Febrile Neutropenia for Bone Marrow Transplant Patients (BMT)

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.

**Do NOT** give steroids or cytotoxic drugs

**Inclusion Criteria:**
- Temperature ≥ 38 °C (at presentation or per history)
- Known BMT Cellular Therapy ***

If non-BMT patient with febrile neutropenia, see separate pathway.

Activate BMT 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, initiate large bore PIV
- Full physical exam to identify possible sources of infection*

10 ml/kg Sodium Chloride 0.9% bolus
**Maximum 500 mL over 30 minutes**
Avoid bolus if concern or cardiac or renal dysfunction
- If patient is unstable after 2 boluses, start vasoactive agents
- Consult BMT on-call to discuss disposition
- Admit to PICU, if unstable, requiring > 2 Sodium Chloride 0.9% boluses, or vasoactive agents

Empiric Antibiotics*
**Must be administered in the first hour of presentation**
- Cefepime IV 50 mg/kg X1 (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 hemodynamically unstable or active mucositis (What dose has patient been on that gave therapeutic levels?)

Consider hydrocortisone (2 mg/kg X1) if patient is unstable or had a recent steroid treatment

Labs
**To be obtained as soon as possible, do not delay bolus or antibiotic administration for labs**
- Blood and urine culture**
- POC glucose
- CBC
- CMP, Mg++, Phos
- Procalcitonin
- VBG
- Respiratory Viral Panel
- If AMS, obtain ammonia
- LP if indicated/concern
- GI Pathogen panel and C. diff PCR (if diarrhea)

Imaging
- Chest X-ray if concern for pneumonia

* If patient has RLQ abdominal pain consider Typhlitis and add Metronidazole 10 mg/kg (maximum 500 mg/dose)
** No catheter urine cultures
*** Chimeric Antigen Receptor CAR T-cell therapy patients will have a wallet card with instructions about ED management of Cytokine Release Syndrome.
Vasoactive Dosing

<table>
<thead>
<tr>
<th>Admit to PICU if patient requires &gt; 2 Sodium Chloride 0.9% boluses or vasoactive agents</th>
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</thead>
<tbody>
<tr>
<td><strong>Epinephrine Drip</strong></td>
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<tr>
<td>• Drug of choice for inotropy in pediatric shock</td>
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<tr>
<td>• Recommended to start @ 0.05 - 0.2 mcg/kg/min</td>
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<tr>
<td>• Titrate in small increments based on perfusion</td>
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<tr>
<td><strong>Norepinephrine Drip</strong></td>
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<td>• For warm shock</td>
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<tr>
<td>• Recommended to start @ 0.05 - 0.2 mcg/kg/min</td>
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<tr>
<td>• Titrate in small increments to achieve normal MAP (per formula)</td>
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<tr>
<td><strong>Milrinone</strong></td>
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<tr>
<td>• No bolus dose; no titration</td>
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<tr>
<td>• Recommended to start @ 0.3 - 0.5 mcg/kg/min</td>
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</tbody>
</table>
Metrics

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

CE&O Tracking Metrics
Contributing Members

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