Universidad Pontificia Bolivariana, Montería and ²Universidad de los Andes, Bogotá, Colombia

*Corresponding author.

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Introduction: N-Methyl-D-aspartate (NMDA) receptors are involved in learning and memory. It is known that ventral hippocampus is a crucial structure involved in emotional memory formation mainly for fear and anxiety situations. The aim of this research is to identify the effect of the stimulation of ventral hippocampal NMDA receptors on the reextinction of an aversive emotional memory task. NMDA (0.2 ug/μl; 0.2 μl) or saline (0.9 %; 0.2 μl) was bilateral and locally administered in the ventral hippocampus of male Wistar rats, before the re-instatement trial.

The experimental group consisted of 10 animals and the control group by 9 subjects. The results suggest that the activation of ventral hippocampal NMDA receptors induces an increase in the time needed to re-extinguish the conditioned fear, suggesting a possible potentiating effect on re-installation.

Objectives: To evaluate the effect of NMDA at the intrahippocampal level, on the reinstatement and re extinction of a conditioned fear response in male Wistar rats.

Methods: This study is experimental, where two groups of adult male Wistar rats were used. The bilateral cannulas was implanted, the animals were injected intraperitoneally with a mixture of ketamine (Rotexmedica) and xylacin (Bayer; 75 mg/Kg and 5 mg/Kg), respectively, then the animals were placed in a stereotaxic apparatus (Narishige) and injected with veterinary antibiotic. The (21G) cali-

ber cannulas were bilaterally implanted in HPv at the following coordinates: AP = -5.2 mm relative to Bregma; ML = ± 5 mm in relation to the midline and DV = 5.1 mm in relation to the skull and according to the atlas (Paxinos & Watson, 1985).

Results: It was observed that in the first phase of extinction there were no statistically significant differences between the two groups, experimental and control, as in the second phase of extinction. The results obtained for the re-extinction phase 1 and 2 showed that there were significant statistical differences between the groups. This difference was only evident in the first three minutes in the two phases of re-extinction.

Image 2:

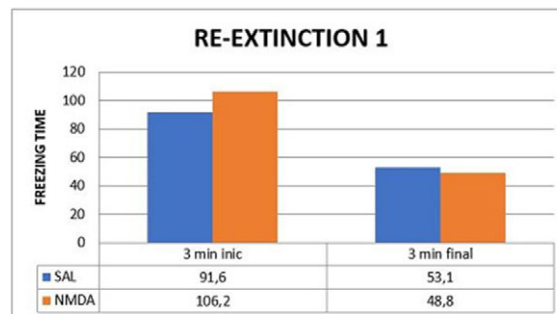


Figure 1: Freezing times achieved by subjects in both the first three minutes (1-4 min) and the final three minutes (23-25 min).

Image 3:

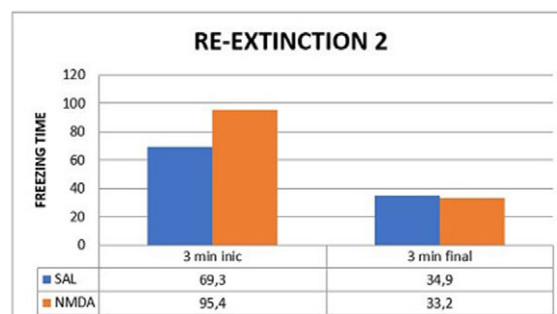


Figure 2: Freezing times achieved by the subjects both in the first three minutes (1-4 min) and in the final three minutes (23 -25 min).

Conclusions: Statistically significant differences were observed between the two groups, in the phases of re-extinction, seeing a longer time of the freezing response in the experimental group, as an effect of the application of NMDA in the ventral hippocampus (HPv), which suggests that this substance has a memory-enhancing effect, and therefore contributes to increasing the permanence of the fear response. It should be noted that this difference was only evident in the first three minutes in the two re-extinction phases. These results may be related to other studies where it has been shown that LTP is dependent on the N-methyl-D-aspartate receptor in the CA1 region *in vivo* (Zhong, Cherry, Bies, Florence, & Gerges, 2009)

Disclosure of Interest: None Declared