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MAGNETIC RESONANCE IMAGING STUDY OF BASAL GANGLIA IN THE FIRST-EPIISODE TIC DISORDERS ONSET DURING CHILD AND ADOLESCENT

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Introduction: Despite strong evidence that the pathophysiology of tic disorders (TD) involves structural and functional disturbances of the basal ganglia, inconsistent findings from several TD imaging studies have supported contradictory conclusions.

Objective: To find brain structural differences between children with of TD and the health children and verify the pathogenesis hypothesis of that basal ganglia play an important role in this disorder.

Method: The right handedness, first-episode TD children were chosen. Yale global tic severity scale (YGTSS) was used to assess the tic severity. MRI scan was performed on TD children and the controls. The volumes of caudate nucleus, putamen, globus pallidus and total intracranial volume were measured on high resolution MR images. We compared the volumes, relative volumes and asymmetry index, AI between groups.

Results: Totally 11 patients finished this study with two excluded for the unclear image caused by tic and 18 subjects (9 TD patients and 9 controls) were finally analyzed. The right globus pallidus is significantly larger in TD patients. The volumes of left caudate increased significantly in both TD patients and controls. There was no significant difference in asymmetry index between two groups, relative volumes did not correlate significantly with the severity of tic and the course of disease.

Conclusion: The right globus pallidus may be the primary pathological change of TD. Asymmetry indexes between the two groups are not significantly different. The relative volume of any structure of basal ganglia has no significant correlation with the severity of tic and the course of disease.