Predictors of In-Hospital Death After Aneurysmal Subarachnoid Hemorrhage: Analysis of a Nationwide Database (Swiss SOS [Swiss Study on Aneurysmal Subarachnoid Hemorrhage])

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BACKGROUND AND PURPOSE
To identify predictors of in-hospital mortality in patients with aneurysmal subarachnoid hemorrhage and to estimate their impact.

METHODS
Retrospective analysis of prospective data from a nationwide multicenter registry on all aneurysmal subarachnoid hemorrhage cases admitted to a tertiary neurosurgical department in Switzerland (Swiss SOS [Swiss Study on Aneurysmal Subarachnoid Hemorrhage]; 2009-2015). Both clinical and radiological independent predictors of in-hospital mortality were identified, and their effect size was determined by calculating adjusted odds ratios (aORs) using multivariate logistic regression. Survival was displayed using Kaplan-Meier curves.

RESULTS
Data of n=1866 aneurysmal subarachnoid hemorrhage patients in the Swiss SOS database were available. In-hospital mortality was 20% (n=373). In n=197 patients (10.6%), active treatment was discontinued after hospital admission (no aneurysm occlusion attempted), and this cohort was excluded from analysis of the main statistical model. In the remaining n=1669 patients, the rate of in-hospital mortality was 13.9% (n=232). Strong independent predictors of in-hospital mortality were rebleeding (aOR, 7.69; 95% confidence interval, 3.00-19.71; <0.001), cerebral infarction attributable to delayed cerebral ischemia (aOR, 3.66; 95% confidence interval, 1.94-6.89; <0.001), intraventricular hemorrhage (aOR, 2.65; 95% confidence interval, 1.38-5.09; =0.003), and new infarction post-treatment (aOR, 2.57; 95% confidence interval, 1.43-4.62; =0.002).
CONCLUSIONS
Several-and among them modifiable-factors seem to be associated with in-hospital mortality after aneurysmal subarachnoid hemorrhage. Our data suggest that strategies aiming to reduce the risk of rebleeding are most promising in patients where active treatment is initially pursued.

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