Attention and executive functioning profiles in children following perinatal arterial ischemic stroke.

Bosenbark DD, Krivitzky L, Ichord R, Jastrzab L, Billinghurst L.


Abstract

Perinatal arterial ischemic stroke (PAIS) is a form of childhood stroke; the majority of those affected experience neurologic sequelae, including motor, language and neurocognitive impairments. This study examines the attention and executive functioning (EF) profiles of children following PAIS, as well as the impact of age and sex. In this single-center cross-sectional study, 40 children aged 3 to 16 years (median age 7.2 years; 58% male) who have suffered a PAIS underwent a comprehensive neuropsychological battery to assess attention and EF. Parents completed behavioral questionnaires regarding real-world functioning. Composite scores were calculated for seven attention and EF domains (Attention, Working Memory, Verbal Retrieval, Inhibitory Control, Flexibility/Shifting, Planning/Organization, and Processing Speed). The results for all measured domains of attention and EF are significantly lower in the participants compared to the normative samples (p < .001), with the exception of Working Memory. However, increasing difficulty with Working Memory is associated with developing age. Older age at time of testing is also associated with a higher incidence of clinically-elevated attention deficit hyperactivity disorder (ADHD) symptoms. Sex is not associated with performance measures or parental report of functioning. The participants demonstrate mild-to-moderate attention and EF impairment compared to the normative population. Clinicians, families, and educators should be informed about the neurocognitive sequelae of PAIS and the need for close developmental surveillance in this population to identify vulnerable children and initiate appropriate therapeutic interventions in a timely fashion.