Binocular rivalry transitions predict inattention symptom severity in adult ADHD.

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Abstract

Attention deficit and hyperactivity disorder (ADHD) is a prevalent childhood disorder that is often maintained throughout the development and persists into adulthood. Established etiology models suggest that deficient inhibition underlies the core ADHD symptoms. While experimental evidence for impaired motor inhibition is overwhelming, little is known about the sensory inhibition processes, their changes throughout the development, and the relationship to ADHD symptoms. Here, we used the well-established binocular rivalry (BR) paradigm to investigate for the very first time the inhibitory processes related to visual perception in adults with ADHD. In BR, perception alternates between two dichoptically presented images throughout the viewing period, with shorter dominant percept durations and longer transition periods indicating poorer suppression/inhibition. Healthy controls (N = 28) and patients with ADHD (N = 32) were presented with two dissimilar images (orthogonal gratings) separately to each eye through a mirror stereoscope and asked to report their perceptual experiences. There were no differences between groups in any of the BR markers. However, an association between transition durations and symptom severity emerged in the ADHD group. Importantly, an exploratory multiple regression analysis revealed that inattention symptoms were the sole predictor for the duration of transition periods. The lack of impairments to sensory inhibition in adult, but not pediatric ADHD may reflect compensatory changes associated with development, while a correlation between inhibition and inattention symptoms may reveal an invariant core of the disorder.