**Endoscopic treatment for posthemorrhagic hydrocefalus in premature newborns**


Abstract

Introduction: Up to date the pathophysiology of posthemorrhagic hydrocephalus (PHH) in premature newborns is explained as a consequence of cytokine TGF β1 release into cerebrospinal fluid (CSF) during initial bleeding, followed by induction of „inflamatory proteins" in subarachnoideal spaces. Method of choice in treatment of PHH is ventriculo-peritoneal drainage. The role of endoscopic third ventriculostomy (ETV) in these patients is unclear, through obstruction is proved in some patients with PHH. The aim of our study was to monitor the success rate of ETV in the group of premature newborns with obstructive PHH and to ascertain the relation between TGF β1 levels and developement of hyporesorptive hydrocefalus and thus ETV succes rate, which has not been reported yet.

Materials and methods: We followed 38 premature newborns with PHH since January 2004 to November 2007. 34 patients was treated by Ommaya reservoir implantation and repeated taps. In 29 patients TGF β 1 level was examinated. In case of persisting hydrocephalus MRI of brain was performed. In 25 patients with proved obstruction on MRI ETV was indicated. We evaluated ETV succes rate and those relation to TGF β 1 CSF levels.

Results: In 73,5% patiens in our series the hydrocefalus was obstructive. Succes rate of ETV in this group of patiens was 48%. In biochemical part of our study we have proved statisticaly relevant probability in diagnosis of hyporesorptive hydrocefalus based on TGF β1 level in CSF. Level exceeding 3296 pg/ml means 81,3% probability of presens of hyporesorption. Succes rate of ETV in patiens with MR proved obstruction and TGF β1 level lower than 3296 pg/ml was 100% in our series.

Conclusion: The results of our work proved, that there is a group of premature newborns with obstructive PHH and according to the literature the succes rate of ETV in this patients is comparable with patients of other types of obstructive hydrocephalus in the same age group.
TGF β 1 level in CSF indicates participation of hyporesorption in hydrocefalus development even in patiens with proved obstruction on MRI and is associated with the success rate of ETV. Its level may influence decision-making in ETV for premature newborns with PHH.