Sepsis: PICU

Associated Power Plan: PICU Sepsis

Children's Mercy KANSAS CITY | Evidence Based Practice

Inclusion Criteria:
Infant or child with severe sepsis or septic shock

- Antibiotics
- Laboratory Studies
- Fluid Choice and Blood Products
- Family Education

Infant or child with severe sepsis/septic shock

IVF Resuscitation and Antibiotics
- LR and ceftriaxone are incompatible
- If administered together, there is risk of precipitation in the tubing
- If only one IV, contact the provider to discuss prioritization

10 min

20 min

45-60 min

1-6 hours

PICU Discharge

Physician/APRN/RN Rapid Assessment
- Begin Supplement O2 regardless of SpO_2
- Immediate IV Access & LR or NS 20 mL/kg boluses
- Order antibiotics and labs, obtain cultures (*obtain blood cultures prior to antibiotics, if access not limited*)
- Administer 1st antibiotic within **first 60 minutes**
- Correct hypoglycemia, hypocalcemia
- Use PICU Sepsis Power Plan

Monitor Response:
- Vital sign targets
- Clinical goals
- Frequency of assessments

Repeat 10-20 mL/kg boluses

Source Control

Consider the following interventions for infection source control:
- CT/US imaging of the abdomen
- CT of head, sinus
- CT of the chest, pleural US, chest x-ray
- Echocardiogram, vascular US
- US/MRI to evaluate for septic hip; osteomyelitis
- Pelvic exam
- Lumbar puncture
- Infectious Diseases consult
- Surgical consult
- ENT consult

If pt is experiencing Fluid Refractory Shock (*shock persists despite 40-60 mL/kg fluid resuscitation*), consider central venous catheter, arterial line, and foley

	Warm Shock	Cold Shock
Physiology	• Vasodilation, low systemic vascular resistance, high cardiac output	• High systemic vascular resistance, low cardiac output
Physical Exam & Vitals	• Warm extremities, flash capillary refill < 1 second, "bounding" pulses • Decreased diastolic blood pressure, wide pulse pressure (> 40 mmHg)	• Cold extremities, prolonged capillary refill (> 2 seconds), faint pulses • Normal or increased diastolic blood pressure, narrow pulse pressure (< 30 mmHg)
Treatment	• Start norepinephrine (0.05 mcg/kg/min) and titrate as needed • Consider epinephrine, vasopressin • PRBC if Hgb < 7 g/dL	• Start epinephrine (0.05 mcg/kg/min) and titrate as needed • Consider norepinephrine • PRBC if Hgb < 7 g/dL • Consider BNP, echocardiogram

Catecholamine Resistant Shock
- Shock persists despite direct-acting catecholamines (*epinephrine, norephinephrine*)
- Give stress dose hydrocortisone and consider the need for adjuvant therapies
- Evaluate for:
  - Pericardial effusion
  - Pneumothorax
  - Intra-abdominal hypertension
  - Primary cardiac dysfunction

Adjuvant Therapies
- Extracorporeal membrane oxygenation (ECMO)
- Intravenous immunoglobulin (IVIG)
- Plasma exchange
- Continuous renal replacement therapy (CRRT)

Following resolution of warm shock, cold shock, or catecholamine resistant shock, continue to monitor clinical goals :
- Wean FiO_2 to keep SpO_2 92-97%
- Continue lung protective strategies
- Consider diuretics or dialysis if fluid overload > 10-15%
- Consider PRBCs if Hgb < 7 g/dL
- Wean hydrocortisone when vasoactive infusions no longer required
- Monitor culture results and reassess antibiotic coverage
- Consult Infectious Disease if culture negative sepsis to determine antibiotic duration
- PT/OT consult, consider Rehab Service consult

QR code for mobile view

Contact: EvidenceBasedPractice @cmh.edu

Link to synopsis and references

Last Updated: 2.7.2024