

Neurologic Emergencies

Increased ICP													
Differential	Mass lesions (tumor, abscess, hematoma, AVM), impaired cerebral blood flow (hypercarbia, VST), impaired CSF absorption, cerebral edema (hypoxia, ischemia, abrupt sodium shifts, hemorrhage, trauma, fluid shifts, infection, tumor)												
Red Flags	Signs and symptoms suggestive of herniation syndromes: declining consciousness, elevated BP and slow pulse, irregular breathing, dilated and fixed pupils, impaired upward gaze												
Workup	Measure HC in infants (normal head growth in term newborn 2 cm/month for first 3 months à 1 cm/month second 3 months à 0.5 cm/month for next 6 months; assess fontanelle in infants; do not perform an LP prior to obtaining imaging.												
Management	ICU STAT. Elevate head of bed 30-45 degrees to improve venous drainage. Maintain normal glucose. Aim for SpO ₂ > 95% and CO ₂ b/w 35-45 mmHg. Avoid hypotension. Maintain euthermia. Avoid hyponatremia. See table below for modalities. Consider neurosurgical consultation .												
Complications	<p>Herniation syndromes: Falcine, uncal, trans-tentorial, cerebellar</p> <table border="1"> <thead> <tr> <th>Treatment</th><th>Dose/Route/Timing</th></tr> </thead> <tbody> <tr> <td>Hyperventilation</td><td>Lower arterial pressure of carbon dioxide to 25-30 mmHg (only a temporizing measure)</td></tr> <tr> <td>Osmotic Diuretics</td><td>20% mannitol, 0.25 – 1g/kg IV infused over 15 minutes Hypertonic Saline 5-10mL of 3% given over 5 min</td></tr> <tr> <td>Corticosteroids</td><td>Dexamethasone IV 0.1-0.2mg/kg q6hr (most useful for reducing edema around mass lesions)</td></tr> <tr> <td>Hypothermia</td><td>Body temp b/w 27 deg C and 31 deg C</td></tr> <tr> <td>Barbiturate Coma</td><td>Pentobarbital</td></tr> </tbody> </table>	Treatment	Dose/Route/Timing	Hyperventilation	Lower arterial pressure of carbon dioxide to 25-30 mmHg (only a temporizing measure)	Osmotic Diuretics	20% mannitol, 0.25 – 1g/kg IV infused over 15 minutes Hypertonic Saline 5-10mL of 3% given over 5 min	Corticosteroids	Dexamethasone IV 0.1-0.2mg/kg q6hr (most useful for reducing edema around mass lesions)	Hypothermia	Body temp b/w 27 deg C and 31 deg C	Barbiturate Coma	Pentobarbital
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Chief Complaint: Ataxia

Acute Cerebellar Ataxia	
PowerPlans	N/A
Pathophysiology	Post-viral (or vaccine) inflammation limited to the cerebellum Presentation: New ataxia (unsteady, wide-based gait and dysmetria) in a previously healthy child varying from mild unsteadiness to inability to stand; sensorium remains intact. Mild nystagmus may be present. Symptoms remit after a few days, but abnormal gait may drag on for months
Differential	Ingestions, cerebellitis, posterior fossa mass, opsoclonus-myoclonus-ataxia
Red Flags	Lethargy, fever, progressive course indicates cerebellitis, which is life-threatening. Opsoclonus suggests opsoclonus-myoclonus ataxia, which can indicate an underlying neuroblastoma. Headache and vomiting can indicate mass.
Workup	Perform a drug screen to r/o ingestion. MRI brain w/o contrast (contrast will be added by radiology if needed), to rule out posterior fossa mass as needed.
Treatment	Disease is self-limited and treatment is not required. Typically managed outpatient by PCP.

Desai et al. Acute Cerebellar Ataxia, Acute Cerebellitis, and Opsoclonus-Myoclonus Syndrome. Journal of Child Neurology. 27 (11) 1482-1488. 2012.