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DORSOLATERAL PREFRONTAL CORTEX DYSFUNCTION IN SCHIZOPHRENIA: RELATIONSHIP TO BOTH WORKING MEMORY AND LONG TERM MEMORY PERFORMANCE

D. M. Barch, J. G. Csernansky, A. Snyder, T. Conturo,
J. Ollinger

*Washington University, One Brookings Drive, St. Louis, Missouri
63130, USA*

A growing literature suggests that patients with schizophrenia have cognitive deficits in at least two putatively different domains: working memory (WM) and long term memory (LTM). Typically, WM deficits are linked to prefrontal cortex dysfunction, while LTM deficits are associated with medial temporal dysfunction. An alternative hypothesis is that both WM and LTM deficits in schizophrenia reflect disturbed prefrontal cortex function. We are testing this hypothesis using functional magnetic resonance imaging to assess cortical activation during performance of both WM and LTM tasks in the same patients with schizophrenia and controls, during the same scanning session. All participants are scanned while performing three tasks, each with both verbal and non-verbal materials: (1) a 2Back version of the Nback (WM); (2) intentional encoding; and (3) recognition. The results demonstrated that as predicted, patients with schizophrenia demonstrated disturbed activation of the same region of dorsolateral prefrontal cortex during performance of both WM and LTM tasks, despite intact activation of more posterior and inferior regions of prefrontal cortex. Furthermore, accuracy in both task domains was negatively correlated with activation in the same dorsolateral prefrontal cortex region.