Neonatal Necrotizing Enterocolitis (NEC) Care Guideline

**Inclusion Criteria:**
- Abdominal distension, bloody stool or significant feeding intolerance

**Exclusion Criteria:**
- Congenital GI anomalies
- Spontaneous Intestinal Perforation (SIP) – (see SIP guideline)

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**Assessment**
- Vital signs
- Physical exam – especially abdominal exam and hemodynamic perfusion/status
- Feeding history

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**Interventions**
- Hold enteral feedings
- OG or NG Tube for decompression – low intermittent suction. If patient has G/Jtube – gravity to drain
- Intravenous hydration
- Analgesia – (fentanyl or morphine) as needed.
- Labs: CBC, CRP, blood culture. Consider BMP, PT/fibrinogen, blood gas
- Radiological evaluation: complete abdominal series or KUB +/- decubitus or cross-table lateral views.
- Ultrasound

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**Antibiotics/Antifungals (refer to order sets for dosing)**
- Piperacillin/Tazobactam
- If perforation suspected, add fluconazole
- Consider meropenem if positive blood culture & unable to perform lumbar puncture, or highly suspect meningitis.
- Consider Vancomycin for one dose or for 24 hours while waiting culture results in patients with indwelling lines or MRSA only.
- Consult ID if meropenem is used or patient has history of ESBL

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**Further Recommendations**
- Monitor fluid and electrolyte status for possible third-spacing
- Discontinue vancomycin if no positive blood culture
- Repeat radiographic studies and lab tests as needed
- Surgical consult for all cases of NEC – Stages 1-3
- Consult ID if history of prolonged antibiotic exposure or abscess is present
- Prior to stopping antibiotics – Obtain CBC, CRP and Xray
- Prior to starting feedings – Consider contrast study in complex or severe cases or a second course of NEC in same patient

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**Considerations**
- Risk factors for NEC include prematurity, <1500 grams birth weight, receiving enteral feedings, ischemia related conditions
- Initiate TPN if plan for ongoing enteral feed restriction.
- Consider empiric antifungal therapy for worsening clinical status (refer to Neonatal Fungal Sepsis Guideline)
- Duration of antibiotics should be 7-14 days based on clinical status
## Modified Bell’s Staging Criteria for Necrotizing Enterococcus (NEC)

<table>
<thead>
<tr>
<th>Stage</th>
<th>Systemic signs</th>
<th>Abdominal signs</th>
<th>Radiographic signs</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>IA Suspected</td>
<td>Temperature instability, apnea, bradycardia, lethargy</td>
<td>Gastric retention, abdominal distention, emesis, heme-positive stool</td>
<td>Normal or intestinal dilation, mild ileus</td>
<td>NPO, antibiotics x 3 days</td>
</tr>
<tr>
<td>IB Suspected</td>
<td>Same as above</td>
<td>Grossly bloody stool</td>
<td>Same as above</td>
<td>Same as IA</td>
</tr>
<tr>
<td>IIA Definite, mildly ill</td>
<td>Same as above</td>
<td>Same as above, plus absent bowel sounds with or without abdominal tenderness</td>
<td>Intestinal dilation, ileus, pneumatosis intestinalis</td>
<td>NPO, antibiotics x 7 to 10 days</td>
</tr>
<tr>
<td>IIB Definite, moderately ill</td>
<td>Same as above, plus mild metabolic acidosis and thrombocytopenia</td>
<td>Same as above, plus absent bowel sounds, definite tenderness, with or without abdominal cellulitis or right lower quadrant mass</td>
<td>Same as IIA, plus ascites</td>
<td>NPO, antibiotics x 14 days</td>
</tr>
<tr>
<td>IIA Advanced, severely ill, intact bowel</td>
<td>Same as IIB, plus hypotension, bradycardia, severe apnea, combined respiratory and metabolic acidosis, DIC, and neutropenia</td>
<td>Same as above, plus signs of peritonitis, marked tenderness, and abdominal distention</td>
<td>Same as IIA, plus ascites</td>
<td>NPO, antibiotics x 14 days, fluid resuscitation, inotropic support, ventilator therapy, paracentesis</td>
</tr>
<tr>
<td>IIB Advanced, severely ill, perforated bowel</td>
<td>Same as IIA</td>
<td>Same as IIA, plus pneumoperitoneum</td>
<td>Same as IIA, plus surgery</td>
<td></td>
</tr>
</tbody>
</table>
References

**Neonatal Necrotizing Enterocolitis**


