Cluster analysis may identify abusive head trauma in children

December 13 2021

(HealthDay)—Cluster analysis applied to data from children hospitalized

with acute neurologic injury supports the current paradigm that physicians use to diagnose abusive head trauma, according to a study published online Dec. 13 in *Pediatrics*.

Stephen C. Boos, M.D., from the University of Massachusetts Chan Medical School in Springfield, and colleagues conducted an unsupervised cluster analysis of an existing dataset of 500 young patients with acute head injury hospitalized for intensive care. Patients were divided into subpopulations using three cluster algorithms based on 32 clinical and radiologic variables.

The researchers found that the full cohort was partitioned into two clusters. Imaging indications of brain hypoxemia, ischemia, and/or swelling; acute encephalopathy, particularly when lasting more than 24 hours; respiratory compromise; subdural hemorrhage or fluid collection; and ophthalmologist-confirmed retinoschisis were variables that were substantially more prevalent in cluster 1. Linear parietal skull fracture and epidural hematoma were substantially more prevalent in cluster 2. Cluster 1 had a high prevalence of physician-diagnosed abuse in a postpartitioning analysis.

"The results of this unique cluster analysis, demonstrating the association of clinical findings of significant brain dysfunction with abusive head trauma, will assist medical providers in the hospital setting highlighting the importance of a comprehensive medical evaluation in young children with traumatic brain injury," write the authors of an accompanying editorial.

More information: Abstract/Full Text

Editorial

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Citation: Cluster analysis may identify abusive head trauma in children (2021, December 13) retrieved 14 May 2024 from https://medicalxpress.com/news/2021-12-cluster-analysis-abusive-trauma-children.html

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