

PW01-151 - NEURAL NETWORKS FOR MOTION PROCESSING AND PURSUIT EYE MOVEMENTS IN UNTREATED FIRST-EPIISODE PSYCHOSIS

R. Lencer^{1,2}, S.K. Keedy¹, J.L. Reilly¹, B.E. Mc Donough¹, A. Sprenger³, J.A. Sweeney¹

¹Center for Cognitive Medicine, University of Illinois at Chicago, Chicago, IL, USA, ²Psychiatry and Psychotherapy, ³Neurology, University of Luebeck, Luebeck, Germany

Objective: To identify alterations in neural networks for visual motion perception and pursuit tracking and their interrelationship in schizophrenia, and secondarily to evaluate their comparability to findings in psychotic bipolar disorder.

Methods: Untreated first-episode patients with schizophrenia (N=24) and psychotic bipolar disorder (N=13), and 20 matched healthy participants performed a passive visual motion processing task and a pursuit eye tracking task, which patients have been shown to perform as well as healthy subjects, during functional neuroimaging. Available subjects were retested after four weeks, during which both patient groups received second generation antipsychotics.

Results: During the motion processing task, neither patient group showed reduced activation in V5, but activations in its projection fields in posterior parietal cortex were reduced in both groups. Pursuit related neural activation in both patients groups was not reduced in sensorimotor systems, but was enhanced in anterior intraparietal sulcus and insula. In schizophrenia, activation was also enhanced in dorsolateral prefrontal cortex and dorsomedial thalamus. Greater V5 activation during passive motion processing predicted greater activation in posterior parietal cortex during pursuit in healthy individuals but not in patients. The only significant change at follow-up was decreased anterior cingulate activation during pursuit in schizophrenia.

Conclusions: Reduced transfer of visual motion information to parietal association cortex may compromise information about target speed and tracking error needed for sensorimotor transformations during pursuit tracking in psychotic disorders. Enhanced activation of a prefrontal-thalamo-parietal network during pursuit tracking in schizophrenia may represent compensation for this deficit.