Altered patterns of resting-state functional connectivity between the caudate and other brain regions in medication-naïve children with attention deficit hyperactivity disorder

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Abstract

Background
Structural and functional alterations occur in the caudate of patients with attention-deficit/hyperactivity disorder (ADHD). Here we aimed to investigate the functional connectivity between the dorsal caudate and other brain regions in ADHD children.

Methods
Resting-state functional connectivity from 30 ADHD and 33 age- and gender-matched “normal” children were measured by functional Magnetic Resonance Imaging.

Results
Positive connectivity with dorsal caudate was observed in the prefrontal areas, cingulate cortex and temporal lobe. Negative functional connectivity was observed in the precuneus, occipital cortices and cerebellum. The connectivity of left dorsal caudate to left inferior frontal gyrus was correlated with severity of ADHD.

Conclusions
Connectivity of dorsal caudate with several brain regions was identified in ADHD children.