

SAH Notes

- **Causes:**
 - Aneurysms
 - AV Malformation
 - Others: tumors, vasculitis, blood dyscrasia, dural sinus thrombosis, infection.
- **Aneurysm types:**
 - Berry (secular) = congenital, large give tumor Sx, ophthalmic artery
 - Fusiform = atherosclerotic, send emboli, post. circulation (basilar a.)
 - Mycotic = embolus from bacterial endocarditis (strep & staph)
 - Traumatic = bullet injuries, ICA within cavernous → fistula
- **SAH in adults** = usually due to aneurysms
- **SAH in children** = usually due to AVM
- **AVM** tends to rupture less than **aneurysms** and present more with epilepsy
- **SAH Triad:**
 - Headache, decreased LOC and meningism (neck stiffness, vomiting and photophobia).
 - Others: seizures, diplopia, drooping eyelid or sciatica (late)
- **Diagnosis:** CT no kontras, if late or anemia = LP (shows xanthochromia).
- **Hunt and Hess Grades:**
 - Grade I = asymptomatic
 - Grade II = moderate-severe headache
 - Grade III = drowsy
 - Grade IV = stupor
 - Grade V = coma
- **Management:**
 - **Grade 1-3 Tx** = dark room, elevated 30, Codeine phosphate, laxatives (rebleeding from straining), normal saline (hypovolemia), Foley's.
 - **Grade 4-5 Tx** = ICU, same + IPPV.
 - **Dx** = Phenytoin, Nimodipine (against ischemia from vasospasm), Cyclokapron (antifibrinolytics (rebleeding)
 - **Angiography** (Gold standard to spot the aneurysm)
 - Grade 1-3, clipping surgery // Grade 4-5, endovascular Tx
- **Complications** = rebleeding, vasospasm, hydrocephalus.
- **AVM Dx** = CT + angiography (emergent), MRI + angio (headache, seizure, neuro)
- **AVM Tx** = excision/embolization/radiotherapy by the Gamma knife

SAH Treatment

- stabilize patient - monitor vitals, ECG for arrhythmias, analgesia
- Stop source of bleeding
 - ruptured aneurysm: endovascular coiling or surgical clipping
- Acute management
 - lower BP with IV labetalol
- Short term management
 - hospitalize 1-2 weeks for monitor, use supportive care
 - if new neurological symptoms, transcranial doppler or cerebral angio to monitor for vasospasm

MANAGING VASOSPASM

- Vasospasm remains the leading cause of morbidity and mortality following aneurysmal SAH.
- Treatment with the calcium channel antagonist nimodipine (60 mg PO every 4 h) improves outcome, perhaps by preventing ischemic injury
- Nimodipine can cause significant hypotension in some patients, which may worsen cerebral ischemia in patients with vasospasm

Treatment- cont

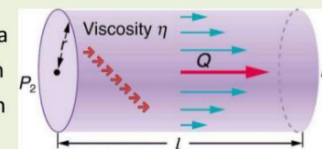
- Because rebleeding is common, all patients who are not candidates for early aneurysm repair are put on **bed rest** in a quiet room and are given stool softeners to **prevent straining**.
- If **Headache or neck pain** is severe, mild **sedation** and **analgesia** are prescribed.
- **Extreme sedation is avoided** because it can obscure changes in neurologic status.
- **Adequate hydration** is necessary to avoid a decrease in blood volume predisposing to brain ischemia.

So adequate amount of fluid is administered so as to maintain above normal circulating blood volume & central venous pressure

3-H Therapy

- 3-H became the mainstay in the prevention and treatment of cerebral vasospasm

- Hypervolemia
- Hypertension
- Hemodilution



Complications

- **Intracerebral hematoma:Evacuation** & treatment of the cause: Securing aneurysm or AVM
- **Seizures:Prophylaxis anti-convulsants**
- **Hydrocephalus:Controlled drainage(EVD)**
- **Electrolyte disturbances:Correction**

Epilepsy Notes

- **Refractory seizures** = persistent seizures despite appropriate pharmacological treatment (3AEDS, including one of the new generations).

Surgery	Indication	Outcome	Morbidity
Temporal lobectomy & amygdalo hippocampectomy.	<ul style="list-style-type: none"> - Unilateral temporal lobe epilepsy or onset of seizure activity - Migratory disorder - Mesotemporal sclerosis - Extensive organic lesion of the temporal lobe. 	<ul style="list-style-type: none"> - 80% cure or almost cure. - 20% partial improvement 	<ul style="list-style-type: none"> - 12-14% quadrantanopsia - Memory disturbances
Frontal lobectomy	<ul style="list-style-type: none"> - Onset foci in the frontal lobe - Migratory disorders - Extensive organic lesion 	<ul style="list-style-type: none"> - ~60% cure or almost cure. 	-
Occipital lobectomy	<ul style="list-style-type: none"> - Onset foci in the occipital lobe. - Organic lesion 	<ul style="list-style-type: none"> - 50% cure or almost cure Complications: Homonymous hemianopia 	-
Hemispherectomy	<ul style="list-style-type: none"> - Multifocal seizure - <8 years old - Hemimegalencephaly - Sturge-Weber Disease - Rasmussen ncephalitis - Lennox-Gastaut Disease 	<ul style="list-style-type: none"> - 50% cure or almost cure. 	<ul style="list-style-type: none"> - Hydrocephalus - Loss of peripheral vision - Developmental alteration
Epilepsy surgery & Corpus Callostomy (palliative treatment) <i>Dissection of the anterior 2/3 of the corpus callosum.</i>	<ul style="list-style-type: none"> - Multifocal seizure - Drop attacks 	<ul style="list-style-type: none"> - 50% improve in different grades 	<ul style="list-style-type: none"> - Mutism - Somato-agnosia of none one lower extremity - Both are transitory.
Epilepsy surgery & VNS implantation (palliative treatment)	<ul style="list-style-type: none"> - Multifocal seizure - Generalized atonic seizure - Complex partial seizure 	-	<ul style="list-style-type: none"> - Dysphonic - Respiratory dysfunction - Cable discomfort