

P03-357

NEURAL CORRELATES OF DISTURBED MOTOR BEHAVIOR IN SCHIZOPHRENIA

S. Walther, A. Federspiel, T. Bracht, H. Horn, N. Razavi, W. Strik, T.J. Müller

University Hospital of Psychiatry, University of Bern, Bern, Switzerland

Introduction: Motor behavior is altered in schizophrenia. Most patients have less physical activity than the general population. We have shown that actigraphic means of motor activity are influenced by negative syndrome scores, schizophrenia subtype and antipsychotic use.

Objectives: The neural correlates of reduced motor activity in schizophrenia are widely unknown.

Aims: To elucidate possible mechanisms, we correlated objective motor activity with measures of grey and white matter structure, as well as resting state perfusion.

Methods: We report the results of four studies from our lab. Schizophrenia patients and controls were scanned using a 3 T MRI scanner assessing resting perfusion (arterial spin labeling), structure and diffusion tensor imaging. In all participants, continuous actigraphy was performed for 24 hours in order to measure motor activity.

Results: Resting perfusion in schizophrenia correlated with activity in bilateral prefrontal areas in patients, while in controls correlations were exclusively in the ventral anterior nucleus of the thalamus. In both groups, white matter integrity in various frontal regions and the corticospinal tract correlated with motor activity. The group difference, however, was the inverse correlation of integrity and activity underneath the right supplemental motor area in patients. Grey matter volume did not correlate with activity in controls, but it did correlate in the posterior cingulate in patients.

Conclusions: Interindividual differences in brain structure and perfusion are associated with varying motor activity. Multiple imaging approaches point to altered cortical motor control in schizophrenia.