Subarachnoid Hemorrhage International Trialists

The Subarachnoid Hemorrhage International Trialists (SAHIT) repository is a collection of randomized clinical trials, prospective observational studies, and hospital registries that was used to create a predictive model of unfavorable outcome/mortality following aneurysmal SAH.

To externally validate the SAHIT model using Barrow-Ruptured Aneurysm Trial (BRAT) data, which was not included in the SAHIT repository.

This is a post hoc analysis of the prospective, randomized BRAT. Three models were created: (1) Core (age, hypertension, World Federation of Neurosurgical Societies grade), (2) neuroimaging (aneurysm size/location, Fisher score), and (3) full model (model 1 and 2 plus treatment type). The performance of the models was evaluated by measures of model discrimination (area under the curve [AUC]) and model calibration (goodness of fit test, calibration in-the-large, calibration slope).

A total of 338 patients (average age 54 years; 67.7% good clinical grade; average aneurysm size 6.7 mm; 84.1% anterior circulation) were included. Due to a large number of crossovers, more aneurysms were clipped than coiled (67.5% vs 32.5%, respectively). A total of 10.1% of the patients died and 29.6% experienced an unfavorable outcome. For unfavorable outcome, the AUCs for the three models were: 0.728, 0.732, and 0.734, respectively. For mortality, the AUCs for the three models were: 0.721, 0.739, and 0.744, respectively. Overall, all models showed good calibration, and the measures of calibration fell within 95% CI of those produced in the SAHIT study.

Using the BRAT data, we have externally validated the SAHIT model for predicting unfavorable outcome and mortality after SAH. The model may be used to counsel patients and families on prognosis following aneurysmal SAH [1]

[1]

Mascitelli JR, Cole T, Yoon S, Nakaji P, Albuquerque FC, McDougall CG, Zabramski JM, Lawton MT, Spetzler RF. External Validation of the Subarachnoid Hemorrhage International Trialists (SAHIT) Predictive Model Using the Barrow-Ruptured Aneurysm Trial (BRAT) Cohort. Neurosurgery. 2018 Dec 19. doi: 10.1093/neuros/nyy600. [Epub ahead of print] PubMed PMID: 30566611.