

Post-traumatic Hydrocephalus: Comparison of Endoscopic Third Ventriculostomy and Ventriculoperitoneal Shunt

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Introduction

Traumatic brain injury (TBI) can lead to posttraumatic hydrocephalous (PTH).Ventriculoperitoneal Shunt (VPS), Endoscopic third ventriculostomy (ETV), and Thecoperitoneal shunt (TPS) are known treatment modalities for PTH. We have compared ETV and VPS in operated cases of PTH.

Methods

141 consecutively treated patients of PTH were included in the study. VPS and ETV were compared as separate groups. To determine the failure free survival of each procedure we used Gap-Time model to account for the repeated nature of the outcome. All the variables showing some association with the procedure failure with a p<0.1 were considered for multivariable analysis.

Results

175 procedures (30 ETV and 145 VPS) were performed. Mean age in ETV: VPS groups were 37: 32 yrs respectively. Clinical improvement was recorded as 37% (ETV) vs 76(VPS). Re-do surgical procedure was needed in 60% (18) cases of ETV v 18% (26) cases of VPS (p=0.001). Significant reduction in ventricular size was observed in VPS group (0.001). Poor clinical outcome was statistically co-related with poor GCS, previous CSF infection and post-operative meningitis, as the hazards ratio for these conditions was 2, 2.1 and 7 respectively. Univariate analysis for ETV vs VPS showed hazards ratio of 0.31.

Conclusions

VPS has shown to decrease the ventricular size. ETV has higher failure rate. Chances of failure are higher in cases of lower GCS, pre-operative (prior) CSF diversionary procedure, treated meningitis and post-operative meningitis. ETV can be considered as an option, when multiple shunt failures, preclude further chances of shunt success.

Learning Objectives

This study shows that ETV failure rate is higher in PTH. Therefore, it should not be considered as a first line treatment option. It may be used as a salvage procedure in patient's where VP shunt is not indicated.

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