future research to get a better understanding of the heterogeneity of clinical manifestations in severe mental disorders and to map clinical symptoms to imaging phenotypes.
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S49

Fronto-thalamic dysconnectivity and cognitive control in schizophrenia

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Introduction Several lines of evidence suggest that cognitive deficits represent a core feature of schizophrenia.
Objectives The concept of "cognitive dysmetria" has been introduced to characterize disintegration at the system level of frontal-thalamic-cerebellar circuitry which has been regarded as a key network for a wide range of neuropsychological symptoms in schizophrenia.
Aims The present multimodal study aimed at investigating effective and structural connectivity of the frontal-thalamic circuitry in schizophrenia.
Methods Univariate fMRI data analysis and effective connectivity analysis using dynamic causal modeling (DCM) were combined to examine cognitive control processes in 40 patients with schizophrenia and 40 matched healthy controls. BOLD signal and parameters of effective connectivity were related to parameters of corresponding white matter integrity assessed with diffusion tensor imaging (DTI).
Results In the DTI analysis, significantly decreased fractional anisotropy (FA) was detected in patients in the right anterior limb of the internal capsule (ALIC), the right thalamus and the right corpus callosum. During Stroop task performance patients demonstrated significantly lower activation relative to healthy controls in a predominantly right lateralized frontal-thalamic-cerebellar network. An abnormal effective connectivity was observed in the right lateralized connections between thalamus, anterior cingulate and dorsolateral prefrontal cortex. FA in the right ALIC was significantly correlated with the fronto-thalamic BOLD signal, effective connectivity and cognitive performance in patients.
Conclusions Present data provide evidence for the notion of a structural and functional defect in the prefrontal-thalamic-cerebellar circuitry, which seems to be the basis of the cognitive control deficits in schizophrenia.
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S50

Motor symptoms and altered connectivity in schizophrenia

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Schizophrenia spectrum disorders are frequently associated with motor abnormalities. Aberrant motor function can be observed in patients throughout the course of the disorder, in subjects at high clinical risk and in unaffected first-degree relatives. Schizophrenia is further characterized by white matter abnormalities in multiple fiber tracts and aberrant resting state cerebral perfusion. In a series of studies, we investigated the association of objectively measured motor behavior in terms of activity levels with white matter microstructure and cerebral perfusion at rest. Patients were less active than controls at the behavioral level. In the associations with neuroimaging techniques, we detected that unlike controls, patients' activity levels were linked to structure and perfusion of cortical motor areas as well as the connecting white matter. In controls instead, motor activity relied on the association of cortico-subcortical motor loops. Thus, some of the motor signs in schizophrenia may result from ineffective coupling between cortical and subcortical motor areas. Finally, preliminary data from functional connectivity analyses support this notion.
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Lifespan development of schizophrenia and how the treatments improve outcome

S51

Antipsychotic medication and outcomes in schizophrenia from a lifespan perspective

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Introduction Antipsychotic medications play an important role in schizophrenia, and their efficacy in the relapse prevention and treatment of acute psychotic symptoms is clear-cut.
Objectives Data on the long-term use of antipsychotics and impact on prognostic issues is limited, although some previous studies noted a high risk of relapse during the first two years after the first acute psychosis.
Aims Our aim was to study the characteristics and clinical course of medicated and unmedicated schizophrenia patients.
Methods The study population consisted of schizophrenia patients from the Northern Finland 1966 Birth Cohort ($n = 70$). Use of antipsychotics was examined in the follow-up interview by asking about the subjects' medication history during the previous three months. The sample was divided into a non-medicated group ($n = 24$) and a medicated group ($n = 46$).
Results Relapses during the follow-up were equally frequent between non-medicated and medicated subjects (47% vs. 53%). Not having been hospitalised during previous five years, but not previous two years, before the interview predicted long-term successful antipsychotic withdrawal without relapse. Fifteen of the subjects in the non-medicated group (63%) and 9 in the medicated group (20%) were in remission.
Conclusions The present results imply that there are some individuals with schizophrenic psychoses not using antipsychotic medication whose psychotic illness and clinical course are so favourable that they do not necessarily need medication permanently. Changes in the antipsychotic dosing should not be made too fast and the patient and relatives should be able to contact without delay if exacerbation of psychotic symptoms is suspected.
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