



Improving Outcomes in Poor Grade Subarachnoid Hemorrhage (SAH) Patients: Implications of Changing Practice Patterns at a High Volume Cerebrovascular Center

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Introduction

Poor grade SAH patients (Hunt & Hess 4/5) are considered to have low likelihood of good outcomes. Endovascular treatment has demonstrated improved outcomes in patients with SAH and has been used increasingly over time. We hypothesized that the increase in use of endovascular techniques may contribute to overall improved outcomes in poor-grade patients.

Methods

Poor-grade SAH Patients treated at a single cerebrovascular center were evaluated in a retrospective consecutive cohort study. Modality of treatment was decided at the discretion of treating physicians. Cohort A included consecutive patients treated between 2005-2007; cohort B included consecutive patients treated between 2008-2012. Patient outcomes were measured using modified Rankin scores (mRs) and compared between the cohorts. Good outcome was defined as mRs 0-2.

Results

Cohort A demonstrated good outcomes at discharge and 6 months follow-up in 1/59 (1.7%) and 9/41 (21.9%) patients respectively, with 28/59 (47.5%) patients treated with endovascular techniques. Cohort B demonstrated good outcomes at discharge and 6 months in 24/71 (33.8%) and 27/61 (42.9%) patients respectively, with 55/71 (77.5%) receiving endovascular repair. Both cohorts exhibited similar patient demographics and distribution of HH 4 and 5 patients. However, the percentage of good outcomes at discharge and 6 months was significantly higher in cohort B ($p<0.001$ and $p=0.029$). Similarly, the percentage of patients treated with endovascular techniques was significantly higher in Cohort B ($p=0.004$).

Conclusions

We demonstrate improving outcomes in poor grade SAH patients over time in this single center, with good outcome observed in 42.9% of contemporary patients. Improved outcomes were paralleled by an evolution of practice pattern with a significant increase in the percentage of patients treated with endovascular techniques. Technological improvements and advancing endovascular techniques likely account for the increase in endovascular treatment utilized over time. Observed improvement in outcomes may be related to the higher percentage of patients treated with endovascular techniques.

Learning Objectives

By the conclusion of this session, participants should be able to 1) identify the likelihood of good outcome in poor grade SAH patients, 2) understand that outcomes are improving over time, 3) identify increased use of endovascular repair of aneurysms as a potential factor accounting for improving outcomes over time.

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