

Functional Connectivity of Attention-Related Networks in Drug-Naïve Children With ADHD

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Abstract

Objective:

This study aimed to explore alterations of seed-based functional connectivity (FC) in dorsal attention network (DAN), ventral attention network (VAN), and default mode network (DMN) in ADHD children.

Method:

A voxel-based comparison of FC maps between 46 drug-naïve children with ADHD and 31 healthy controls (HCs) and correlation analysis between connectivity features and behavior were performed.

Results:

Compared with the HCs, children with ADHD were characterized by hyperconnectivity between DAN and regions of DMN and by hyperconnectivity between DMN and a set of regions involved in somatosensory, visual, and auditory cortices. No significant group different FC was found between VAN and the whole brain. Higher FC between DMN and somatosensory, visual, and auditory cortex was associated with better performance in attention and executive function.

Conclusion:

The dysregulation of networks in children with ADHD not only involves the DAN and DMN but also the somatosensory, motor, visual, and auditory networks.