

Neurodevelopmental outcome of fetal intracranial haemorrhage: MRI-Based Cohort Study

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Objective

Fetal intracranial haemorrhage (ICH) is an uncommon diagnosis on prenatal imaging. The paucity of data regarding neurodevelopmental outcome hinders prenatal decision-making. The purpose of this study is to assess the risk factors and neurodevelopmental outcome of fetal ICH in a magnetic resonance imaging (MRI)-based study.

Methods

Cases were selected from all of the patients referred for fetal brain MRI in our institution, as part of the assessment of abnormal prenatal sonographic findings, from 5/2011 – 6/2016. Twenty-two patients with diagnosis of ICH by fetal MRI were included. ICH grading was based on grading in preterm infants. In 11 cases the pregnancy was terminated, and the 11 live children were followed clinically and their neurodevelopment was assessed using the Vineland-II Adaptive Behavior Scales (VABS-II).

Results

Of the 22 patients included, 8 had IVH grade I-II, 12 had IVH grade III-IV, and 2 had intratentorial haemorrhage. The most prevalent risk factors were maternal chronic diseases and chronic use of medications. There was male predominance. Small portion of the cohort had additional MRI findings. VABS-II scores were normal in 9/11 children, and moderately low in 2/11. The mean VABS-II composite score of the cohort was not different from the mean score expected for age. Clinically, one child had hypotonia.

Conclusion

Children with prenatal diagnosis of ICH had an overall good neurodevelopmental outcome. Mild neurologic deficits were demonstrated in 3/11 children. Review of the literature from 1996 – 2017 demonstrated that neurodevelopmental outcome is favorable in cases of ICH without parenchymal involvement.