

FP118**Is there a possibility to avoid the development of trapped fourth ventricle in children?**

Heidi Baechli, Amin Hashemi, Andreas Unterberg

Clinic of Neurosurgery, University Hospital Heidelberg, Germany

Introduction: An isolated fourth ventricle is a rare complication of overdrainage in children with ventricular shunts. The treatment is often challenging and the surgical methods are debated controversial. The aim of our study was to look into the risk factors and to find out which group of children is predisposed to develop such complications.

Methods: We reviewed 19 children with trapped fourth ventricle between 1995 and 2012. The average age at diagnosis was 5.2 years (range 1month-15years), 9 males and 10 females. 16 had a posthemorrhagic hydrocephalus, 1 hypoxia and meningitis, 1 congenital hydrocephalus with arachnoid cyst and 1 myelomeningocele. There were 12 preterms (25-31 weeks gestation, average 28), weight at birth 690-1600g (average 1035).

Results: A trapped fourth ventricle was noticed in 22% during the first year of life, 39% 1-5years, 17% 6-10years, 17% 11-17years and 5% with unknown reason. Clinical symptoms were vomiting (n=7), seizures (n=4), dysfunction of breathing or blood pressure (n=3), asymptomatic (n=2) and others (n=4). Following valves were implanted: 55% Medos Hakim, 11% Pudenz, 6% Sophysa, 11% PediGAV, 11%ProGAV and 6% unknown. Followed risk factors could be determined: Preterms with low gestational age and birth weight with posthemorrhagic hydrocephalus, ventriculoperitoneal shunting during first year of life with overdrainage, especially in valves without antigravity unit.

Discussion: The development of trapped fourth ventricle can begin early during the first year of life, especially in cases with slit ventricles and may be accompanied with unspecific symptoms. Valves without antigravity unit seem to promote overdrainage.

Conclusion: Overdrainage especially in the first year of life of posthemorrhagic hydrocephalus patients should be avoided to prevent a secondary acquired aqueductal stenosis. Therefore these children should be followed regularly with MRI. Further studies are needed to investigate the use of antigravity valves in reducing the rate of trapped fourth ventricle (especially in preterms).