APLS: Scenario Illness 11

History {initial candidate briefing prior to arrival of child}

4 year old girl referred in by her GP with a history of lethargy, fever and vomiting for the past 24 hours.
Estimated weight 15kg.

Initial impression {provide information as candidate assesses child and applies monitoring}

Child moaning and flushed on arrival. She is not speaking and lying very still.

Additional History & Observations

HR 144, RR 42, CRT <2. Feels hot to touch (temp 39.7). SpO_2 95% in air. BP 109/71. PERL.
If child is exposed a petechial rash is noted on the trunk. If looked for, neck stiffness and Kernig's sign are present.

Clinical Course {to be given to candidate as they progress}

As the assessment progresses the child stops moaning and upper airway obstructive sounds develop with decreasing O_2 sat. Airway opening manoeuvres and oropharyngeal airway are required to clear airway and improve O_2 sat.

INSTRUCTORS INFORMATION

Key Treatment Points ☑

Airway & Breathing	Airway opening and oropharyngeal airway. High flow O2 via face mask commenced early Titrate O2 therapy to SpO2 94-98% when stable Arrange for intubation	
Circulation	IV access Bloods for FBC, U&Es, BGL, VBG and cultures.	
Specific Therapy	Recognition of likely meningitis without septic shock. IV Broad-spectrum antibiotics. Consult ICU	

Diagnosis: Meningococcal meningitis without septic shock.

Learning objectives

At the end of this session participants should be able to:

- Apply the structured approach to assessment, management and diagnosis of meningitis and coma
- Recall and classify the potential causes of decreased conscious state
- Recall and apply the principles of management of meningitis in their own practice

Potential Issues to be Discussed

- Causes of meningitis
- Indications and contraindications for Lumbar Puncture
- Signs of raised ICP
- Fluid management in meningitis with shock
- See below for use of steroids

Use of prophylactic steroids:

Emergency treatment of meningitis (p 97)

Give dexamethasone (150 micrograms/kg, max. 10 mg, four times a day) in suspected o confirmed bacterial meningitis, aiming to start within 4 hours of antibiotics (not later thar hours).

Do not use in infants younger than 3 months, but in older infants and children corticoster can reduce the rate of severe hearing loss and possibly other long-term neurological sequelae.

APLS: Scenario Illness 12

History {initial candidate briefing prior to arrival of child}

15 month old boy brought in by ambulance with a 2 day history of vomiting, diarrhoea and drowsiness. He had been vomiting all day and mum called an ambulance in the evening when she was having trouble keeping him awake.
Guide weight 10kg

Initial impression {provide information as candidate assesses child and applies monitoring}

Very drowsy, pale child. HR 70, RR 20, T 36, SaO_2 94% in air, BP 120/80. CRT 2. He has bruises on his shins.

Additional History & Observations

Mum has given him nothing but water for the last 24 hrs. No recent injuries reported by Mum.

Clinical Course {to be given to candidate as they progress}

Snoring and gurgling when not stimulated- clears with airway opening manoeuvres and O2 sat improves. Breathing regular.
Assessment of disability reveals P on AVPU scale. No scalp injury evident. PEARL.
The candidate should assess the hydration state (not dehydrated - skin turgor normal, moist mouth). Normal perfusion.
There is bradycardia, hypertension and coma so raised ICP and the need for respiratory support should be considered. CT scan required (NAD)

VBG: pH 7.32, pCO_2 50 mmHg, pO_2 40 mmHg, HCO_3 19 mmol/L
Na 116 mmol/L, Cl 95, K 3.8, BSL 6.0 mmol/L.

INSTRUCTORS INFORMATION

Key Treatment Points		☑
Airway	Airway opening and support. High flow O2 via face mask commenced early Titrate O2 therapy to SpO2 94-98% when stable Arrange intubation and controlled ventilation.	
Breathing	BVM ventilation with 100% O2	
Circulation	IV / IO access	
Specific Therapy	Serum electrolytes, BSL, FBE CT brain scan should be considered. Management of hyponatremia or consult ICU/retrieval	

Diagnosis:	Acute hyponatremia leading to encephalopathy Gastroenteritis, GIT Na loss, water rehydration

Learning objectives

At the end of this session participants should be able to:

- Apply the structured approach to assessment, management, and diagnosis of coma and raised ICP
- Recall and classify the potential causes of decreased conscious state
- Recall and apply the principles of management of severe hyponatremia in their own practice

Potential Issues to be Discussed/Instructor resources

- Differential diagnosis of acute encephalopathy-infection, intracranial bleed (including NAI), drugs, acute electrolyte abnormality, hypoglycaemia, or other metabolic abnormality,
- Treatment of symptomatic hyponatremia- fluid restriction, hypertonic saline
- Management of CSE/hyponatremia
- See hyponatremia treatment guidelines (below, laminated copy available)
- Hyponatremia Guidelines RCH

Management of Hyponatremia

This guideline has been adapted for statewide use with the support of the Victorian Paediatric Clinical Network

See also

Hypernatraemia (www.rch.org.au/clinicalguide/guideline_index/Hypernatraemia/)
Intravenous Fluids (www.rch.org.au/clinicalguide/guideline_index/Intravenous_fluids/)
Diabetes Mellitus (including DKA) (www.rch.org.au/clinicalguide/guideline_index/Diabetes_mellitus/)

Key Points

1. Prevention involves identifying children at risk (i.e. those with conditions associated with increased ADH secretion) and restricting their fluid to 1/2-2/3 maintenance of isotonic solution.
2. A child's fluid status is key in determining the cause of hyponatraemia and dictating treatment.
3. The rate of correction of hyponatraemia should not exceed 8mmol/L in 24 hours as over rapid correction can cause osmotic demyelination syndrome.
4. Hyponatraemic seizures and/or altered conscious state are a medical emergency and can cause irreversible neurological damage.