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Original Article

The Clinical and Laboratory Profile of Neonatal Sepsis in Tertiary Hospital in Sylhet

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ABSTRACT

Background: *Despite significant attempts to mitigate its effects, neonatal sepsis is regarded as a major cause of morbidity and death in newborns.* ***Objective:*** *In this study our main goal is to evaluate the clinical and laboratory profile of neonatal sepsis in Bangladesh.* ***Method:*** *This cross-sectional study was carried out at tertiary medical college and hospital Sylhet, where 50 neonates suspected of having neonatal sepsis and admitted in the neonatal unit was included. Clinical sepsis was diagnosed based on presence of one or more of clinical features. Clinical features considered were fever (≥38.0°C), hypothermia (≤36.5°C), convulsions, lethargy, poor feeding, respiratory distress, vomiting, bulging fontanels, jaundice, and umbilical pus infections.* ***Results****: During the study 46% cases belong to 15-21 days and majority were female, 88%. While evaluating the hygiene status, 82% cases undergone poor hygiene status, followed by 48% had poor cord care, 78% were feed formula and 20% cases used bottle. According to birth weight, 6% cases were very low birth weight and 37% cases had low birth weight.*

Besides that, cough was shown 51.7% cases followed by cough with respiratory distress was shown in 66% cases, fever shown in 76%, decreased urine output shows in 50% cases, convulsion was shown in 20% cases, skin rash shown in 92% cases and jaundice shown in 18& cases. 60% got their antibiotic treatment for 1-5days and 58% cases stayed in hospital for 6-10 days. During treatment combine antibiotic such as Tazid, meropenem, kacin, Gentamicin etc. were introduced. After treatment 62% patients got discharged with advice (DA). ***Conclusion:*** *Skin rash and fever are typical clinical characteristics of newborn sepsis. Poor hygiene has been identified as the leading causes for newborns with*

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sepsis. Bottle feeding cases are more than formula feeding. Sepsis risks can be reduced if parents are aware of proper cleanliness and breast-feeding techniques.

Keywords: *Neonatal sepsis, poor hygiene, mode of discharge*

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INTRODUCTION

Neonatal sepsis is a common illness that occurs in neonates withinthe first28 days of age and is a major cause of morbidity and death in newborns. It is a huge global public health concern.

Neonatal sepsis is a classicalsyndromecharacterized by signs and symptoms of infection with accompanying bacteremia in the first month of life. According to the age of onset neonatal sepsis is classified as early-onset sepsis (EOS) or late-onset sepsis (LOS)[1-4].

Early-onset sepsis (EOS) occurs within the first 72 hours of life, while late-onset sepsis (LOS) occurs after 72 hours of age [5-10].

Infections are the single largest cause of death of neonates worldwide. According to World Health Organization (WHO) estimates, there are about 5 million neonatal deaths in a year [11].

It is estimated that NS is responsible for about 25% of the neonatal deaths in the world and frequently in developing countries. In Asia the neonates incidence ofNS very from 7 to 38 for each 1000 live birth [12]. According to UNICEF United Nations International Children's Emergency Fundreport, neonatal mortality rate (NMR) is 27/1000 live birth and neonatal sepsis contributes to 36% of total gap demises in Bangladesh.

According to NationalPerinatal Database (2002-03), the incidence of neonatal sepsis in India was 30 per 1000 live-births [13].

EOS is caused by transplacental or, more commonly, ascending infections from the maternal vaginal canal, whereas LOS is caused by the postnatal nosocomial or from community environment, with a peak incidence recorded between the 10th and 22nd day of life. The major causes of NM are prematurity (38%), neonatal infection (31%), and congenital malformations (16%) [14-16].

Neonatal sepsis is the single most common cause of neonatal deaths in hospital as well as community in developing country [17].

In this study our main goal is to evaluate the clinical and laboratory profile of neonatal sepsis in Bangladesh.

OBJECTIVE

General objective:

To find out the clinical and laboratory profile of neonatal sepsis in a tertiary care hospital in Sylhet.

Specific objectives:

- To find out the clinical profile of neonatal sepsis
- To find out the laboratory profile of neonatal sepsis

Methodology:

Study type: Cross sectional study.

Place and period of study:

- This study was done in a tertiary care hospital, Sylhet, for one year from January 2021 to December 2021.

Study population: 50 neonates with sepsis during the study period

Study procedure:

All neonates suspected of having neonatal sepsis are admitted in the neonatal unit were included. Clinical sepsis was diagnosed based on presence of one or more of clinical features. Clinical features considered were fever

(≥38.0°C), hypothermia (≤36.5°C), convulsions, lethargy, poor feeding, respiratory distress, vomiting, bulging fontanels, jaundice, and umbilical infections.

Fully informed and voluntary signed consents were obtained from the parents or attendants. All investigations and procedures were performed as per the standard routine practices in the ward, and no additional interventions were advised as part of the study.

Statistical analysis:

Data input was done in Microsoft excel. Data analysis was done by SPSS version 23. Frequency and percentage were calculated as needed.

RESULT

In table-1 shows age distribution of the patients where majority were belonging to 15-22days, 46%. The following table is given below in detail:

Table-1: Age distribution of the patients

Age in days	Frequency	Percent (%)
7-14 days	14	28.0
15-21 days	23	46.0
22-30 days	13	26.0

Figure-1 shows gender distribution where most of the patients where female, 88%. The following figure is given below in detail:

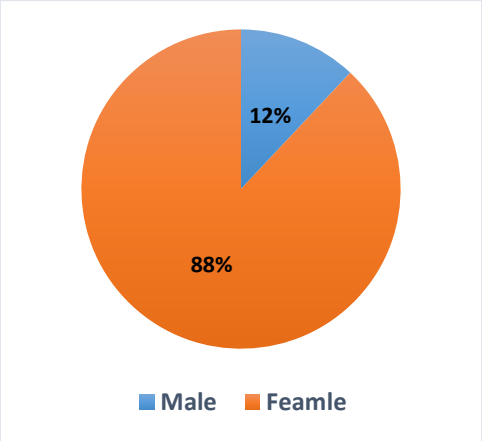

Figure-1: Gender distribution

In table-2 shows distribution of the patients according poor hygiene and feeding status where 82% cases undergone poor hygiene status, followed by 48% had poor cord care, 78% were feed formula and 20% cases used bottle. The following table is given below in detail:

Table-2: Distribution of the patients according poor hygiene and feeding status

Poor hygiene	%
Yes	82
No	18
Poor cord care	%
Yes	48
No	52
Formula feeding	%
Yes	22
No	78
Bottle feeding	%
Yes	20
No	80

In table-3 shows clinical characteristics of the patients wherecough was shown 51.7% cases followed by cough with respiratory distress was shown in 66% cases, fever shown in 76%, decreased urine output shows in 50% cases, convulsion was shown in 20% cases, skin rash shown in 92% cases and jaundice shown in 18% cases. The following table is given below in detail:

Table-3: clinical characteristics of the neonates

Cough only	%
Yes	51.7
No	48.3
Cough with respiratory distress	%
Yes	66
No	34
Fever	%
Yes	76
No	24
Decreased urine output	%
Yes	50

No	50
Convulsion	%
Yes	20
No	80
Vomiting or abdominal distension	%
Yes	22
No	76
Jaundice	%
Yes	18
No	82
Skin rash	%
Yes	92
No	8

In table-4 shows chest status and duration of O2 requirement of the patients 60% cases were Tachypnea, prolonged CRT cases were seen in only 6% cases and 38% cases required O2 about 2-5 days. The following table is given below in detail:

Table-4: Chest status and duration of O2requirement of the patients

Tachypnea	%
Yes	60
No	40
Chest indrawing	%
Yes	72
No	28
Prolonged CRT	%
Yes	6
No	94
Crepes in lung	%
Yes	34
No	66
Lethargic	%
Yes	54
No	46
Duration of O2 requirement	%
24h-1days	26
2-5 days	38
None	36

In table-5 shows laboratory status where 69.3% had normal HB%, 14-24mg/dl and 52% had 1.5-24mg/dl CRP level. The following table is given below in detail:

Table-5: Laboratory status

HB%	%
14-24mg/dl	69.3
<14mg/dl	30
CRP	%
1.5-20mg/dl	52
>20mg/dl	48%
TC	%
15000/mm^3 or more	66
<15000/mm^3	34

In table-6shows antibiotic status and duration of hospital stay where 60% got their antibiotic treatment for 1-5days and 58% cases stayed in hospital for 6-10 days. During treatment combine antibiotic such as Tazid,meropenem,kacin, Gentamicin etc. were introduced. The following table is given below in detail:

Table6: Antibiotic status and duration of hospital stay

Duration of antibiotic treatment	%
1-5 days	60
6-11 days	40
Duration of hospital stay	%
1-5 days	42
6-10 days	58

In figure-2 shows mode of discharge where 75% cases discharge with advice and 25% cases discharge on request. The following figure is given below in detail:

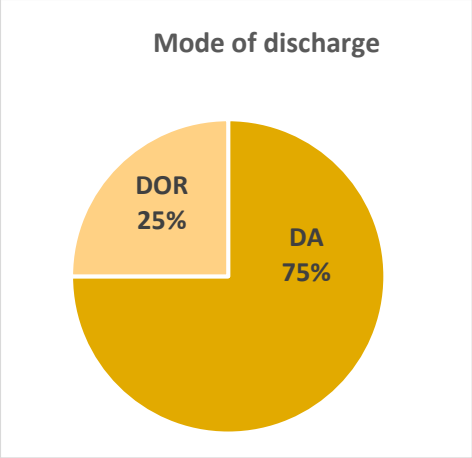

Figure-2: Mode of discharge

DISCUSSION

One study reported that, 57.8% were male and 42.2% were femaleWhich was supported by our study where we found that, most of the patients where female, 88% [18].

In one report said that, presence of infection at the umbilical cord, history of bottle feeding of the neonates and pre-existing maternal infection were significantly (p-value < 0.05) associated with neonatal sepsis. Whereas in our study82% cases undergone poor hygiene status, followed by 48% had poor cord care, 78% were feed formula and 20% cases used bottle.

In one study reported that, fever is present in only 10 to 15% of neonates but, when sustained (eg, > 1 hour), generally indicates infection. Other symptoms and signs include respiratory distress, neurologic findings (eg, seizures, jitteriness), jaundice (especially occurring within the first 24 hours of life without Rh or ABO blood group incompatibility and with a higher than expected direct bilirubin concentration), vomiting, diarrhea, and abdominal distention [19]. We found similar result according to study where cough was shown 51.7% cases followed by cough with respiratory distress was shown in 66% cases, fever shown in 76%, decreased urine output shows in 50% cases, convulsion was shown in 20% cases, skin rash shown in 92% cases and jaundice shown in 18% cases. Besides that, 60% cases were tachypnea, prolonged CRT cases were seen in only 6% cases and 38% cases required O_2 about 2-5 days.

CONCLUSION

According to our findings, skin rash and fever are typical clinical characteristics of newborn sepsis. In addition, poor hygiene has been identified as the leading causes for newborns with sepsis.Bottle feeding cases increasing seen than formula feeding.

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