

Impulsive aggression and response inhibition in Attention-Deficit/Hyperactivity Disorder and Disruptive Behavioral Disorders: findings from a systematic review.

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Neurosci Biobehav Rev. 2018 Apr 21. pii: S0149-7634(18)30016-2.

doi: 10.1016/j.neubiorev.2018.04.016.

Abstract

BACKGROUND:

Although impulsive aggression (IA) and dysfunctional response inhibition (RI) are hallmarks of attention-deficit/hyperactivity disorder (ADHD) and disrupted behavioral disorders (DBDs), little is known about their shared and distinct deviant neural mechanisms.

AIMS AND METHODS:

Here, we selectively reviewed s/fMRI ADHD and DBD studies to identify disorder-specific and shared IA and RI aberrant neural mechanisms.

RESULTS:

In ADHD, deviant prefrontal and cingulate functional activity was associated with increased IA. Structural alterations were most pronounced in the cingulate cortex. Subjects with DBDs showed marked cortico-subcortical dysfunctions. ADHD and DBDs share similar cortico-limbic structural and functional alterations. RI deficits in ADHD highlighted hypoactivity in the dorso/ventro-lateral PFC, insula, and striatum, while the paralimbic system was primarily dysfunctional in DBDs. Across disorders, extensively altered cortico-limbic dysfunctions underlie IA, while RI was mostly associated with aberrant prefrontal activity.

CONCLUSION:

Control network deficits were evidenced across clinical phenotypes in IA and RI. Dysfunctions at any level within these cortico-subcortical projections lead to deficient cognitive-affective control by ascribing emotional salience to otherwise irrelevant stimuli. The clinical implications of these findings are discussed.