Children's Hospital of Philadelphia
PolicyLab

The Relationship of Seizure Activity and Chronic Epilepsy in Early Infancy and Short-term Neurodevelopmental Outcome Following Fetal Myelomeningocele Closure

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We explored the relationship between seizure activity (SA) and/or chronic epilepsy (CE) and short-term neurodevelopmental outcomes following fetal myelomeningocele (fMMC) surgery. Retrospective databases and a parental questionnaire focusing on common complications of hindbrain herniation associated with MMC were used to determine the incidence of seizures following fMMC surgery. The Bayley Scales of Infant Development II was used to evaluate the neurocognitive outcomes. The available 3-year outcome data were used for analysis. 54 children underwent fMMC closure at our institution between 1998 and 2003. 48 (89%) families participated. The shunt rate was 50% (n=24). Seizures developed in 8/48 (17%) children, 2 (8%) non-shunted and 6 (25%) shunted (P=0.07). Of those six, 3 developed CE. Neurodevelopmental scores in the average range were found in both non-shunted and 3 shunted fMMC children. The remaining 3 shunted toddlers had CE and significant neurodevelopmental delays. Of those, 2 had severe intracranial hemorrhage and one developed frequent apneic spells in combination with epilepsy. The incidence of seizures in fMMC children was similar to previously reported data of postnatally repaired MMC patients. SA alone without CE was not associated with a worse neurocognitive outcome. The occurrence of severe acquired intracranial injury and CE, however, appeared to be correlated with adverse neurocognitive outcome following fMMC surgery.

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