

Nurses' Early Recognition of Neonatal Sepsis

Michele Boettiger, Lynda Tyer-Viola, and Joseph Hagan

Q19

Correspondence

Lynda Tyer-Viola, RNC,
PhD, FAAN, Texas
Children's Hospital, 6651
Main Street, Suite E,
0325.03, Houston,
TX 77030.
latyervi@texaschildrens.org

Keywords

intuition
neonatal
newborn
sepsis
surveillance

ABSTRACT

Objective: To determine nurses' perceptions of the most common physiologic and behavioral indicators of neonatal sepsis.

Design: Descriptive correlational study.

Setting: A women's and children's hospital in an academic medical center in the southwestern United States.

Participants: Nurses ($N = 181$) who cared for neonates in the mother–infant and NICU settings.

Methods: Participants completed an e-mail survey developed from the literature to ascertain their perceptions of which physiologic and behavioral indicators were most often associated with neonatal sepsis. Descriptive and inferential statistics were used to analyze the data.

Results: Participants identified six signs and symptoms as indicators most often associated with sepsis: two were physiologic and four were behavioral. Recognition of these indicators was not related to level of nursing education but was associated with working in the NICU. Seventy-three percent of participants reported that they suspected that newborns were septic before evaluation and diagnosis of septicemia.

Conclusion: Nurses can identify the physiologic and behavioral indicators related to neonatal sepsis. Early recognition, expressed as their intuitive knowing, should be considered a valuable clinical tool. Understanding that different practice settings influence identification of signs and symptoms is important. Integration of this knowledge into formal care surveillance could potentially lower the threshold for early evaluation and treatment and thereby improve outcomes.

JOGNN, ■, ■–■; 2017. <https://doi.org/10.1016/j.jogn.2017.08.007>

Accepted August 2017

Michele Boettiger, RNC-NIC, MSN, is a patient care manager in the NICU, Texas Children's Hospital, Houston, TX.

Lynda Tyer-Viola, RNC, PhD, FAAN, is Assistant Vice President of Women's Services and Director of Nursing Research, Texas Children's Hospital Pavilion for Women, and is an assistant clinical professor, Baylor College of Medicine, Houston, TX.

Joseph Hagan, ScD, MSPH, is a statistician in the Department of Neonatology, Texas Children's Hospital, Houston, TX.

The authors report no conflict of interest or relevant financial relationships.



Newborn sepsis remains one of the top 10 leading causes of death in neonates in the United States (Kochanek, Murphy, Xu, & Tejada-Vera, 2016). Seventy-five percent of all neonatal deaths worldwide occur during the first week of life, and 25% to 44% occur within the first 24 hours of life (Voller & Myers, 2016; World Health Organization, 2016). Many of these deaths are attributed to neonatal sepsis, the early and appropriate identification of which could improve outcomes and avert some neonatal deaths (World Health Organization, 2016). Although the incidence of sepsis in the United States has decreased, the consequences of morbidity and mortality are great for those who are infected. As such, caregivers are required to have a greater level of suspicion and a lower threshold to evaluate newborns and infants for sepsis (Edwards, 2016).

Diagnosis of sepsis can be difficult because there are many subtle signs and symptoms, and no consensus exists on defining clinical features

(Wynn, 2016). Neonatal sepsis is defined as a bacterial infection in the blood classified by day of life at diagnosis; early-onset sepsis (EOS) develops in the first 2 to 3 days after birth, and late-onset sepsis (LOS) occurs within 3 to 7 days or as late as 120 days after birth (Hornik et al., 2012; Wynn, 2016). To prevent harm and improve neonatal outcomes, health care providers should know which newborns and infants are at risk for sepsis and how to identify those who may be decompensating as the result of sepsis as soon as possible. The creation of a care environment in which all caregivers have the skills and opportunity to intervene early may improve neonatal outcomes.

Literature Review

Neonates of all gestational ages are vulnerable to sepsis because of the immaturity of their immune systems. When a birth is complicated by maternal comorbid disease or complications of labor or an

Table 1: Factors Related to Sepsis in the Neonate

Maternal Risk Factors for Infections	Clinical Findings	Differential Diagnosis
Group B streptococcus	Hyperthermia	Herpes simplex virus
Herpes simplex virus	Respiratory distress	Enteroviruses
Chorioamnionitis	Tachycardia	Parechovirus
Premature rupture of membranes	Lethargy	Cytomegalovirus
Prolonged rupture (>18 hours)	Poor feeding	Influenza viruses
Multiple gestation	Apnea	Respiratory syncytial virus
Gestational infections	Poor perfusion	Spirochetal infections:
	Vomiting	Syphilis
	Jaundice	Parasitic infections:
	Hepatomegaly	<ul style="list-style-type: none"> ○ Congenital malaria ○ Toxoplasmosis ○ Fungal infections

infant has innate risk factors such as prematurity, the risk for infection increases (Wynn, 2016). Because of the lack of specificity of diagnostic attributes, the differentiation of sepsis from other diagnoses can be problematic and result in a delay of care (Shah & Padbury, 2014). The maternal risk factors and clinical findings associated with several different diagnoses in neonates are depicted in Table 1. These overlapping signs and symptoms make the early recognition of sepsis difficult. The overall incidence of EOS and LOS is estimated to be 1 to 2 per 1,000 births (Weston et al., 2011). This number is influenced by gestational age at birth and birth weight. Infections occur more often in preterm infants (4.4 to 6.3 per 1,000 births) than in term infants (.98 per 1,000 births; Bailit et al., 2010; Cohen-Wolkowicz et al., 2009; Stoll et al., 2011). Very-low-birth-weight (VLBW) infants (<1,500 g birth weight) are at increased risk for sepsis because of the immaturity of their immune systems and the interventions necessary for survival that expose them to infectious organisms (Hornik et al., 2012).

EOS, which can be rapid and fulminating in a neonate, is most often attributed to vertical transmission of contaminated amniotic fluid or bacteria in the mother's urine or genital tract during the intrapartum period (Hornik et al., 2012; Polin, 2012). The incidence of EOS from group B streptococcus (GBS) has been greatly reduced with the change in clinical practice to assess for GBS during pregnancy and provide prophylactic antibiotic treatment during labor (Verani, McGee, & Schrag, 2010). However, GBS continues to be the leading cause of neonatal sepsis regardless of intrapartum treatment and warrants increased

vigilance on the part of health care providers in their surveillance of newborns at risk. In a prospective national study of GBS infection, 81% of mothers of term infants with sepsis had negative test results for GBS cultures (Stoll et al., 2011). In half of the infants who developed EOS, their GBS-positive mothers had received intrapartum antibiotics (Stoll et al., 2011).

Newborns are also exposed to infection during labor complicated by suspected chorioamnionitis. All infants of mothers who have fever during labor are at risk for sepsis, with premature infants having increased risk. Premature infants of mothers who were treated for chorioamnionitis were at far greater risk of neonatal infection than were premature infants of mothers who were not treated (Ramsey, Lieman, Brumfield, & Carlo, 2005). The rate of prematurity in the United States decreased from 10.41% to 9.54% of live births from 2007 to 2014 (Hamilton, Martin, Osterman, Curtin, & Matthews, 2015). In 2015 there was a slight increase in preterm births, with 1 in 10 infants born prematurely (Centers for Disease Control and Prevention, 2017). Unfortunately, racial and ethnic disparities persist, and the rate of premature birth among Black women is 48% greater than the rate for all other women (March of Dimes, 2016). Exposure to infection during labor coupled with prematurity may place more infants at risk.

LOS is more often attributed to horizontal factors that occur during prolonged NICU hospitalizations (Stoll et al., 2002). VLBW newborns are more susceptible to sepsis and have a 20% sepsis-related mortality rate (Shane & Stoll,

Download English Version:

<https://daneshyari.com/en/article/8564317>

Download Persian Version:

<https://daneshyari.com/article/8564317>

[Daneshyari.com](https://daneshyari.com)