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Anti-correlated Brain Networks and Self-agency Experience in First-episode Schizophrenia-spectrum Patients. an FMRI Study.

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Abstract:

In this study we sought to explore patterns of neural activity related to the self/other-agency judgment in patients with first-episode schizophrenia spectrum disorders (FES) and healthy controls (HC).

Participants: Thirty-five FES patients and 35 age-, gender- and education-matched healthy controls.

Main Outcome Measures: A task-related functional connectivity analysis with the use of independent component analysis (ICA).

Results: ICA revealed that the self/other-agency judgment was dependent upon anti-correlated default mode and central-executive networks (DMN/CEN) dynamic switching. This antagonistic mechanism was substantially impaired in FES during the task.

Time-courses of DMN/CEN activity has been analyzed by means of signal power and spectral coherence. There was statistically significant difference in the variable (anti-correlation index, AI) between FES and HC. AI correlated with self-agency judgment task performance in FES.

Conclusions: This finding suggests that the main site of pathology in schizophrenia-spectrum disorders may originate in higher-order regulatory mechanisms subserving DMN/CEN orchestration.

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