



A STUDY OF CLINICAL MANIFESTATIONS AMONG CLINICAL SEPSIS AND BLOOD CULTURE POSITIVE SEPSIS PATIENTS IN NICU:

Pediatrics

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ABSTRACT

Neonatal Sepsis is the most important cause of morbidity and Mortality in developing countries. Neonatal sepsis is diagnosed when Generalized systemic features are associated with pure growth of bacteria from one or more sites. In developing countries, neonatal mortality (death in the first 28 days of life per 1000 live births) due to all causes is about 34 per 1000 live births, most of these deaths occur in the first week of life. In developing countries sepsis is the commonest cause of mortality responsible for 30% to 50% of 5 million neonatal deaths every year. A Sincere effort has been put in this study to understand Clinical Manifestations among clinical sepsis and Blood Culture Positive Sepsis Patients in NICU

KEYWORDS

Clinical, Manifestation, Clinical, Blood, Sepsis

Introduction:

Neonates with bacterial sepsis may have either non specific signs and symptoms or focal signs of infection.

- General :
Fever, temperature instability
'Not doing well'
Poor feeding
Edema
- Gastro intestinal system :
Abdominal distension
Vomiting
Diarrhea
Hepatomegaly
- Respiratory system:
Apnea, dyspnea
Tachypnea, retractions
Flaring, grunting
Cyanosis
- Renal system:
Oliguria
- Cardiovascular system:
Pallor; mottling; cold, clammy skin
Tachycardia
Hypotension
Bradycardia
- Central nervous system:
Irritability, lethargy
Tremors, seizures
Hyporeflexia, hypotonia
Abnormal Moro reflex
Irregular respirations
Full fontanel
High – pitched cry
- Hematologic system:
Jaundice
Splenomegaly
Pallor
Petechiae, purpura
Bleeding

Initial manifestation may involve only limited symptomatology and only one system such as apnea alone or tachypnea with retractions or tachycardia or it may be an acute catastrophic manifestation with multi organ dysfunction. Infants should be reevaluated over time to determine whether symptoms have progressed from mild to severe.

RISK FACTORS:

Risk factors for EOS: Some maternal or perinatal conditions have been associated with an increase risk of EOS. Knowledge about these potential risk factors would help in early diagnosis of sepsis. Based on the studies from India, the following risk factors seem to be associated with an increased risk of EOS¹.

1. Low birth weight (<2500 grams) or prematurity
2. Febrile illness in the mother with evidence of bacterial infections with in 2 weeks prior to delivery.
3. Foul smelling and or meconium stained liquor.
4. Rupture of membranes > 24 hours
5. Single unclean or >3 sterile vaginal examination(s) during labor.
6. Prolonged labor (sum of 1st and 2nd stage of labor ≥ 24 hours)
7. Perinatal asphyxia (Apgar score < 4 at 1 minute)

Presence of foul smelling liquor or 3 of the above mentioned risk factors warrant initiation of antibiotic treatment. Infants with 2 risk factors should be investigated and treated accordingly.

Risk factors for LOS: The source of infection in LOS is either nosocomial (Hospital acquired) or community acquired and neonates usually present with septicemia, pneumonia or meningitis². Various factors that predispose to an increased risk of nosocomial sepsis include low birth weight, prematurity, admission in intensive care unit, mechanical ventilation, invasive procedures administration of parenteral fluids, and use of stock solutions.

Factors that might increase the risk of community – acquired LOS include poor hygiene, poor cord care, bottle feeding and prelacteal feeds. In contrast, breast feeding helps in prevention of infections^{3,4}.

Aims and Objectives:

To study the Clinical Manifestations among clinical sepsis and Blood Culture Positive Sepsis Patients in NICU.

Materials and Methods:

Design: It is an observational cross sectional study.

Source: Travancore Medical College, Kollam

Period of Study: April 2015 to March 2017.

INCLUSION CRITERIA:

Neonates were included when at least three of the following risk factors were present¹:

1. Febrile illness in the mother during or within two weeks of delivery (more than 38° C, oral temperature).
2. More than 3 vaginal examinations during labor.

EXCLUSION CRITERIA:

1. Neonates with lethal congenital anomalies

Results:

Table no 1: CLINICAL MANIFESTATIONS AMONG CLINICAL SEPSIS AND BLOOD CULTURE POSITIVE

Clinical feature	CLINICAL SEPSIS	BLOOD CULTURE POSITIVE SEPSIS	p-value
Respiratory distress	185(44.15%)	96(48.73%)	0.075
Lethargy	265(63.24%)	124(62.94%)	0.9
Feeding difficulties	188(44.86%)	79(40.10%)	0.06
Abdominal distension	29(6.92%)	10(5.07%)	0.16

Vomiting	61(14.55%)	20(10.15%)	0.01
Convulsions	57(13.60%)	24(12.18%)	0.42
Sclerema	50(11.93%)	29(14.72%)	0.09
Hypothermia	101(24.10%)	50(25.38%)	0.56
Hyperthermia	37(8.83%)	12(6.09%)	0.06
Bleeding manifestations	48(11.45%)	11(5.58%)	0.000
Apnea	51(12.17%)	21(10.65%)	0.37
Jaundice	108(25.77%)	48(24.36%)	0.38
Depressed neonatal reflexes	188(44.86%)	117(59.39%)	0.09
Umbilical erythema	3(0.7155%)	1(0.507%)	0.18

Lethargy, respiratory distress, feeding difficulties and depressed neonatal reflexes were observed to be common manifestations in both clinical and proven sepsis.

Vomiting and bleeding manifestations were more significantly observed in clinical sepsis than blood culture positive sepsis. (p-value 0.001, 0.000 respectively)

Other symptoms like respiratory distress, lethargy, feeding difficulties, abdominal distension, convulsions, sclerema, hypothermia, hyperthermia, apnea, jaundice, depressed neonatal reflexes were present in equal proportions in both clinical and blood culture positive sepsis.

Discussion:

CLINICAL MANIFESTATIONS:

In this study, lethargy (63.24%), respiratory distress (44.15%), feeding difficulties (44.86%) and depressed neonatal reflexes (44.86%) were observed to be common manifestations. **Shitaye D et al (2010)** observed hypothermia (84.8%), respiratory distress (72.8%), failure to feed (71.5%) and lethargy (30.1%) in their study⁵. In the study done by **Viswanathan R et al (2012)** poor feeding and lethargy had the sensitivity of more than 85%.⁶

Respiratory distress, feeding difficulties were found to be common manifestations in both term and preterm babies. Hypothermia, abdominal distension, sclerema, vomiting, lethargy, apnea, depressed neonatal reflexes were more frequently seen in preterm neonates than term. This was comparable to study done by **Mancilla Ramirez et al (1990)**.⁷

Conclusion:

Lethargy, respiratory distress and feeding difficulties were common clinical manifestations. Hypothermia, abdominal distension, vomiting, apnea, depressed neonatal reflexes were more frequently seen in preterm neonates than term.

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