Sepsis – Emergency management in children – Flowchart

0 minutes
Recognition
- Fever greater than 38.5°C or hypothermia
- Looks sick or toxic (Box A)
- Irritable or drowsy
- Poor perfusion/purpura/petechiae
- Close attention to vital signs and risk factors (Box B)

First 5 minutes
Immediate actions
- Attach cardiorespiratory monitoring
- Assess airway and administer oxygen
- Initial assessment

First 15 minutes
Establish vascular access
- Insert IO if two attempts at IV fail
- Consider UVC in neonate under 2 weeks of life
- Take bloods:
  - BC, VBG with lactate and glucose (priority)
  - FBC, CRP, UEC, LFT, +/– Coags, +/- Grp and hold
- Administer antibiotics IV (Box C)
  - Ceftriaxone IM 50 mg/kg (max 2 g) if delayed
  - Give full dose/s of antibiotic/s IV once access established

First 30 minutes
IV fluid administration with Sodium Chloride 0.9%
- 20 mL/kg bolus over ~ 5 min
- Repeat 20 mL/kg boluses to a maximum of 40-60 mL/kg within first hour
- Each time reassess response
- Aim: improved HR, mentation, perfusion
- Overload: hepatomegaly, crepitations
- Prepare Adrenaline – both infusion and
  1:100,000 solution for aliquot doses

First 60 minutes
Inotropes & further considerations
- Seek Paediatric Critical Care input as per Box D
- Adrenaline infusion:
  1 mL:1,000 with 49 mL Glucose 5%,
  commence 0.05-0.5 microgram/kg/min
  (can be initially low dose via peripheral IV)
- If delay in infusion: Adrenaline bolus
  0.1 mL/kg of 1:100,000 (1 microgram/kg)
  Consider further IV fluid boluses
- Consider early intubation (Box E)
- Correct hypoglycaemia (2 mL/kg Glucose 10%)/hypocalcaemia
- Consider Hydrocortisone IV 1 mg/kg (max 50 mg)

Discuss ECMO in refractory shock with PICU

Box A. Toxic features
- Altered mental state
- Tachypnoea, increased WOB, grunt, weak cry
- Marked/persistent tachycardia
- Moderate to severe dehydration
- Seizures

Box B. Risk factors for sepsis
- Age less than 3 months
- Indwelling medical device
- Aboriginal/Torres Strait Islander/Pacific Islander/Maori
- Immuno compromised/asplenia/neutropaenia/incomplete immunisation
- Recent trauma or surgery/invasive procedure/wound within 6 weeks
- Chronic disease or congenital disorder

Box C. Initial antibiotic doses
Age less than 2 months
Sepsis where meningitis possible or bacterial meningitis:
- Ampicillin/Amoxicillin IV 50 mg/kg
PLUS Cefotaxime IV 50 mg/kg
Sepsis (source unknown but bacterial meningitis excluded):
- Ampicillin/Amoxicillin IV 50 mg/kg
PLUS Gentamicin IV:
  - Birth to 1 month: 5 mg/kg
  - 1 to 2 months: 7.5 mg/kg

Age greater than 2 months
Sepsis with or without bacterial meningitis:
- Cefotaxime IV 50 mg/kg (maximum 2 g)
OR Ceftriaxone IV 100 mg/kg (maximum 4 g)
If documented cephalosporin anaphylaxis:
- Ciprofloxacin IV 10 mg/kg (maximum 400 mg)
PLUS Vancomycin IV 15 mg/kg (maximum 750 mg)
If septic shock requiring inotropes:
- Cefotaxime IV 50 mg/kg (max 2 g) (OR Ceftriaxone IV 100 mg/kg (max 4 g))
PLUS Vancomycin IV 15 mg/kg (maximum 750 mg)
PLUS Gentamicin IV
  - 1 month to 10 years of age: 7.5 mg/kg (maximum 560 mg)
  - More than 10 years of age: 7 mg/kg (maximum 640 mg)
If risk factors for nmMRSA:
ADD Lincomycin IV 15 mg/kg (maximum 1.2 g)
If risk factors for multi-resistant MRSA:
ADD Vancomycin IV 15 mg/kg (maximum 750 mg)
Consult CHQ Antibiocard for ongoing doses. Review and rationalise antimicrobial therapy based on clinical condition and microbiology results.

Box D. Triggers for escalation to Paediatric Critical Care
- No improvement after 40 mL/kg fluid administration
- Inotropes
- Reduced level of consciousness
- Hypotension
- Lactate > 4 mmol/L

Box E. Intubation/RSI
- Potential for deterioration/cardiac arrest
- Prepare Adrenaline bolus dose
  1 mL of 1:10,000 made up to 10 mL with
  Sodium Chloride 0.9% at dose 0.1 mL/kg
- Use RSI drugs to optimise physiology
- Ketamine IV 0.5 – 1 mg/kg
- +/- Fentanyl IV 1 – 2 microgram/kg
- Rocuronium IV 1.2 mg/kg

Abbreviations
- IO = Intra Osseous
- UVC = Umbilical Venous Catheter
- BC = Blood Culture
- VBG = Venous Blood Gas
- FBC = Full Blood Count
- CRP = C Reactive Protein
- UEC = Urea, Electrolytes & Creatinine
- LFT = Liver Function Tests
- IV = Intravenous
- HR = Heart Rate
- WOB = Work of Breathing
- RSI = Rapid Sequence Induction

For more information refer to CHQ-GDL-60010 - Sepsis – Emergency management in children


Seek urgent senior emergency/paediatric advice as per local practice

Contact Retrieval Services Queensland (RSQ) on 1300 799 127 if no Paediatric Critical Care facility onsite

Queensland Government