Clinical Description
Care of the hospitalized child experiencing life-threatening organ dysfunction caused by a dysregulated response to infection.

Key Information

- Outcomes are improved by early identification of sepsis and the immediate initiation of evidence-based therapy following sepsis recognition, including aggressive fluid resuscitation and antimicrobial therapy.
- Blood pressure alone is not a good indicator for assessing fluid resuscitation success in infants and children.
- In the presence of fluid-refractory shock, invasive monitoring may be necessary to determine if it is cold shock (pulse weak, mottled skin, capillary refill delay) versus warm shock (bounding pulse, flushed skin, flash capillary refill), because physical signs are not reliable.
- Positive pressure ventilation and sedation may lead to profound hemodynamic instability prior to adequate fluid resuscitation.
- Signs, such as hepatomegaly, rales or a cardiac gallop, may indicate signs of fluid overload in infants and children.
- Avoid medications, such as aspirin and nonsteroidal anti-inflammatory agents, that interfere with platelet function for patients who are at risk for developing DIC (disseminated intravascular coagulation).

Clinical Goals
By transition of care

A. The patient will demonstrate achievement of the following goals:
   - Optimal Coping
   - Absence of Bleeding

B. Patient, family or significant other will teach back or demonstrate education topics and points:
   - Education: Overview
   - Education: Self Management
• Blood Glucose Level Within Desired Range
• Absence of Infection Signs and Symptoms
• Optimal Nutrition Intake

• Education: When to Seek Medical Attention

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**Correlate Health Status**

Correlate health status to:

• history, comorbidity, congenital anomaly
• age, developmental level
• sex, gender identity
• baseline assessment data
• physiologic status
• response to medication and interventions
• psychosocial status, social determinants of health
• barriers to accessing care and services
• child and family/caregiver:
  • health literacy
  • cultural and spiritual preferences
• safety risks
• family interaction
• plan for transition of care

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**Adjustment to Illness (Sepsis/Septic Shock)**

**Signs/Symptoms/Presentation: Patient or Parent/Caregiver**

• anger
• anxiety
• apprehension
• blame
• defiance
• denial
• fear
• grief
• guilt
• hopelessness
• insecurity
• loss of control
• powerlessness
• regressive behavior
• resentment
• sadness
• shock
• sleep disturbance
• social withdrawal
• worry

Problem Intervention(s)

Optimize Psychosocial Adjustment to Illness

• Acknowledge, normalize, validate intensity and complexity of patient and support system response to situation.
• Provide opportunity for expression of thoughts, feelings and concerns; respond with compassion and reassurance.
• Decrease stress and anxiety by providing information about patient’s status and treatment.
• Facilitate support system presence and participation in care; consider providing a diary in intensive care situation.
• Support coping by recognizing current coping strategies; provide aid in developing new strategies.
• Acknowledge and normalize concerns about potential lifestyle changes and expectations.
• Assess and monitor for signs and symptoms of psychologic distress, anxiety and depression.
• Consider palliative care consult for goals of care conversation, if the condition is worsening despite treatment.

Associated Documentation

• Supportive Measures
Bleeding (Sepsis/Septic Shock)

Signs/Symptoms/Presentation

- bleeding noted from intravenous sites, gums, wound
- bruising (ecchymosis)
- capillary refill delayed
- hematuria
- mental status change
- pallor
- petechiae
- purpuric rash
- skin mottled

Vital Signs

- heart rate increased or decreased
- respiratory rate increased
- blood pressure increased or decreased

Laboratory Values

- coagulation studies abnormal
- FDP (fibrin degradation products) increased
- fibrinogen decreased
- Hct (Hematocrit) decreased
- Hgb (Hemoglobin) decreased
- platelet count low
- positive D-dimer level
- RBC (red blood cell) count decreased
Hemodynamic Values

- cardiac index decreased
- cardiac output decreased
- CVP (central venous pressure) decreased
- MAP (mean arterial pressure) decreased

Problem Intervention(s)

Monitor and Manage Bleeding

- Maintain bleeding precautions; provide safe environment and gentle care activities, such as positioning, oral and skin care.
- Avoid invasive procedures and medication that increase the risk of bleeding; monitor for signs of bleeding frequently.
- Anticipate need for fluid volume replacement (e.g., intravenous fluid, blood products); use weight-based calculations.
- Consider adjunctive supportive therapy, such as platelet infusion or heparin.
- Provide protective hemostasis by applying direct pressure to a visible bleeding site.

Associated Documentation

- Bleeding Precautions
- Bleeding Management

Glycemic Control Impaired (Sepsis/Septic Shock)

Laboratory Values

- blood glucose level outside desired range
**Optimize Glycemic Control**

- Establish target blood glucose levels based on patient-specific factors, such as illness severity and comorbidity.
- Document blood glucose levels and monitor trend.
- If elevated blood glucose level is not within desired range, initiate insulin therapy to optimize glycemic control using an insulin management protocol.
- Avoid hypoglycemic episodes by proactively adjusting insulin therapy if there is a change in condition, treatment, illness severity, medication or nutrition support therapy.

**Associated Documentation**

- Glycemic Management

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**Infection Progression (Sepsis)**

**Signs/Symptoms/Presentation**

- breath sounds abnormal
- breathing pattern abnormal
- capillary refill delayed or flash
- crying inappropriately
- heart sounds abnormal
- irritability
- lethargy
- level of consciousness decreased
- mental status change
- perfusion altered
- peripheral pulse strength decreased, weak or bounding
- skin mottled
- skin temperature change
- sputum characteristic change
- stool characteristic change
- urine characteristic change
• urine output decreased
• work of breathing increased

Vital Signs

• heart rate increased
• respiratory rate increased
• blood pressure increased or decreased
• SpO2 (peripheral oxygen saturation) decreased
• EtCO2 (end-tidal carbon dioxide) increased
• temperature increased or decreased

Laboratory Values

• ABG (arterial blood gas) abnormal
• blood glucose level increased
• CBC (complete blood count) with differential abnormal
• coagulation studies abnormal
• CRP (C-reactive protein) increased
• CSF (cerebrospinal fluid) evaluation abnormal
• culture positive (urine, wound, blood)
• Hct (hematocrit) decreased
• Hgb (hemoglobin) decreased
• ionized calcium level abnormal
• procalcitonin level increased
• serum bilirubin increased
• serum creatinine increased
• serum electrolytes abnormal
• serum lactate increased
• ScvO2 (central venous oxygen saturation) decreased
• SvO2 (venous oxygen saturation) decreased
• WBC (white blood cell) count change
Diagnostic Results

- aortic ultrasound abnormal
- chest radiograph abnormal
- ECHO (echocardiography) abnormal

Hemodynamic Values

- MAP (mean arterial pressure) decreased
- cardiac index decreased
- cardiac output decreased
- CVP (central venous pressure) increased or decreased
- PI (perfusion index) decreased
- SV (stroke volume) decreased
- SVR (systemic vascular resistance) increased or decreased

Problem Intervention(s)

**Initiate Sepsis Management**

- Provide fluid therapy, such as crystalloid or albumin, to increase intravascular volume, organ perfusion and oxygen delivery.
- Provide respiratory support, such as oxygen therapy, noninvasive or invasive positive pressure ventilation, to achieve oxygenation and ventilation goal; avoid hyperoxemia.
- Obtain cultures prior to initiating antimicrobial therapy when possible. Do not delay treatment for laboratory results in the presence of high suspicion or clinical indicators.
- Administer intravenous broad-spectrum antimicrobial therapy promptly.
- Implement hemodynamic monitoring to guide intravascular support based on individual targeted parameters.
- Determine and address underlying source of infection aggressively; implement transmission-based precautions and isolation, as indicated.

**Promote Stabilization**

- Monitor for signs of fluid responsiveness and overload; consider fluid adjustment and diuretic therapy.
• Anticipate use of vasoactive agent to support microperfusion and oxygen delivery; titrate to response.
• Monitor laboratory value, diagnostic test and clinical status trends for signs of infection progression and multiple organ failure.
• Assess effectiveness of and potential for de-escalation of the antimicrobial regimen daily.
• Provide fever-reduction and comfort measures.
• Monitor and manage electrolyte imbalance, such as hypocalcemia.
• Use lung protective ventilation measures, such as low volume, inspiratory pressure, optimal positive end-expiratory pressure, to minimize the risk of ventilator-induced lung injury; ensure minute volume demands.
• Prepare for supportive therapy, such as corticosteroid therapy, coagulopathy management, CRRT (continuous renal replacement therapy), hemofiltration and cardiac-assist device.

**Promote Recovery**

• Encourage pulmonary hygiene, such as cough-enhancement and airway-clearance techniques, that may include use of incentive spirometry, deep breathing and cough.
• Encourage early rehabilitation and physical activity to optimize functional ability and activity tolerance, as well as minimize delirium.
• Promote energy conservation; minimize oxygen demand and consumption by adjusting environment, decreasing stimulation, maintaining normothermia and treating pain.
• Optimize fluid balance, nutrition intake, sleep and glycemic control to maintain tissue perfusion and enhance immune response.

**Associated Documentation**

• Infection Management
• Infection Prevention
• Isolation Precautions
• Stabilization Measures

**Associated Documentation**

• Fever Reduction/Comfort Measures
• Fluid/Electrolyte Management
• Lung Protection Measures
Associated Documentation

- Activity Management
- Airway/Ventilation Support
- Sleep/Rest Enhancement
- Sleep/Rest Enhancement (Infant)

Nutrition Impaired (Sepsis/Septic Shock)

Signs/Symptoms/Presentation

- inability to intake nutrition via oral route

Problem Intervention(s)

**Promote and Optimize Nutrition Delivery**

- Perform a nutritional assessment; include a nutrition-focused physical exam.
- Determine calorie, protein, vitamin, mineral and fluid requirements; use indirect calorimetry if nutrition support is required.
- Initiate early enteral nutrition support. Note: Enteral is preferred over parenteral due to physiologic benefits, such as maintenance of gut integrity and function, reduction of infection risk and provision of stress ulcer prophylaxis.
- Optimize protein intake, unless contraindicated.
- Consider postpyloric versus gastric tube feeding for patient at increased risk of aspiration.
- Advocate for, and adjust, infusion rate, formulation or volume based on feeding tolerance and clinical status (e.g., hemodynamic stability); minimize unnecessary interruptions.
- Anticipate the need for a promotility agent if reduced gastric emptying or delayed bowel motility is suspected.
- Monitor nutrition delivery to ensure safe practices (e.g., confirmation of tube placement, tube patency, medication delivery, head of bed elevation, oral care).
General Education

- admission, transition of care
- orientation to care setting, routine
- advance care planning
- diagnostic tests/procedures
- opioid medication management
- oral health
- medication management
- pain assessment process
- safe medication disposal
- tobacco use, smoke exposure
- treatment plan

Safety Education

- call light use
- equipment/home supplies
- fall prevention
- harm prevention
- infection prevention
- MDRO (multidrug-resistant organism) care
- personal health information
- resources for support

Education: Overview

- description
- signs/symptoms
Education: Self Management

- activity
- fluid/food intake
- immunizations
- infection prevention
- postsepsis syndrome
- provider follow-up
- VTE prevention

Education: When to Seek Medical Attention

- unresolved/worsening symptoms
- VTE symptoms

References


CARE PLANNING  CPG IP Sepsis Peds  Setting: Inpatient  Population: Pediatric


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