

Introduction

Acute Hydrocephalus (HC) is known to occur in patients with aneurysmal subarachnoid hemorrhage (SAH). There are few reported indicators of the early predictors of chronic HC needing shunting. We reviewed the predictive role of intraventricular blood (IVH) in producing shunt-dependent HC.

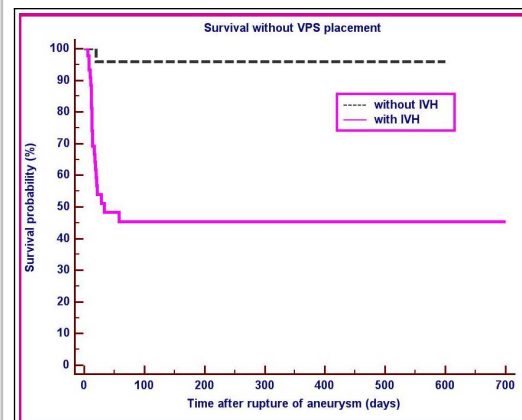
Methods

Data on 75 patients with ruptured cerebral aneurysms were prospectively collected retrospectively reviewed. This included sex, age, location, Hunt and Hess Grade (HHG), and Fisher Grade (FG). Correlation between the presence of IVH and development of acute and delayed shunt-dependent HC was studied.

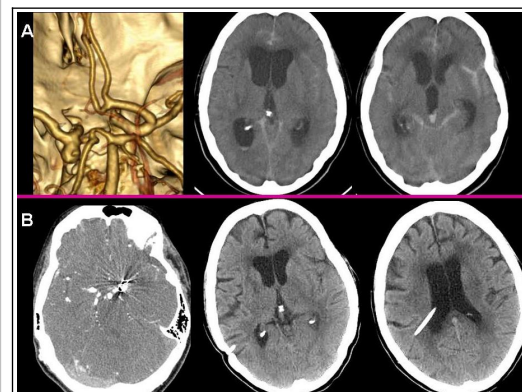
Results

F/M=55/20. Median age=56 years. 79 %=anterior circulation (AC), 31%=posterior circulation (PC). 46 patients (61 %) had FG-4. 85 % (39 patients) of this group had HC (34=acute and 5=delayed). 30 of the 34 acute patients (88 %) needed external ventricular drainage (EVD). 48 % (22 patients, 17=acute and 5=delayed) ended with shunt-dependent HC. In the non-IVH group, although ventriculomegaly was seen in 38 % of cases, only one patient became shunt-dependent. The presence of intraventricular hemorrhage was a statistically significant predictor of delayed shunt-dependent HC ($P=0.000044$) with

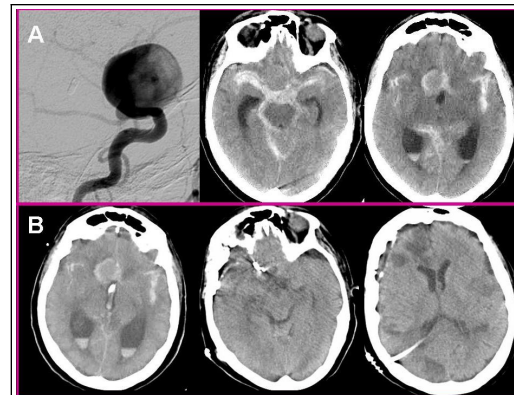
odds ratio for IVH to develop HC of 9.1169 (95 % CI 3.0348 to 27.3881) with $P=0.0001$. This was independent of aneurysm location.



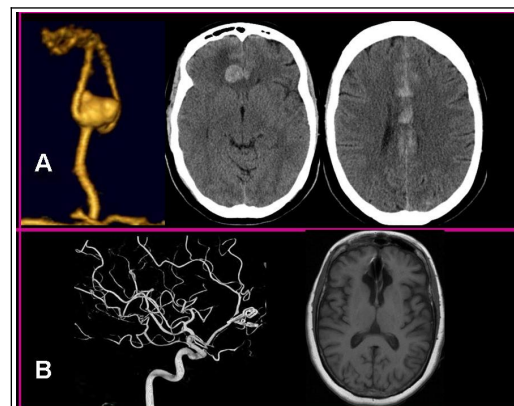
$P = 0.0001$. Median survival time without VPS (ventriculo-peritoneal shunt) is 33 days in patients with IVH.



F-67.A- Pcom artery ruptured aneurysm. HHG IV; FG 4. B- Treatment- EVD, Surgical clipping and VPS placed on 17 th day; mRs 2 at 3mo



F-83, A- ruptured ICA ophthalmic type aneurysm. HHG IV; FG-4 (IVH) B- treatment- EVD, surgical clipping of aneurysm, VPS; mRs 6 at 1 mo



F-54 .A- Ruptured left pericallosal artery aneurysm. HHG III, FG 4 (ICH).B- Surgical clipping of aneurysm. No hydrocephalus; mRs 0 at 3 mo. F-up 5 ys

Conclusions

The presence of intraventricular blood in patients with aneurysmal subarachnoid hemorrhage seems to be a good clinical marker for the development of both acute and delayed shunt-dependent HC. This information should be utilized to help guide the decision for external ventricular drainage which can have a very positive impact on the final outcome.

Learning Objectives

To correlate the presence of intraventricular blood in SAH patients with the presence of HC. To use this information in the treatment plan of patients with SAH. To understand the implication of IVH in SAH patients care.

References

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