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FUNCTIONAL CONNECTIVITY IN REMISSION AFTER THE FIRST EPISODE OF SCHIZOPHRENIA

T. Kasparek[1], R. Prikryl[1], J. Rehulova[1], R. Marecek[2], H. Prikrylova[1], J. Vanicek[3]
[1]Department of Psychiatry, University Hospital Brno-Bohunice and Masaryk University, [2]1st. Department of Neurology, [3]Dep. of Imaging Methods, Masaryk University, Brno, Czech Republic

Introduction: Abnormal task-related activation and connectivity is present in schizophrenia. However, whether it is a trait or state marker and what components of brain networks are affected remains unclear

The aim of the present study was the analysis of functional networks in schizophrenia patients in remission after the first episode.

Methods: Twenty-nine patients in remission after the first episode of schizophrenia and 22 healthy controls underwent examination by functional magnetic resonance during Verbal Fluency Tasks. The functional connectivity of brain networks was analyzed using Independent Component Analysis.

Results: The patients showed lower activation of the network implicated in verbal fluency processing, consisting of the fronto-temporo-parietal cortex, the thalamus, caudate nucleus, and cerebellum. They also showed lower deactivation of the medial frontal cortex, temporal neocortex, hippocampus, posterior cingulate, precuneus, and lateral parietal cortex during VFT processing. Moreover, there was abnormal co-operation between individual networks - the patients had a lower anti-correlation between VFT activated and deactivated networks, hyper-connectivity between task-activated networks, and lower connectivity within deactivated networks. This functional abnormality was linked with the magnitude of clinical symptoms, cognitive task performance, and global functioning of the patients.

Conclusions: There is still an abnormal functional connectivity of several brain networks in remission after the first episode of schizophrenia. Therefore, the normalization of functional connectivity should be a target of schizophrenia treatment and a marker of disease stabilization. The effect of different treatment modalities on brain connectivity, together with temporal dynamics of this functional abnormality should be the objective of further studies.