The Comparison of Ventriculoperitoneal and Lumboperitoneal Shunts in Respect of Postoperative Subdural Hematoma in Patients with Normal Pressure Hydrocephalus

Gokhan Akdemir MD, PhD; Ender Koktekir MD; Ali Mutlukan; Burak Gezer; Yasin Bocu
Selcuk University, Department of Neurosurgery, Konya, Turkey

Introduction

Cerebrospinal fluid (CSF) shunts are inserted to treat the symptoms of normal pressure hydrocephalus (NPH). Subdural hematoma is one of the most important complications of the shunts, which may treat the patient's life. In this study the aim was to compare Ventriculoperitoneal (VP) and Lumboperitoneal (LP) shunts in the context of this complication.

Methods

We retrospectively analyzed the patients who had received CSF shunt surgery between 2011 and 2014. The valve type was medium pressure in VP, whereas the system was valveless in LP shunt. Lumbar puncture was performed in all patients who had classic symptom triad of idiopathic normal pressure hydrocephalus. CSF shunt surgery was performed only to patients whose symptoms were relieved after serial lumbar puncture. The patients who had at least 6 months follow-up period and who showed clinical improvement after shunt surgery were included in the study. Preoperative and postoperative Evans indexes (EI) were calculated in all patients.

Statistically Analyses: Wilcoxon test was used to compare EI, whereas Mann-Whitney U test was used to compare groups (SPSS 18.0). P values lower than 0.05 was accepted as statistically significant.

Conclusions

To reduce ventricular size, VP shunts are more effective than LP shunt in treatment of NPH, however the risk of subdural hematoma was not consistent with this finding in this study. Our study results showed that the both LP and VP shunts are similar results in context of risk of symptomatic subdural hematoma.

Results

A total of 23 patients were evaluated. The mean age was 69.3. There were 14 men and 9 women. VP shunting was performed in 15 patients whereas LP shunting was performed in 8 patients. The mean preoperative and postoperative EI was (0.32±0.02) and (0.28±0.05), respectively, in patients who received a LP shunting (p=0.109). The mean preoperative and postoperative EI was (0.31±0.05) and (0.25±0.04), respectively, in patients who received a VP shunting (p=0.001). 1 of 8 patients had subdural hematoma, which was symptomatic in LP shunt group (12.5%). 4 of 15 patients had subdural hematoma in VP shunt group (26.6%). 2 of these 4 patients were symptomatic (13.3%).

Learning Objectives

By the conclusion of this session,participants should be able to: 1) Describe the importance of the risk of subdural hematoma after shunting procedure 2) Discuss, in small groups, shunt options in the treatment of normal pressure hydrocephalus 3) Identify an effective treatment of normal pressure hydrocephalus