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A COMBINED FMRI AND VBM STUDY TO SHOW MOTOR DEFICITS IN SCHIZOPHRENIC VERSUS CONTROL SUBJECTS DURING A SIMPLE MOTOR TASK

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Schizophrenia is one of the psychotic mental disorders, characterized by social problems and disorders of thought, behaviour, motor and cognitive functions such as long-term memory, verbal memory, executive functioning and vigilance etc. However, the relation between structural and functional alterations in schizophrenia remains unclear. Therefore, the present study sought to investigate whether functional alterations in schizophrenia are also associated with structural brain aberrations directly in related brain regions or in anatomically closely connected areas.

The current study was conducted to investigate the possible relationship between functional and structural changes for a simple motor task in schizophrenics.

16 controls and 16 schizophrenic patients were chosen for the study. The structural and functional MRI scans were acquired using 3 Tesla whole-body MRI system with a 16 channel head array coil. For fMRI, a block paradigm with alternating blocks of motor task (right finger tapping; 120 taps/ min) and rest was carried out. Pre-processing and post-processing of MRI scans were performed using SPM8 software.

The fMRI study showed relatively less activation in the left precentral and postcentral gyrus and right cerebellum in schizophrenic patients as compared to controls during finger tapping task. Voxel-based morphometry (VBM) revealed grey matter decreases in the left precentral and postcentral gyrus and left middle frontal gyrus while white matter decreases in the right cerebellum and right inferior temporal gyrus of schizophrenics as compared to controls.

The present study provides strong evidence for an association between motor functional deficits and structural alterations in schizophrenic patients as compared to controls.

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