ANMC Newborn/NICU Necrotizing Enterocolitis (NEC) Guideline

Epidemiology

Most NEC occurs in preterm infants, incidence increases with decreasing birth weight and gestational age.
In term and late preterm infants, NEC usually occurs in the first week after birth. It is more often associated with other issues (ex. birthing parent illicit drug use, intestinal anomalies, congenital heart disease, perinatal stress that may affect mesenteric blood flow.)

Signs and Symptoms

Sudden change in feeding tolerance, abdominal distention, bloody stools without evidence of rectal fissure

Initial Evaluation

Lab Assessment

Repeat every 12-24 hours depending on severity of presentation

- Blood culture
- CBC + diff (neutropenia and thrombocytopenia associated with NEC) + Coag profile if thrombocytopenia or clinical bleeding
- BMP (Persistent hyponatremia, increasing glucose, metabolic acidosis associated with NEC)
- ePOC blood gas and lactate

Radiology

- Abdominal x-rays (AP and left lateral decubitus) – *repeat every 6-12 hours, more frequently if exam changes, during initial evaluation*

Classification

Modified Bell Staging

Stage	Classification	Systemic Signs	Abdominal Signs	Radiographic Signs
IA	Suspected	Temperature instability, apnea, bradycardia, lethargy	Gastric retention, abdominal distention, emesis, heme-positive stool	Normal or intestinal dilation, mild ileus
IB	Suspected	Same as above	Grossly bloody stool	Same as above
IIA	Definite, Mildly Ill	Same as above	Same as above + absent bowel sounds, +/- abdominal tenderness	Intestinal dilation, ileus, pneumatosis intestinalis
IIB	Definite, Moderately Ill	Above + mild metabolic acidosis and thrombocytopenia	Same as above + absent bowel tones, definite tenderness +/- abdominal cellulitis or RLQ mass	Same as IIA, + ascites
IIIA	Advanced, Severely Ill, Intact Bowel	Same as IIB + hypotension, bradycardia, severe apnea, combined respiratory and metabolic acidosis, DIC, neutropenia	Same as above + signs of peritonitis, marked tenderness, and abdominal distention	Same as IIA, + ascites
IIIB	Advanced, Severely Ill, Perforated Bowel	Same as IIIA	Same as IIIA	Same as above + pneumoperitoneum

Treatment Strategy

Suspected NEC

Abdominal Distention Alone

- Close clinical observation
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Unexpected onset feeding intolerance

- NPO and bowel decompression with serial exams, labs, and x-rays (over 24-48h)
- Empiric antibiotics for minimum 36 hour rule out: **Ampicillin + Gentamicin**
- *Discuss with PAMC Neonatologist early in course to review plan*
- Transfer to PAMC NICU with any lab/radiology abnormality or if feeding intolerance does not promptly resolve

Definitive and Advanced NEC

- NPO on IV fluids
- Bowel decompression
- Start empiric antibiotics: **Ampicillin + Gentamicin + Metronidazole**
- Transfer to PAMC NICU

Antibiotics

Initial Dosing (Determined by Weight, Gestational Age [GA], Postnatal Age [PNA])

Ampicillin			Gentamicin			Metronidazole
Weight	PNA	Dose	GA	PNA	Dose	15mg/kg loading dose
≤2kg	≤7days	50mg/kg/dose Q12 hours	30-34 weeks	≤10 days	5mg/kg/dose Q36 hours	*If transport is delayed, pharmacy to dose subsequent doses based on Lexicomp formulary (earliest Q6h)*
	8-28 days	75mg/kg/dose Q12 hours		11-60 days	5mg/kg/dose Q24 hours	
	29-60 days	50mg/kg/dose Q6 hours	≥35 weeks	≤7 days	4mg/kg/dose Q24 hours	
>2kg	≤28days	50mg/kg/dose Q8 hours		8-60 days	5mg/kg/dose Q24 hours	
	29-60	50mg/kg/dose Q6 hours				

Considerations

Antibiotics aligned with PAMC Level III NICU

ANMC Associated Powerplan: NICU NEC Evaluation and Treatment

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