

Predictors and outcome of hydrocephalus following aneurysmal subarachnoid hemorrhage

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Aim of the study:

Hydrocephalus is frequently encountered complication following aneurysmal subarachnoid hemorrhage (aSAH). Three stages of hydrocephalus have been recognized: acute (48-72h after the hemorrhage), subacute (3-14 days) and chronic (more than 14 days). The aim of our study was to identify predictors and outcome of patients presenting with hydrocephalus after aSAH.

Methods:

Hospital - based retrospective study was conducted among patients, who presented with aSAH during 2017 - 2022. The following data were statistically analyzed - age, sex, location of the ruptured aneurysm, Hunt - Hess and Fisher scale, procedure (coiling or clipping), in-hospital medical complications, symptomatic vasospasm occurrence, ventricular and/or lumbar drainage, VP shunt implantation, time to shunt, CSF parameters (protein, erythrocyte count) and CRP before shunt implantation, complications after shunt implantation, pre-morbid mRS, hospital discharge mRS, mRS after 6 months.

Results:

Overall 128 patients were included in our study (43 male), with mean age of 57 years. We did not find correlation between age, location of the aneurysm and the need for drainage. 47% men needed drainage, 21% developed shunt dependent hydrocephalus (SHDC). Whereas 37% women required drainage and 13% presented with SHDC. 49% patients required drainage after coiling, compared to 37% after clipping, but there was no difference in SHDC occurrence (16% for both methods). We proved correlation between both Hunt-Hess and Fisher grade and the need for drainage as well as SHDC, also there were more complications correlating with higher Fisher grade. Patients with symptomatic vasospasm were more likely to obtain drainage and VP shunt, than patients without vasospasm. There was no correlation between CSF parameters, CRP, time to shunt and complications or worse outcome. There was only one complication after VP shunt implantation. Patients after VP shunt improved in mRS after 6 months by at least 1 point.

Conclusion:

We have been able to identify several predictors of both acute and chronic hydrocephalus following aSAH, complications following VP shunt implantation and outcome of these patients.