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An Evidence-Based Review Of Neonatal Emergencies

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The ill neonate is a frightening entity for most emergency clinicians. Neonates are a rare entity at many nonpediatric emergency departments (EDs), and when they are brought in, it is frequently for minor complaints. When critically ill infants do present, appropriate newborn resuscitation equipment and consultations are often unavailable. Even when a general pediatric consultation is readily available, the experience with ill children may be limited. It is easy to understand why the resuscitation of a neonate can be an intimidating and lonely experience for an emergency clinician. This issue of Pediatric Emergency Medicine Practice will discuss recognition of the causes as well as general and disease-specific means of stabilizing the critically ill neonatal patient. For a more detailed and systematic look at the critically ill neonate, see the full text article at www.ebmedicine.net.

Key Points	Comments
Neonatal emergencies are rare. The most common include: serious bacterial infections, congenital cardiac disease, GI emergencies (including malrotation with midgut volvulus and necrotizing enterocolitis), metabolic disorders, and child abuse.	Very different types of illnesses can culminate in the neonate as oral intolerance, vomiting, and lethargy. It is the responsibility of the emergency clinician to treat the unstable neonate, narrow the differential to the most likely diagnoses, begin life-sustaining treatment, and ensure a safe disposition. Laboratory tests and ancillary studies can be helpful, but empiric treatments such as antibiotics and PGE1 must often be started on the basis of suspicion, rather than a definitive diagnosis.
Important points to consider on history and physical include: feeding, vomiting (and whether bilious or non-bilious), fever or hypothermia, mental status (including lethargy or intractable irritability), neurologic findings (such as seizures or repetitive movements), and evidence of abuse (such as bruising or retinal hemorrhages).	Prenatal and perinatal histories may provide an answer to what is wrong with the patient. Formal structural ultrasounds may give an indication of cardiac disease, although this finding is missed in more than half of cases.[23] After the first day of life, 6 to 8 breastfeedings of approximately 15 minutes per side are normal. Bottle-fed infants require about 5 oz/kg/d, generally taken as a 2- to 3-oz feeding over 15 to 20 minutes. Infants should regain their birth weight by day 10 of life and subsequently gain 15 to 30 gm/d. The average infant produces yellow seedy stools between 3 and 6 times per day (this can vary widely) and about 8 urinations per day after the first 48 hours.[24,25] One single-center prospective study of neonates with bilious emesis found a surgical cause in 38%, including (in descending order of frequency) Hirschsprung disease, bowel atresia, malrotation, meconium ileus, meconium plug, and other inspissation.[26] Subtle changes in mental status can be difficult to determine. Healthy infants sleep a median of 16.2 hours per day.[29] Several risk factors for abuse can be assessed. Personality disorders or stressed marital situations are not uncommon among abusers.[31] Inquiries into the social support structure available to a neonate are mandatory if NAT is being considered. **Table 1** (available at www.ebmedicine.net) lists features of neonatal emergencies commonly revealed by the history and physical examination.
Important laboratory findings in all ill neonates include: rapid assessment of glucose, complete blood count, electrolytes, and directed laboratory work-up for the condition considered.	The following adjunctive tests may prove helpful in diagnosis: chest radiograph, ECG, abdominal series, upper GI, head CT, and urine toxicology.
Principles of treatment in all ill neonates include: • Rapid assessment of airway and breathing with oxygen, bag-valve-mask, or intubation if deemed necessary • Rapid assessment of rhythm and heart rate with chest compressions if pulseless or pulse < 60 beats per minute • IV fluid resuscitation with 10 mL/kg boluses of normal saline • IV glucose restoration to 50 mg/dL with 2-4 mL/kg boluses of D10 • Further treatment should be based on clinical suspicion of condition	Practice Pearls: • Sepsis can occur in conjunction with many of the other conditions discussed; don't hesitate to consider and start antibiotics. • Child abuse can present in subtle ways; don't fail to consider the diagnosis.

See reverse side for reference citations.

REFERENCES

These references are excerpted from the original manuscript. For additional references and information on this topic, see the full text article at ebmedicine.net.

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