Poor-grade aneurysmal subarachnoid hemorrhage treatment

- Delayed cerebral ischemia after aneurysmal subarachnoid hemorrhage: a narrative review
- Analysis of short-term efficacy and rebleeding risk in aneurysmal subarachnoid hemorrhage patients undergoing vascular intervention
- Infection Associated with Global Cerebral Edema and Delayed Cerebral Ischemia in Patients with Aneurysmal Subarachnoid Hemorrhage
- Aneurysmal subarachnoid hemorrhage in elderly patients: fluctuations in serum sodium levels were associated with poor neurological outcomes
- Clinical factors associated with delayed ischemic and non-ischemic adverse events in clazosentan therapy after aneurysmal subarachnoid hemorrhage: early insights from a multicenter prospective registry
- Lack of association between chronological age and fisher group and poor outcomes in older patients with severe-grade aneurysmal subarachnoid hemorrhage: a nationwide registry study in Japan
- Pentraxin 3 as a Prognostic Biomarker in Aneurysmal Subarachnoid Hemorrhage
- Impact of Delayed Admission on Treatment Modality and Outcomes of Aneurysmal Subarachnoid Hemorrhage: A Prefecture-Wide, Multicenter Japanese Study

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see also Aneurysmal subarachnoid hemorrhage treatment.

Several studies showed the earlier that the ruptured aneurysm is treated, the better the outcome in patients with WFNS IV-V [1)]

Patients with Poor-grade aneurysmal subarachnoid hemorrhage should be treated as soon as possible and, within 12 h of ictus, to ensure the best possible outcome [2)].

The early and aggressive treatment of this patient population has decreased overall mortality from more than 50% to 35% in the last four decades. These management strategies include (1) transfer to a high-volume center, (2) neurological and systemic support in a dedicated neurological intensive care unit, (3) early aneurysm repair, (4) use of multimodal neuromonitoring, (5) control of intracranial pressure and the optimization of cerebral oxygen delivery, (6) prevention and treatment of medical complications, and (7) prevention, monitoring, and aggressive treatment of delayed cerebral ischemia [3)].

Outcome

Poor-grade aneurysmal subarachnoid hemorrhage outcome

Tracheostomy

In poor-grade SAH it is meaningful to consider Percutaneous dilatational tracheostomy (PDT) after

early brain injury and before the second hit of vasospasm (day III–V) [4)]

Vasospasm

A concentrated 4 mg Intraventricular Nicardipine dose (2.5 mg/mL) in a 1.6 mL injection appears relatively safe and tolerable and potentially offers a second-line strategy for treating refractory vasospasm in poor-grade SAH without compromising intracranial pressure or cerebral perfusion pressure.

Decompressive craniectomy

Decompressive craniectomy is an option to decrease elevated intracranial pressure in poor-grade aneurysmal subarachnoid hemorrhage (SAH) patients. The aim of the study of Vychopen et al. was to analyze the size of the bone flap according to approach-related complications in patients with poor-grade SAH. They retrospectively analyzed poor-grade SAH patients (WFNS 4 and 5) who underwent aneurysm clipping and craniectomy (DC or omittance of bone flap reinsertion). Postoperative CT scans were analyzed for approach-related tissue injury at the margin of the craniectomy (shear bleeding). The size of the bone flap was calculated using the De Bonis equation. Between 01/2012 and 01/2020, 67 poor-grade SAH patients underwent clipping and craniectomy at our institution. They found 14 patients with new shear bleeding lesions in postoperative CT scans. In patients with shear bleeding, the size of the bone flap was significantly smaller compared to patients without shear bleeding (102.1 ± 45.2 cm2 vs. 150.8 ± 37.43 cm2, $p > 0.0001$). However, we found no difference in mortality rates (10/14 vs. 23/53, $p = 0.07$) or number of implanted VP shunts (2/14 vs. 18/53, $p = 0.2$). They found no difference regarding the modified Rankin Scale (mRS) 6 months postoperatively. In poor-grade aneurysmal SAH, the initial planning of Decompressive craniectomy-if deemed necessary -and enlargement of the flap size seems to decrease the rate of postoperatively developed shear bleeding lesions [5)].

ChatGPT

The treatment of Poor-grade aneurysmal subarachnoid hemorrhage (SAH) requires a multidisciplinary approach involving neurosurgeons, neurologists, critical care specialists, and rehabilitation therapists. The treatment goals are to stabilize the patient's condition, prevent re-bleeding, and minimize complications associated with the hemorrhage.

In general, the initial treatment for poor grade SAH may involve securing the aneurysm with surgical clipping or endovascular coiling to prevent re-bleeding. This procedure is usually performed as soon as possible after the patient's diagnosis to minimize the risk of further neurological damage.

After the procedure, the patient is usually monitored in the intensive care unit (ICU) to manage potential complications, including hydrocephalus, electrolyte imbalances, and seizures. Treatment may also involve the use of medications to control blood pressure and prevent vasospasm, which is a narrowing of the blood vessels in the brain that can cause further neurological damage.

Rehabilitation is an important part of the treatment for poor grade SAH, and may include physical,

occupational, and speech therapy to help the patient regain function and improve their quality of life. The length of hospital stay and rehabilitation may vary depending on the severity of the hemorrhage and the patient's individual needs.

Overall, the treatment of poor grade aneurysmal SAH requires a coordinated and comprehensive approach to manage the patient's complex medical needs and provide the best possible outcomes for their recovery and rehabilitation.

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1)
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