Basal ganglia structure in Tourette's disorder and/or attention-deficit/hyperactivity disorder

Natalie J. Forde, Marcel P. Zwiers, Jilly Naaijen, Sophie E. A. Akkermans, Thaira J. C. Openneer, Frank Visscher, Andrea Dietrich, Jan K. Buitelaar and Pieter J. Hoekstra

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ABSTRACT

Background
Tourette's disorder and attention-deficit/hyperactivity disorder often co-occur and have both been associated with structural variation of the basal ganglia. However, findings are inconsistent and comorbidity is often neglected.

Methods
T1-weighted magnetic resonance images from children (n = 141, 8 to 12 years) with Tourette's disorder and/or attention-deficit/hyperactivity disorder and controls were processed with the Oxford Centre for Functional MRI [Magnetic resonance imaging] of the Brain (FMRIB) integrated registration and segmentation tool to determine basal ganglia nuclei volume and shape. Across all participants, basal ganglia nuclei volume and shape were estimated in relation to Tourette's disorder (categorical), attention-deficit/hyperactivity disorder severity (continuous across all participants), and their interaction.

Results
The analysis revealed no differences in basal ganglia nuclei volumes or shape between children with and without Tourette's disorder, no association with attention-deficit/hyperactivity disorder severity, and no interaction between the two.

Conclusion
We found no evidence that Tourette's disorder, attention-deficit/hyperactivity disorder severity, or a combination thereof are associated with structural variation of the basal ganglia in 8- to 12-year-old patients.