

Cerebral Edema Therapy

- Those at increased risk include younger age (<5 y/o), new onset diabetes, and longer duration of symptoms.
- Additional risk factors at diagnosis or during treatment include - more severe acidosis or very elevated BUN at presentation, use of bicarbonate for treatment of acidosis, greater volumes of fluid given in the first 4 hours of treatment, administration of short acting insulin in the first hour of fluid treatment.
- Signs and symptoms - headache, slowing or irregular heart rate, change in neurologic status (restlessness, irritability, increased drowsiness, incontinence), cranial nerve palsies or other specific neurologic signs, increasing blood pressure, decreased oxygen saturation.
- One diagnostic criterion, 2 major criteria, or one major and 2 minor criteria have a sensitivity of 92% and a false positive rate of only 4% for detecting cerebral edema.
 - Diagnostic criteria - abnormal motor or verbal response to pain, decorticate or decerebrate posture, cranial nerve palsy, abnormal neurogenic respiratory pattern (grunting, tachypnea)
 - Major criteria - altered mental status, fluctuating level of consciousness, sustained heart rate deceleration (decrease more than 20 beats per minute) not attributable to improved hydration or sleep, age-inappropriate incontinence
 - Minor criteria - vomiting, headache, lethargy, diastolic BP >90 mm Hg, age <5 years.

Treatment:

- Begin immediate transfer to pediatric intensive care unit if patient is currently on a medical/surgical unit.
 - Elevate head of bed
 - Reduce fluid rate by 1/3
 - Give mannitol 0.5-1 g/kg IV over 20 minutes
 - Hypertonic saline (3%), 5-10 mL/kg over 30 minutes may be used as an alternative to mannitol

- Obtain CT head after treatment has been started to rule out other possible intracerebral causes of neurologic deterioration (thrombosis or hemorrhage).

These guidelines do not establish a standard of care to be followed in every case. It is recognized that each case is different and those individuals involved in providing health care are expected to use their judgment in determining what is in the best interests of the patient based on the circumstances existing at the time. It is impossible to anticipate all possible situations that may exist and to prepare guidelines for each. Accordingly these guidelines should guide care with the understanding that departures from them may be required at times.

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