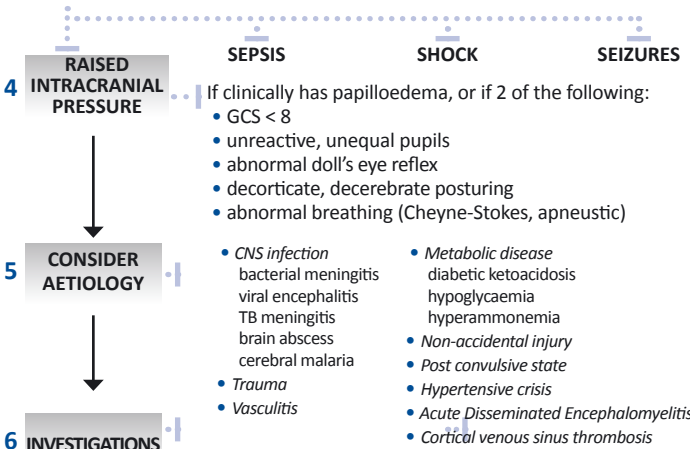
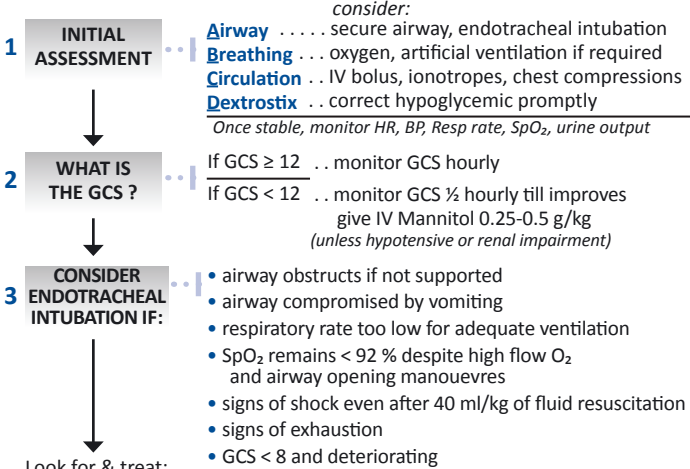


APPROACH TO A CHILD WITH ALTERED CONSCIOUSNESS

NEUROLOGY



** in Malaysia, 2/3 of cases are infective, followed by metabolic disorders (13%)

- Recommended**
- FBC, urea & electrolytes, glucose
 - Liver function tests
 - Serum ammonia, blood gas
 - Blood cultures
 - Urinalysis
 - Lumbar Puncture**

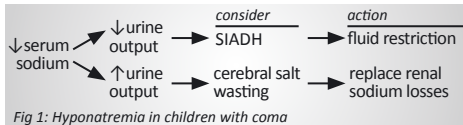
- Sample when ILL:**
- 1-2 ml plasma/serum: separated, frozen & saved
 - 10-20 ml urine: frozen & saved
- Optional**
- Vasculitis screen
 - Tandem Mass Spectrometry (IEM screen)
 - Blood film for malaria parasite

Neuroimaging: CT Brain should be considered for all children with \uparrow ICP, or if cause of coma is uncertain despite the above; If a brain tumour or ADEM is suspected, then an MRI is more useful.

7 MANAGEMENT

Management of Raised ICP

- Nursing
 - elevate head up to 30°
 - avoid unnecessary suction, procedures
- Fluid balance
 - keep patient well hydrated
 - avoid hypo-osmolar fluid, plain dextrose solutions
 - care with sodium homeostasis:



- Maintain cerebral blood flow
 - keep CPP > 40 mmHg
 - If ↑ BP: do not lower unless hypertensive crisis, e.g. acute glomerulonephritis

$$\text{Cerebral (CPP) Perfusion Pressure} = \text{Mean (MAP) Arterial Pressure} - \text{Intracranial (ICP) Pressure}$$

Fig 2: calculating cerebral perfusion pressure

- Use of IV Mannitol
 - regular doses at 0.25 - 0.5 g/kg q.i.d. if required
 - a CT scan to exclude intracranial bleeding is recommended
- PaO₂ , PaCO₂ level
 - maintain good oxygenation, normocapnoea
i.e. PaCO₂ 4.0 - 4.6 kPa / 35 - 40 mmHg
- Surgical decompression
 - if medical measures fail, surgical decompression may be indicated (ie. external ventricular drainage, decompressive hemicraniectomy)

Treatment of Infection

- *Antibiotics*: in all children, unless alternate cause of coma is evident
- *Aciclovir*: in children with encephalitis, until CSF PCR results known
- *Others*: anti-tuberculous therapy, anti-malarials

Treatment of Metabolic Encephalopathy

... refer section on Metabolic disease in children

8 OUTCOME

- *General rules*
 - outcome depends on the underlying cause:
1/3 die, 1/3 recover with deficits, 1/3 recover completely
 - acute complications improve with time.
e.g. cortical blindness, motor deficits
 - continue anticonvulsants for 6 weeks,
or longer if seizures persist
 - metabolic causes may require long term dietary management