Febrile Neutropenia

Disclaimer: This clinical pathway is provided as a general guideline for use by Licensed Independent Provider’s (LIP) in planning care and treatment of patients. It is not intended to be and does not establish a standard of care. Each patient’s care is individualized according to specific needs.

Inclusion Criteria
- Temperature ≥ 38.3 (at presentation or per history)
- Suspected or known neutropenia (ANC < 500 or on chemotherapy)

Activate Febrile Neutropenia Pathway (broadcast if not recognized in triage)
- Vital signs Q20 minutes for stable patients; Q5 minutes for unstable patients
- Cardiac monitoring and pulse oximetry
- Access port/CVL immediately
  If Lidocaine/Prilocaine Cream was not applied prior to arrival do not delay, use Pain Ease Spray
  All points of central venous access should be cultured (each line/each lumen).
- If Port/CVL not able to be accessed or patient is unstable, initiate large bore PIV
- Full physical exam to identify possible sources of infection

20 ml/kg Sodium Chloride 0.9% bolus
Maximum 1L over 30 minutes
- Consider 10 ml/kg if concern or cardiac or renal dysfunction
- Admit to PICU if patient requires > 3 Sodium Chloride 0.9% boluses or vasoactive agents
  Consider Dextrose 5% + NaCl 0.9% maintenance fluids

Empiric Antibiotics
Must be administered in the first hour of presentation
- Cefepime IV 50 mg/kg X 1 – maximum 2 g/dose
  • Alternate for Cefepime allergy OR history of resistant infection: Meropenem 40 mg/kg IV (ID approval)
  • Add Vancomycin 15 mg/kg X1 (maximum 2 g/dose) if concerns of Mucositis or AML (What dose has patient been on that gave therapeutic levels?)

Labs
To be obtained as soon as possible, do not delay bolus or antibiotic administration for labs
- Blood and urine culture**
- POC glucose
- VBG
- CBC with differential
- CMP
- Type and Screen
- Magnesium
- Phosphorous
- Retic count
- Procalcitonin
- CRP
- Respiratory Pathogen Panel
- If AMS, obtain ammonia
- LP if indicated/concern

Imaging
- Chest X-ray if concern for pneumonia

Consult Hematology/Oncology if patient is stable for floor admission
Consider hydrocortisone (2 mg/kg X1) if patient is unstable or had a recent steroid treatment

*If patient has RLQ abdominal pain consider Typhlitis and add Metronidazole 10 mg/kg (maximum 500 mg/dose)
** No catheter urine cultures
Admit to PICU if patient requires > 3 Sodium Chloride 0.9% boluses or vasoactive agents

<table>
<thead>
<tr>
<th>Vasoactive Dosing</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Epinephrine Drip</strong></td>
<td><strong>Epinephrine in D5</strong></td>
</tr>
<tr>
<td>• Drug of choice for inotropy in pediatric shock</td>
<td>0.05 mcg/kg/min IV Continuous</td>
</tr>
<tr>
<td>• Recommended to start @ 0.05 - 0.2 mcg/kg/min</td>
<td></td>
</tr>
<tr>
<td>• Titrate in small increments based on perfusion</td>
<td></td>
</tr>
<tr>
<td><strong>Norepinephrine Drip</strong></td>
<td><strong>Norepinephrine in D5</strong></td>
</tr>
<tr>
<td>• For warm shock</td>
<td>0.05 mcg/kg/min IV Continuous</td>
</tr>
<tr>
<td>• Recommended to start @ 0.05 - 0.2 mcg/kg/min</td>
<td></td>
</tr>
<tr>
<td>• Titrate in small increments to achieve normal MAP (per formula)</td>
<td></td>
</tr>
<tr>
<td><strong>Milrinone</strong></td>
<td><strong>Milrinone in D5</strong></td>
</tr>
<tr>
<td>• No bolus dose; no titration</td>
<td>0.3 mcg/kg/min IV Continuous</td>
</tr>
<tr>
<td>• Recommended to start @ 0.3 - 0.5 mcg/kg/min</td>
<td></td>
</tr>
</tbody>
</table>
Metrics

1. Time to first antibiotic
2. Time to first bolus
3. Order set utilization

CE&O Tracking Metrics
Contributing Members

Krystle McCarson, MD – Emergency Medicine
Tonya Thompson, MD – Emergency Medicine
Melissa Magill, MD – Emergency Medicine
Robert Saylors, MD – Hematology/Oncology
David Becton, MD – Hematology/Oncology
Arunkumar Modi, MD – Hematology/Oncology
Kevin Patton, PharmD – Pharmacy
Holly Maples, PharmD – Antimicrobial Stewardship Director
Emily Radar, RN, MSN - Clinical Effectiveness & Outcomes Manager
Sophia Blythe, MHA - Clinical Effectiveness & Outcomes Project Coordinator