

Publication

Approaching a network connectivity-driven classification of the psychosis continuum: a selective review and suggestions for future research

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Brain changes in schizophrenia evolve along a dynamic trajectory, emerging before disease onset and proceeding with ongoing illness. Recent investigations have focused attention on functional brain interactions, with experimental imaging studies supporting the disconnection hypothesis of schizophrenia. These studies have revealed a broad spectrum of abnormalities in brain connectivity in patients, particularly for connections integrating the frontal cortex. A critical point is that brain connectivity abnormalities, including altered resting state connectivity within the fronto-parietal (FP) network, are already observed in non-help-seeking individuals with psychotic-like experiences. If we consider psychosis as a continuum, with individuals with psychotic-like experiences at the lower and psychotic patients at the upper ends, individuals with psychotic-like experiences represent a key population for investigating the validity of putative biomarkers underlying the onset of psychosis. This paper selectively addresses the role played by FP connectivity in the psychosis continuum, which includes patients with chronic psychosis, early psychosis, clinical high risk, genetic high risk, as well as the general population with psychotic experiences. We first discuss structural connectivity changes among the FP pathway in each domain in the psychosis continuum. This may provide a basis for us to gain an understanding of the subsequent changes in functional FP connectivity. We further indicate that abnormal FP connectivity may arise from glutamatergic disturbances of this pathway, in particular from abnormal NMDA receptor-mediated plasticity. In the second part of this paper we propose some concepts for further research on the use of network connectivity in the classification of the psychosis continuum. These concepts are consistent with recent efforts to enhance the role of data in driving the diagnosis of psychiatric spectrum diseases.

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