

Epileptic Seizures in Aneurysmal Subarachnoid Hemorrhage: Predictive Factors and Utilization of Electroencephalography

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Introduction

Seizures are a well-described complication of aneurysmal subarachnoid hemorrhage (SAH). There is conflicting evidence of the impact of seizures on patient outcomes, prophylactic use of anti-epileptics, and timing of initiating continuous electroencephalography (EEG) for early seizure detection.

Methods

An IRB-approved retrospective chart review was conducted on patients presenting with aneurysmal SAH at our institution between July 2012 and December 2017.

Results

215 patients [135 Females (62.5%), 80 Males (37.5%)] were included. 125 (58.3%) had anterior and 21 (9.7%) posterior circulation aneurysms. 69 (31.9%) patients had angio-negative SAH. 106 patients had EVD placed on admission for hydrocephalus and poor clinical exam (HH3 or above). 24 (11.1%) patients had seizure activity (Prior to arrival or on admission: 13, 1-3 days: 4, 4-10 days: 2, >10 days: 5). 20 patients (83.3%) with seizures had either Fisher grade 3 or 4 and were Hunt Hess 3 or higher ($p < .0005$). In eight instances, EEG was able to identify electrographic seizure activity when overt clinical seizures were not witnessed. Three patients (1.39%) developed non-convulsive status epilepticus, on days 5, 31 and 45, respectively. Seizures were independently associated with longer length of stay ($p < 0.001$). In Hunt and Hess score 3 or above, 51 out of 93 (54.8%) were started on AEDs ($p < 0.0005$), and 49 of 93 (52.6%) had EEGs ($p < 0.0005$).

Conclusions

In our series, 11.1% patients had overt seizure activity most commonly at the time of ictus or on arrival to the hospital. Majority of patients with seizures had a higher Fisher grade (3 or 4) and Hunt Hess score (3 or higher), and had hydrocephalus on admission. Higher Hunt Hess (3 or higher) and Fisher score (3 and 4) were associated with higher utilization of AEDs and EEG monitoring. Longer length of hospital stay was associated with seizure activity.

References

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