

impairments that persist even after good symptomatic recovery in first episode schizophrenia.

FUNCTIONAL CONNECTIVITY OF INNER SPEECH IN SCHIZOPHRENIA

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We explored fronto-temporal connectivity using fMRI of patients and controls generating inner speech. **Method** The subjects were eight schizophrenic patients in remission recruited from the wards and clinics of the Maudsley Hospital, and 8 controls matched for age, sex and IQ. Diagnosis was made by clinical interview and case-note review, using DSM IV criteria. All subjects were trained to overtly say the word 'rest' once per second and once every four seconds. When they had demonstrated stability of this, they were asked to do the same covertly. Before and after the scan, their silent speech rates were monitored by asking them to tap their finger at each covert speech act. They were then scanned for 5 minutes in a 1.5T GE Signa MRI while covertly repeating the word for alternating 30 second blocks at 1Hz and 0.25Hz in an AB design, without finger tapping. The desired rate was shown to subjects on a screen visible from the scanner. Image analysis was performed using XBAM. All individual maps were then entered into a conjunction analysis that selected only those clusters that were both significant, and whose significance was not due to the effects of the patient group or control group alone. Time series for these clusters were extracted at the individual level, and averaged over the sub-groups of patients and controls. Pearson correlations were calculated between averaged time-series for supra-threshold clusters in the areas of interest. **Results** The conjunction activation map showed greater left inferior and medial frontal cortex, left and right superior and middle temporal gyrus, at the faster rate, compared with the slower rate, of speech generation. The left inferior frontal lobe activation was significantly correlated with the left superior temporal lobe (0.264, $p=0.008$) and middle temporal lobe (0.315, $p=0.001$) in controls. In patients, the left inferior frontal lobe was more weakly correlated with the middle temporal lobe (0.268, $p=0.007$), but was not correlated with the superior temporal lobe when corrected for multiple comparisons. **Discussion** This method allows comparison of the same activation areas, selected from patients and controls as groups. Both groups showed widespread activation of the expected areas. Though frontal/superior temporal correlation was weak in the controls, it was not significant in the patients, supporting differential fronto-temporal disconnectivity in schizophrenia.

CONTEXT-PROCESSING DEFICITS AND DECREASED PREFRONTAL CORTEX ACTIVITY: SPECIFIC ASSOCIATIONS WITH UNMEDICATED, FIRST-EPISODE SCHIZOPHRENIA AND WITH DISORGANIZATION SYMPTOMS

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The goals of the research was to examine whether (1) individuals with schizophrenia experiencing their first episode of the disorder

and medication naive exhibit both performance deficits and decreased prefrontal cortex activity on a context processing task; (2) context processing deficits were unique to schizophrenia and not associated with other psychiatric disorders; and (3) context processing deficits were uniquely associated with particular symptoms. There were three participant groups: (1) first episode of schizophrenia ($n = 18$), (2) non-schizophrenia psychoses control (e.g., people with mood disorders, $n = 12$), and (3) non-psychiatric control ($n = 28$). During fMRI, participants completed the A-X version of the continuous performance task (A-X CPT). In the A-X CPT, on every trial, participants see a cue and a probe letter, with the only target being an X probe preceded by an A cue. Because the majority of trials consisted of an A cue followed by an X probe, responding to an X as a target becomes a prepotent response. Thus, in this task, demand for cognitive control is increased whenever the cue is not an A (i.e., B trials) because with a B cue participants need to overcome the prepotent response of responding to the X as a target. Thus, fMRI data were analyzed with the general linear model to examine whether people with schizophrenia exhibited decreased prefrontal cortex activity to B cues. The results were that individuals with schizophrenia committed more errors on BX trials than did non-psychiatric controls. In addition, in comparison with both control groups, individuals with schizophrenia exhibited decreased prefrontal cortex activity in response to B cues. Furthermore, decreased prefrontal cortex activity was associated with increased disorganization symptoms. We conclude that individuals with schizophrenia exhibited poor performance and hypofrontality in a context processing task. These deficits are present at the onset of the disorder and are not confounded by the effects of medication or attributable to the effects of psychosis in general. Importantly, the finding of hypofrontality was unique to schizophrenia and was not found in a non-schizophrenia psychiatric control group. Moreover, context processing performance was also specifically associated with disorganization symptoms. Thus, the current results provide further evidence that impaired context processing and decreased prefrontal cortex activity are important aspects of schizophrenia.

FUNCTIONAL CEREBRAL DEFICITS DURING COGNITIVE PERFORMANCE IN FIRST-EPISODE SCHIZOPHRENIA PATIENTS: A MULTI-CENTER FMRI STUDY

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Objective: In the context of this ongoing multi-center project, 44 first-episode schizophrenia patients and 44 healthy controls (matched for gender, age and parental education) were investigated by means of functional Magnetic Resonance Imaging (fMRI) while performing a modified version of the Continuous Performance Test (CPT). Phantom measurements (Siemens standard phantom) are used for quality control. **Method:** Subjects perform a randomized sequence of 0-back and 2-back tasks, with an intermediate baseline task (fixation). The 0-back task requires attention capacities, while the 2-back task creates a demand on working memory abilities. Group analyses