**Guidelines for the Management of Meningococcal Disease in Children**

**Suspected Meningococcal Disease**

- **Score with Glasgow Meningococcal Septicaemia Prognostic Score**
  - 1. Systolic Blood Pressure
  - 2. Skin / Rectal Temperature
  - 3. Modified Coma Scale
  - 4. Deterioration in last hour
  - 5. Neck Stiffness
  - 6. Extent of Purpura
  - 7. Base Deficit

- **GMSPS 8 or more**
  - Do not Attempt LP
  - Contact Paediatric Intensive Care to discuss management. Consider, elective ventilation, CVP and Arterial monitoring
  - Continue regular review and therapy. Re score GMSPS in 1 hour or if deteriorates.

- **GMSPS 0 - 7**
  - IV antibiotic, baseline bloods (NB blood glucose)
  - Fluid bolus 20ml/kg (Normal Saline or colloid)
  - Crystalloid or Colloid 20mls/kg
  - Deterioration or persistent shock?
  - Crystalloid or Colloid bolus may be required. Consider dopamine / dobutamine 10mcg/kg/min
  - Hypovolaemia – heart rate, BP, base deficit, CRT, core peripheral temp gap.
  - Start Adrenaline (0.1 - 2 micrograms/kg/min) if requires escalation in inotrope dose, continuing large volume resuscitation and remains haemodynamically unstable.
  - Consider placing a multiple-lumen central venous catheter.
  - Give volume according to indicators of hypovolaemia.
  - Core peripheral temp gap.
  - Insert arterial line.
  - Correct electrolyte derangement as necessary.
  - Correct hypoglycaemia.
  - Correct hypocalcaemia.
  - Give intravenous antibiotics.
  - Consider intubation & ventilation.
  - Give sedation and muscle relaxation as appropriate, if ventilated.
  - Monitor Urine output consider catherisation.

**Initial Assessment**

- An LP is generally not indicated.
- Airway Breathing & Circulation (follow EPLS or APLS guidelines).
- Tachycardia develops early in shock. Hypotension is a late sign.
- Not all children will have a rash, but a spreading rash is ominous.
- Whenever Meningococcal Disease is suspected, immediately give either Cefotaxime (50 mg/kg/6 hourly) or Ceftriaxone (80 mg/kg/once daily).

**Continuing Management**

1. **Assess Airway and Breathing**
   - Obtain Glasgow Meningococcal Septicaemia Prognostic Score (GMSPS) - see over.
   - If >8 1 point
   - Widespread ecchymoses or extending lesion on review 1 point
   - If absent 2 points
   - Ask parents or nurses; if yes 2 points
   - If initial score <8, or deterioration of 3 or more points at any time 3 points
   - If >3

2. **Venous Access**
   - Place two large bore IV cannulae if possible. Intraosseous line if difficult venous access.
   - At the time of IV cannulation, draw emergency blood samples.
   - If possible send elective and diagnostic blood samples as well (see below).
   - Volume resuscitation.
   - Initially 20 ml/kg Normal Saline. Then 20 ml/kg boluses of crystalloidal or colloidal guided by BP, HR and peripheral perfusion.
   - Give intravenous antibiotics.

3. **If >40ml/kg of Fluid in One Hour, or GMSPS Remains 8**
   - Discuss with regional PICU and consider retrieval.
   - Consider intubation & ventilation.
   - Consider Inotropic support.
   - Start with Dopamine or Dobutamine (5 - 20 mcg/kg/min). With rapid titration effect (3x wt. in kg/mg in 50ml (5% dextrose) 10ml/hr =10mcg/kg/min via a peripheral line.

4. **NB Review patients progress regularly.**
   - Early referral to PICU if the patient deteriorates.

**Laboratory Tests**

- **Urgent** - Arterial blood gas, glucose, HbC, urea and electrolytes, creatinine, CRP, PT, APTT, Fibrinogen, X-match, Lactate, Mg++, PO4-.
- **Elective - Diagnostic** - Blood culture, nasopharyngeal swab for culture and 3-5 ml of blood in EDTA tube for PCR.

**Prophylaxis**

- Notify National Public Health Service (NPHS) (via Ambulance Control if out-of-hours).
- Prescribe chemoprophylaxis to case and household members in liaison with NPHS.
- NPHS will arrange chemoprophylaxis for wider contacts and consider need for vaccination.

**Directions**

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- Version: PG2V0.6

**References:**

- Advanced Life Support Group Advanced Paediatric life support, 3rd edn 2000
- RPCH Medicines for Children 2003
- North West and North Wales critical care Interface Group

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