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ABNORMAL RESTING-STATE FUNCTIONAL CONNECTIVITY IN EUTHYMIC BIPOLAR PATIENTS

P. Favre[1,2], *M. Polosan*[1,3,4], *C. Pichat*[2], *T. Bougerol*[1,3,4], *M. Baciu*[1,2]

[1]Structure Fédérative de Recherche 'Santé et Société', [2]Laboratoire de Psychologie et NeuroCognition, UMR CNRS 5105, Université Pierre Mendès France, [3]Pôle Psychiatrie et Neurologie, Centre Expert en Troubles Bipolaires, Fondation FondaMental, Centre Hospitalier Universitaire de Grenoble, [4]Institut des Neurosciences de Grenoble, Équipe 'Fonctions Cérébrales et Neuromodulation', Université Joseph Fourier / INSERM, Grenoble, France

Objectives: Bipolar disorders (BD) are characterized by emotional and cognitive impairment reflected in functional MRI studies. Although the default mode network (DMN) would be also impaired, resting-state activity was much less explored in these patients. Our current study aims to assess the DMN functional connectivity in euthymic bipolar patients (EBP) in order to identify potential *trait* abnormalities of this disease.
Methods: Fifteen EBP and 15 matched healthy controls (HC) underwent fMRI exam during 6 min resting state (rest while keeping attention focused on a visual cross on a projection screen). The Independent Component Analysis (ICA) was used to identify DMN network and functional connectivity in each subject. The DMN group maps of EBP and of HS were compared statistically. Additionally, within-group analysis was performed in EBP group to explore the effect of disease duration on functional connectivity.
Results: Compared to HC, EBP showed reduced DMN connectivity within medial prefrontal cortex, right angular gyrus and left occipital lobe as well as abnormal recruitment of right insula and right middle cingulate gyrus. For the EBP group, significant positive correlation between disease duration and functional connectivity has been observed within left amygdala and right middle cingulate cortex.
Conclusions: Our results revealed decreased DMN functional connectivity within frontal and parietal regions in EBP and suggest abnormal internally-focused activity in these patients. Furthermore, the abnormal recruitment of limbic regions such as right insula, middle cingulate gyrus and amygdala may reflect emotional instability and hyperreactivity of EBP, which might be amplified with the disease evolution.

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