

Original article:

Study of clinical profile of neonates presenting with clinical sepsis at a tertiary care center

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Abstract:

Introduction: Neonatal Septicaemia is defined as a clinical syndrome which occurs in the first 28 days of life is characterized by symptomatic systemic illness due to infectious agents.

Methodology: Primary data was collected from the case history of neonates undergoing treatment for neonatal sepsis in the NICU. Collected data was recorded systematically in a format pre decided for this purpose to cover all the necessary inputs required for the analysis of etiological factors and risk factors for development of sepsis in neonates.

Results: In our study early onset sepsis was seen in 74(41.1%) patients and late onset neonatal sepsis was seen in 106(58.9%). Thus late onset neonatal sepsis cases were more than early onset sepsis. In our study Clinical presentation includes chief complaints like Refusal to feed, Respiratory distress, fever, lethargy, jaundice, seizure, vomiting and bleeding.

Conclusion: In our study, Gram-negative organisms were the predominant organisms causing neonatal sepsis. Clinical presentation includes chief complaints like Refusal to feed, Respiratory distress, fever, lethargy, jaundice, seizure, vomiting and bleeding. Male neonates more susceptible to sepsis whether early onset or late onset.

Keywords: Neonatal Septicaemia , respiratory distress , jaundice

Introduction:

Neonatal Septicaemia is defined as a clinical syndrome which occurs in the first 28 days of life is characterized by symptomatic systemic illness due to infectious agents. ¹ Sepsis in neonates is the major direct cause of neonatal deaths constituting 30-40% of neonatal deaths in developing countries. ² In India neonatal septicaemia incidence varies from 11-24.5 per 1000 live births. ³ Neonatal sepsis continues to be a major cause of morbidity and mortality in newborns especially preterm newborns and low birth weight neonates. ^{4,5} .Neonatal infections

currently cause about 1.6 million deaths annually in developing countries.⁶ Neonatal sepsis is classified as either early or late depending on the timing of presentation. Early onset sepsis occurs within 72 hours after delivery and late onset sepsis occurs beyond 72 hours of life.⁶ The clinical relevance of this classification is that early onset neonatal sepsis often is caused by organisms acquired prior to or during delivery and late onset disease is only occasionally as a result of vertical transmission but more often is due to organisms acquired from community or nosocomial after delivery.⁶ The developing fetus is relatively protected from the microbial flora of the mother. Procedures that disturb the integrity of uterine contents such as amniocentesis, chorionic villus sampling or percutaneous umbilical blood sampling can permit the entry of skin organisms and cause amnionitis and secondary fetal infection.

Material and methods:

Study design: Cross sectional descriptive study

Place of study: Department of Paediatrics, Tertiary Health Care Government Teaching Hospital.

Duration of study: Study was conducted over a period of two years from January 2021 to December 2022. But sample was collected in the duration from January 2021 to June 2022.

Exclusion criteria

- Neonates who require resuscitation at birth.
- Neonates who had undergone any surgical operation/procedure in neonatal period.
- Neonates with major congenital anomalies.
- Neonates who died within 24 hours of hospital admission.

Primary data was collected from the case history of neonates undergoing treatment for neonatal sepsis in the NICU. Collected data was recorded systematically in a format pre decided for this purpose to cover all the necessary inputs required for the analysis of etiological factors and risk factors for development of sepsis in neonates.

In our study early onset sepsis was seen in 74(41.1%) patients and late onset neonatal sepsis was seen in 106(58.9%). Thus late onset neonatal sepsis cases were more than early onset sepsis.

Results :

Out of Total of 74 patients presented with early onset sepsis 54 patients were male and 20 patients were female. Out of total 116 who presented with late onset sepsis 62 patients were male and 44 patients were female;

Table No 1: Distribution of Cases According to Clinical Presentation

Symptoms	Frequency
Refusal to feed	142
Respiratory Distress	126
Fever	93
Lethargy	91

Jaundice	53
Seizure	47
Vomitin	27
Bleeding	19

Clinical presentation includes chief complaints like Refusal to feed, Respiratory distress, fever, lethargy, jaundice, seizure, vomiting and bleeding.

Table No 2: Distribution of Cases According to Signs

Signs	Frequency
Tachypno a	132
Shock	4
Abdominal distention	7
Grunt	25
Tachycardia	59
Sclerema	46
Edema	6

Clinical signs include tachypnea 132 cases, tachycardia 59 cases, grunt 25 cases, abdominal distention 7 cases, shock 4 cases, sclerema 46 cases and edema in 6 cases.

Table No 3: Distribution of Cases According to Maternal Risk Factors

Maternal Risk Factors	Frequency
Foul s elling liquor	16
Repeated PV examination	4
Anaemia	75
Gestational diabetes mellitus	3
Pregnancy in uced hypertension	7

Discussion:

Neonatal sepsis carries a high morbidity and mortality, more so in the developing nations. It is in fact the leading cause of neonatal mortality in these nations. Poor maternal health both pre- and post-conceptional and poor nutrition are common predisposing factors in neonatal sepsis. However it is imperative that the neonatal culture and sensitivity and susceptibility patterns should be studied and reviewed from time to time to keep abreast with the problem of emerging antibiotics resistance with the heavy use of antibiotics in the NICU.⁷

In our study Clinical presentation includes chief complaints like Refusal to feed, Respiratory distress fever, lethargy, jaundice, seizure, vomiting and bleeding. In study by Isha Deshmukh Clinical characteristics of neonates admitted in NICU were segregated depending upon the clinical features present at birth during the stipulated study period (Neonatal Hypothermia, Perinatal Asphyxia, Respiratory Distress Syndrome in newborns, Lethargy, Neonatal Seizures, Cyanosis, Oliguria, Dehydration, Sclerema, Distension of abdomen, Blood in stools, Neonatal hyperbilirubinemia⁷.

In our study, Gram-negative organisms were the predominant organisms causing neonatal sepsis. In our study, Gram-negative organisms were the predominant organisms causing neonatal sepsis. In study by C.K.Shaw it is seen the most common clinical features of sepsis overall were lethargy, poor feeding, instability and respiratory distress). Respiratory signs and symptoms were commoner in the intramural as well as the nosocomial group (90-100%), along with gastrointestinal problems like abdominal distension, feed intolerance, gastric aspirates and features of neonatal enterocolitis (NNEC) (62-75%). Diarrhea (59%) and sclerema (21%) were commoner in the outborn neonates than in the others.⁸

In our study, clinical signs include tachypnea, tachycardia, shock, abdominal distention, grunt, sclerema and edema. The common clinical features associated with definitive neonatal sepsis in this study were fever (82.4%), refusal to suck (82.4%), respiratory distress (76.5%), lethargy (70.6%), vomiting (20.6%), abdominal distension(20.6%),poor cry (17.6%), diarrhoea (17.6%), multiple pustules (8.8%), abnormal movements of hands and feet (8.8%), cold extremities(5.9%) and up rolling of eyes (5.9%). Jyotsna Mishra study it is seen that presentation of sepsis varies depending on the severity of disease process and the immune status of the baby. Refusal to feed, respiratory distress, fever, lethargy and jaundice were the major presentations in our study. Jain et al study have reported respiratory distress and lethargy as the predominant features in their study⁹.

C.K.Shaw study the most common clinical features of sepsis overall were lethargy, poor feeding, instability and respiratory distress Respiratory signs and symptoms were commoner in the intramural as well as the nosocomial group along with gastrointestinal problems like abdominal distension, feed intolerance, gastric aspirates and features of neonatal enterocolitis. Diarrhea (59%) and sclerema (21%) were more in the outborn neonates than in the others.⁸ In study by Isha Deshmukh data analysis it is seen that the primary threatening signs and symptoms of neonatal sepsis are mostly nonspecific and can easily be confused with the non-infective causes⁷.

Conclusion:

In our study, Gram-negative organisms were the predominant organisms causing neonatal sepsis. Clinical presentation includes chief complaints like Refusal to feed, Respiratory distress, fever, lethargy, jaundice,

seizure, vomiting and bleeding. Male neonates more susceptible to sepsis whether early onset or late onset.

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