Attention-mediated neurocognitive profiles in survivors of pediatric brain tumors: Comparison to children with neurodevelopmental ADHD.

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Abstract

Background
Attention and working memory symptoms are among the most common late effects in survivors of pediatric brain tumors, and are often associated with academic and psychosocial difficulties. Diagnostic and treatment approaches derived from the attention-deficit hyperactivity disorder (ADHD) literature have frequently been applied to survivors, yet the extent of overlap in cognitive profiles between these groups is unclear. The objective of the present study is to compare neurocognition in survivors of brain tumors and children with neurodevelopmental ADHD.

Methods
Neuropsychological data were abstracted from clinically-referred brain tumor survivors (n=105, Mage=12.0 years, 52.4% male) and children with ADHD (n=178, Mage=11.1, 64.0% male). Data consist of a battery of parent-report questionnaires and performance-based neuropsychological measures.

Results
Twenty-five survivors (23.8%) met symptom criteria for ADHD. Participants with neurodevelopmental ADHD and survivors who met ADHD criteria had significantly greater parent- (p<0.001) and teacher-reported (p<0.001) working memory and behavior regulation difficulties than survivors who did not meet criteria. Children with ADHD symptoms also performed worse on measures of sustained attention than survivors without ADHD symptoms (p<0.001). Additionally, survivors with ADHD symptoms had greater performance-based working memory difficulties than either survivors without attention problems or children with neurodevelopmental ADHD (p=0.002).

Conclusions
Nearly a quarter of survivors with attention symptoms have functional profiles that are similar to children with neurodevelopmental ADHD. They also experience more neurocognitive impairments than survivors without attentional difficulties, particularly in working memory. Screening for ADHD symptoms may help providers triage a subset of individuals in need of earlier or additional neuropsychological assessment.