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Disrupted Functional Connectivity in Schizophrenia: a Resting State Fmri Study

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Introduction: Schizophrenia is a mental disorder characterized by social problems and disorders of thought, behaviour and cognitive functions. These impaired cognitive functions may be associated with alterations in resting state functional connectivity in schizophrenia. Therefore, the present study has been carried out to determine the resting state functional brain connectivity changes associated with schizophrenia in all the resting state networks (RSNs) using independent component analysis approach (ICA) and dual-regression based approach.

Objective: The objective of this study was to investigate the aberrant resting-state functional connectivity patterns in schizophrenia patients as compared to healthy controls.

Methods: 35 schizophrenia patients and 31 healthy controls were recruited for the study and scanned by using resting state functional magnetic resonance (rsfMRI). Pre-processing and post-processing of the resting state functional data were performed using the FMRI Expert Analysis Tool (FEAT), which is a part of FSL (FMRIB's Software Library, www.fmrib.ox.ac.uk/fsl).

Results: Our results showed significantly decreased functional connectivity in the regions of left fronto-parietal network, lateral visual network, medial visual network, motor network and default mode network (DMN) in schizophrenia patients as compared with healthy controls.

Conclusion: The overall findings suggest that the alterations in these resting state network connectivity may, in part, contribute to the impairments in cognitive functions associated with schizophrenia. These findings also suggest that aberrant resting state network connectivity contributes to regional functional pathology in schizophrenia and bears significance for core symptoms.