A new scoring system may help doctors to predict future neurological deficits in newborns who experience seizures

childhood
disability
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Summary

A scoring system based on certain risk-factors that predispose newborns experiencing seizures to long-term developmental disability will help doctors to identify patients who will benefit from early treatment.

This was a retrospective study of 120 term infants admitted to the NICU of the Montreal Children's Hospital upon exhibiting clinically evident seizures shortly after birth. The etiology of the seizures was assessed through clinical history, neuroimaging, and laboratory tests. Video EEG was performed to classify brain electrical activity as normal, or mildly, moderately, or severely abnormal. Patients were followed up for at least one year when they developed normally and at least two years when complications presented. A binary outcome of normal or adverse was employed, with adverse outcome including death, cerebral palsy, global developmental delay, and epilepsy. Logistic regression analysis was used to identify indicators that independently predicted an adverse outcome, and these indicators were incorporated into a scoring system.

What families should know

Medical advances have allowed more newborns to survive into adulthood after experiencing seizures. Traditionally, about half of those who survive develop normally, but as more infants survive following severe seizures, the rates of later mortality and morbidity are increasing. Long-term developmental disorders following neonatal seizures include cerebral palsy, global developmental delay, and epilepsy. Early identification of children likely to develop these disorders will allow for early treatment, which can minimize eventual cognitive and motor delays.

What practitioners should know

Five variables that are independently associated with long-term neurological deficits in newborns experiencing seizures have been incorporated into a scoring system. This scoring system helps clinicians to predict the risk each newborn faces for long-term neurological deficits. The system is based on reliable and readily available prognostic factors, including cesarean delivery, the onset time of seizure, the type of seizure, EEG background, and cause. Early identification of at-risk newborns allows for early intervention while the central nervous system is still forming new connections and reorganizing itself. Early treatment is more effective for influencing long-term outcome than treatment that begins after the first presentation of neurodevelopmental disability, which is often around two years of age.

Reference

Garfinkle, J. and Shevell, M. (2011). Prognostic factors and development of a scoring system for outcome of neonatal seizures in term infants. *European Journal of Paediatric Neurology, 15*, 222-229.