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Endoscopic third ventriculostomy in the management of hydrocephalus and outcome analysis in 51 children

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Introduction

Endoscopic third ventriculostomy (ETV) is a safe method of choice in treatment of hydrocephalus. Age and etiology are important factors that determine success rates of endoscopic third ventriculostomy (ETV). In our study, we retrospectively analyzed single surgeon experience the data of with 51 children who underwent ETV treatment for different etiologies and different age groups of the hydrocephalus between 2001 and 2016.

Methods

Between 2001 and 2016, 51 children patients with obstructive hydrocephalus underwent ETV. The patients fell into three groups. These groups were <6 months of age, 6-24 months of age, >24 months of age. All ETVs were performed by the same neurosurgeon.

Results

Overall success rate of ETV was in 80% for all etiology and ages. In patients for all etiology, the success rates of <6 months of age, 6-24 months of age, and >24 months were 56.2%, 88.9% and 94.1%, respectively. In aqueductal stenosis, the highest success rate was obtained. Success rates of post-hemorrhagic, post-infectious and spina bifida related hydrocephalus were 60%, 50%, and 14.3%, respectively. While success rate at the first ETV attempt was 85.3%, in previous V-P shunt performed patients, it was 76.9%.

Conclusion

Based on our experience, ETV could be the first method of choice for hydrocephalus even in children younger than 6 months of age. In our experience, factors indicating potential failure of ETV were young age and etiology like hemorrhage, infection other than isolated aqueductal stenosis. ETV is the method of choice in obstructive hydrocephalus even in patients with former shunting. Fast formation of new arachnoid membranes and lower pressure gradient in infants than in older children can play a role in ETV failure.