

Traumatic subarachnoid hemorrhage treatment

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Treatment for tSAH focuses on stabilizing the patient, managing symptoms, preventing [Traumatic subarachnoid hemorrhage complications](#), and promoting recovery. Here's a detailed overview of the treatment approach:

1. Initial Assessment and Stabilization Airway, Breathing, Circulation (ABC): Ensure the patient's airway is clear, breathing is adequate, and circulation is stable. This might involve intubation or ventilation support if necessary. Neurological Assessment: Perform a thorough neurological examination to assess the level of consciousness, motor responses, and other neurological functions. Imaging: Obtain CT scans or MRI to assess the extent of hemorrhage and identify other potential injuries or complications.

2. Medical Management Blood Pressure Control: Manage blood pressure to prevent further bleeding and reduce the risk of secondary brain injury. This often involves using medications like antihypertensives. Pain and Sedation: Administer pain relief and sedation as needed to ensure patient comfort and to prevent agitation, which can exacerbate brain injury. Seizure Prophylaxis: Antiepileptic drugs may be used to prevent seizures, especially if the patient has a history of seizures or if there is evidence of cortical injury.

3. Management of Complications Hydrocephalus: Monitor for signs of increased intracranial pressure (ICP) and hydrocephalus. If present, it may require interventions such as ventriculostomy or shunt placement to drain excess cerebrospinal fluid. Vasospasm: This is a common complication where blood vessels in the brain constrict, reducing blood flow. Treatment may include: Nimodipine: A calcium channel blocker to prevent vasospasm and improve outcomes. Hypervolemic Therapy: Increasing blood volume to improve cerebral perfusion. Intra-arterial or Systemic Vasodilators: To manage severe vasospasm.

Secondary Brain Injury: Prevent secondary damage by maintaining optimal levels of oxygenation and blood glucose, and by avoiding further trauma.

4. Surgical Interventions Decompressive Craniectomy: In cases of severe brain swelling or elevated ICP that does not respond to medical management, surgical removal of a portion of the skull may be necessary to relieve pressure. Hemorrhage Evacuation: In some cases, surgical evacuation of large hematomas or clots may be required, particularly if they are causing significant mass effect or neurological deterioration.

5. Rehabilitation and Long-term Care Rehabilitation: Includes physical, occupational, and speech therapy to address motor, cognitive, and communication impairments resulting from the injury. Follow-up Care: Regular

follow-up appointments to monitor recovery, manage long-term complications, and adjust treatment plans as needed. 6. Patient and Family Education Education: Inform patients and their families about the nature of the injury, potential complications, and the importance of adherence to treatment and follow-up care. Support Services: Provide access to support groups or counseling for emotional and psychological support. Summary Treatment of traumatic subarachnoid hemorrhage involves:

Immediate stabilization and assessment. Medical management to control blood pressure, pain, and potential seizures. Monitoring and managing complications like hydrocephalus, vasospasm, and secondary brain injury. Surgical interventions when necessary. Rehabilitation and long-term care to support recovery. Early and effective management is crucial for improving outcomes and minimizing long-term disability in patients with tSAH.

see [Nimodipine for traumatic subarachnoid hemorrhage](#).

[Tranexamic acid](#) was identified by univariate analysis as an independent factor associated with lower mortality in cerebral contusions or traumatic subarachnoid hemorrhage. Further prospective studies are needed to validate this finding ¹⁾.

Electrolyte disturbances are frequently seen in the presence of tSAH. The hypothalamic-pituitary axis damage is a major contributing factor. The goal is to maintain [euvoolemia](#) to moderate [hypervolemia](#). Normal saline (NS) is the recommended solution. Hypotonic solutions, such as ½ NS, ¼ NS, 5% dextrose in water (D5% W), D5% ½ NS, D5% ¼ NS, or Ringer's lactate, should be avoided.

In severe TBI patients with increased ICP or brain edema, a serum sodium (Na +) level of up to 150-155 mEq/L may be acceptable. Hyponatremia is a major secondary systemic brain insult as it leads to exacerbation of brain edema. It is usually secondary to cerebral salt wasting syndrome, or to the syndrome of inappropriate antidiuretic hormone secretion. In the former, both volume and sodium correction are the essential components, whereas in the latter, fluid restriction usually suffices, with or without sodium correction. Hence, central venous pressure monitoring, renal function tests, and a periodic estimation of electrolytes are of paramount importance ²⁾.

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Chan DYC, Tsang ACO, Li LF, Cheng KKF, Tsang FCP, Taw BBT, Pu JKS, Ho WWS, Lui WM, Leung GKK. Improving Survival with Tranexamic Acid in Cerebral Contusions or Traumatic Subarachnoid Hemorrhage: Univariate and Multivariate Analysis of Independent Factors Associated with Lower Mortality. World Neurosurg. 2019 Feb 2. pii: S1878-8750(19)30245-1. doi: 10.1016/j.wneu.2019.01.145. [Epub ahead of print] PubMed PMID: 30721773.

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Modi NJ, Agrawal M, Sinha VD. Post-traumatic subarachnoid hemorrhage: A review. Neurol India. 2016 Mar-Apr;64 Suppl:S8-S13. doi: 10.4103/0028-3886.178030. PubMed PMID: 26954974.

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