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Treatment of post-haemorrhagic hydrocephalus in prematurity: single-centre experience

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Introduction: Despite the fact that many infants with post-haemorrhagic hydrocephalus (PHH) ultimately require permanent cerebrospinal fluid (CSF) diversion, early insertion of ventriculoperitoneal (VP) shunts is generally contraindicated due to high complication rate. The primary aim in early surgical management of PHH is to achieve short-term control of intracranial pressure with relatively non-invasive procedures with lower complication rates than immediate placement of permanent shunts, allowing for spontaneous resolution of hydrocephalus in some cases, and buying time for infants with persistent hydrocephalus to grow to a stage where permanent VP shunts are relatively well-tolerated. A range of different approaches have been used on infants with hydrocephalus secondary to IVH, each with its own theoretical advantages; however, there remains no clear consensus on the best method to use.

Methods: Premature babies admitted to our centre between 2009 and 2013 were included in this study. Medical records and imaging studies were reviewed. Gestational age, birth weight, duration of treatment efficacy, type of surgery, requirement for permanent shunting and complications were recorded.

Results: Twenty-three patients with PHH were treated. Mean age at diagnosis was 25 weeks gestational age and mean age at surgery was 29 weeks. One patient had an external ventricular drainage inserted with a subsequent infection which required treatment and a permanent shunt was then inserted. Twelve patients had insertion of subcutaneous reservoir, with infection rate of 30% and 15% CSF leak; the shunt conversion rate was 100%. 10 babies had ventriculo-subgaleal shunt insertion, with a complication rate of 10% and shunt conversion of 90%.

Conclusion: There is a clear need to standardize care pathway, timing of neurosurgical consultation, frequency and modality of imaging for premature babies with PHH. Ventriculo-subgaleal shunt offers a simple, effective and relatively safe treatment, with a lower risk of complications and the possibility of avoiding permanent shunting.