

Brain edema in aneurysmal subarachnoid hemorrhage

The severity of early [brain edema](#) after [aneurysm rupture](#) was reported to be strongly associated with the risk of poor [aneurysmal subarachnoid hemorrhage outcome](#) (SAH). Using the recently developed [SEBES](#) ([Subarachnoid Hemorrhage Early Brain Edema Score](#)), we analyzed the predictors of early brain edema and its impact on the complications related to intracranial pressure (ICP) increase after SAH and poor outcome.

Methods: All consecutive SAH cases treated between January 2003 and June 2016 with assessable SEBES were included (n=745). Data on demographic characteristics, previous medical history, initial severity of SAH, need for conservative ICP treatment and decompressive craniectomy, the occurrence of cerebral infarctions and unfavorable outcome at 6 months (mRS>2) were collected. Univariable and multivariable analyses were performed.

Results: Younger age (<55 years, adjusted odds ratio [aOR]=3.16, 95% confidence interval [CI]=2.28-4.38), female sex (aOR=1.64, 95% CI=1.16-2.31), poor initial clinical condition (WFNS=4-5, aOR= 1.74, 95% CI=1.23-2.46), presence of intracerebral hemorrhage (aOR=1.63, 95% CI=1.12-2.36), hypothyroidism (aOR=0.60, 95% CI=0.37-0.98) and renal comorbidity (aOR=0.29, 95% CI=0.11-0.78) were independently associated with the SEBES (scores 3-4). There was an independent association between the SEBES=3-4 and the need for conservative ICP treatment (aOR=2.43, 95% CI=1.73-3.42), decompressive craniectomy (aOR=2.68, 95% CI=1.84-3.89), development of cerebral infarcts (aOR=2.24, 95% CI=1.53-3.29) and unfavorable outcome (aOR=1.48, 95% CI=1.0-2.17).

Conclusions: The SEBES is a reliable predictor of ICP-related complications and poor outcome of SAH. Our findings highlight the need for further research of the impact of patients' demographic characteristics and comorbidities on the severity of early brain edema after SAH ¹⁾

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Said M, Gümüş M, Herten A, Dinger TF, Chihi M, Darkwah Oppong M, Deuschl C, Wrede KH, Kleinschnitz C, Sure U, Jabbarli R. The Subarachnoid Hemorrhage Early Brain Edema Score (SEBES) as radiographic marker of clinically relevant intracranial hypertension and unfavorable outcome after subarachnoid hemorrhage. *Eur J Neurol*. 2021 Jul 22. doi: 10.1111/ene.15033. Epub ahead of print. PMID: 34293828.

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