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INCREASED FUNCTIONAL COUPLING BETWEEN BASALGANGLIA AND CINGULATE AND PREFRONTAL CORTEX DURING RESTING STATE CONDITIONS IN REMITTED MAJOR DEPRESSIVE DISORDER

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Introduction: Converging evidence suggests alterations of neural activation in the basal ganglia to represent neural correlates of Major Depressive Disorder (MDD). While a previous study reported increases of functional connectivity in resting state activity between the caudate nuclei and the posterior cingulate cortex in acutely depressed patients, it remains unclear whether this finding persists during full remission once antidepressant treatment has been discontinued.

Objectives: To investigate patterns of functional coupling between the basal ganglia and cortical regions during resting-state conditions.

Aims: To determine whether increases of functional connectivity between caudate nuclei, putamen, and pallidum with cortical regions, in particular the cingulate cortex, pertain during remission of MDD.

Methods: Forty-three remitted depressed (rMDD) patients and thirty-five healthy controls were recruited at Medical University of Vienna, Vienna, Austria, and performed a six minute resting-state fMRI scan. Seed time series were extracted from the preprocessed data using individual masks for the basal ganglia and correlated with all nodes in a surface based analysis using FreeSurfer, AFNI and SUMA. The resulting correlation coefficients were then Fisher-transformed, group results were determined by comparing group mean smoothed z-scores with a two-sample t-test.

Results: Increased resting-state functional connectivity was revealed between basal ganglia and cingulate as well as prefrontal cortex in the rMDD group compared to healthy controls.

Conclusions: Our preliminary results revealed increased functional coupling between the basal ganglia and wide parts of the cingulate and prefrontal cortex to possibly represent a specific neural pattern during remission of MDD.