ORIGINAL RESEARCH

Clinical outcome of neonatal sepsis

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ABSTRACT:
Background: Neonatal sepsis is a systemic infection occurring in infants at 28 days of life and is an important cause of morbidity and mortality of newborns. The present study was conducted to assess clinical outcome of neonatal sepsis. **Materials & Methods:** 94 neonates diagnosed of neonatal sepsis in both genders were included. Parameters such as antenatal care, duration of labour, gestational age (GA), mode of delivery, total white blood cells, types of antibiotics used etc. was recorded. **Results:** Out of 94 neonates, boys were 54 and girls were 40. Age of patients was 0-7 days in 50 and 8-28 days in 44, duration of labour was <6 hours in 26, 6-12 hours in 24, 12-24 hours in 30 and >24 hours in 14. ANC was seen in 60, gestational age was pre- term in 64 and term in 30, mode of delivery was vaginal in 70 and caesarean in 24, TWBC count was <5000/ mm3 in 36, 5000-12000/ mm3 in 24 and >12000 /mm3 in 34 patients. The difference was significant (P< 0.05). Type of antibiotic used was Cloxacillin in 15%, Ampicillin+ Gentamicin in 60%, Benzyl Penicillin in 20% and Ciprofloxacin in 5%. The difference was significant (P< 0.05). **Conclusion:** Boys were affected more than girls. Neonates with sepsis were mostly managed with Ampicillin+ Gentamicin combination.
Key words: Ampicillin, Antenatal care, Neonatal sepsis

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INTRODUCTION

Neonatal sepsis is a systemic infection occurring in infants at 28 days of life and is an important cause of morbidity and mortality of newborns.[1] Early-onset neonatal sepsis (EOS) has been variably defined based on the age at onset, with bacteremia or bacterial meningitis occurring at 72 hours in infants hospitalized in the neonatal intensive care unit (NICU), versus 7 days in term infants.[2] In preterm infants, EOS is most consistently defined as occurring in the first 3 days of life and is caused by bacterial pathogens transmitted vertically from mother to infant before or during delivery. Late-onset sepsis (LOS) is sepsis occurring after 72 hours in NICU infants and 7 days of life in term infants, has been variably defined as occurring up to the age of 90 or 120 days, and may be caused by vertically or horizontally acquired pathogens.[3]

The clinical manifestations range from subclinical infection to severe focal or systemic disease. While the infectious agent may arise from intrauterine or maternal flora, it may also be of the hospital or community origin.The incidence of culture-proven early-onset neonatal sepsis in the United States is estimated to be 0.77 to 1 per 1,000 live births (10–12).[4] The incidence and mortality are higher when very-lowbirth-weight (VLBW) infants are considered exclusively; for infants with a body weight of 1,000 g, the incidences are estimated to be 26 per 1,000 and 8 per 1,000 live births in premature infants with a birth weight of between 1,000 and 1,500 g.[5]The present study was conducted to assess clinical outcome of neonatal sepsis.

MATERIALS & METHODS

The present study comprised of 94 neonates diagnosed with neonatal sepsis in both genders. Parental consent was obtained before starting the study.

Data such as name, age, gender etc. was recorded. Antenatal care (ANC), duration of labour (DOL), gestational age (GA), mode of delivery (MOD), total white blood cells (TWBC), types of antibiotics used etc. was recorded. Results thus obtained were subjected to statistical analysis using chi- square test. P value less than 0.05 was considered significant.

RESULTS

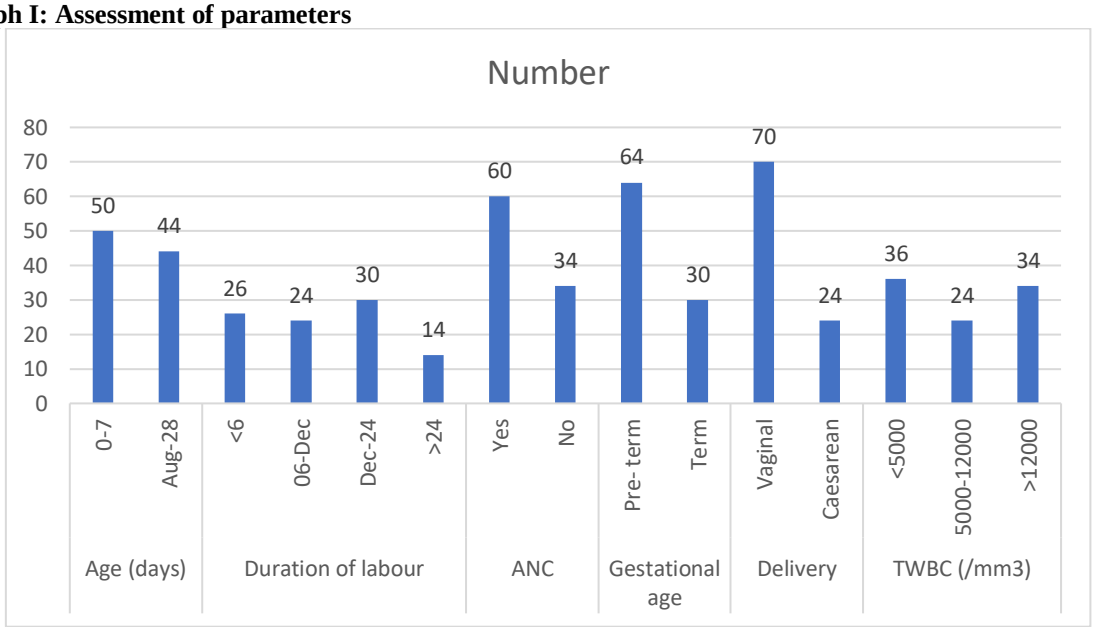
Table I: Distribution of patients

Total- 94		
Gender	**Boys**	**Girls**

Number	54	40

Table I shows that out of 94 neonates, boys were 54 and girls were 40.

Graph I: Assessment of parameters



Graph I shows that age of patients was 0-7 days in 50 and 8-28 days in 44, duration of labour was <6 hours in 26, 6-12 hours in 24, 12-24 hours in 30 and >24 hours in 14. ANC was seen in 60, gestational age was pre- term in 64 and term in 30, mode of delivery was vaginal in 70 and caesarean in 24, TWBC count was <5000/ mm3 in 36, 5000-12000/ mm3 in 24 and >12000 /mm3 in 34 patients. The difference was significant (P< 0.05).

Table II: Type of antibiotics used

Antibiotics	Percentage	P value
Cloxacillin	15%	0.04
Ampicillin+ Gentamicin	60%	
Benzyl Penicillin	20%	
Ciprofloxacin	5%	

Table II shows that type of antibiotic used was Cloxacillinin 15%, Ampicillin+ Gentamicinin 60%, Benzyl Penicillin in 20%and Ciprofloxacin in 5%. The difference was significant (P< 0.05).

DISCUSSION

Neonatal sepsis defines the systemic condition that arises from the bacterial, viral or fungal origin, associated with hemodynamic changes and clinical findings and causing severe morbidity and mortality.Its incidence varies depending on the definition of the case and the population studied and is between 1 and 5 in 1000 live births. The most common pathogens found in EONS are Group B Streptococcus (50%) and Escherichia coli (20%).[6]Other primary pathogens include Listeria monocytogenes, Enterococcus, and other Gram-negative bacilli (e.g., Haemophilus influenzae, Klebsiella pneumoniae). In developed countries, bacterial infections in neonates are commonly due to E. coli, other enterobacteriaceae, L. monocytogenes, and coagulase negative staphylococci (CONS) and group B streptococcus.[10] Late-onset (LONS) sepsis (sepsis presenting after 5-7 days postnatal age) usually is caused by these primary organisms or by nosocomial pathogens, such as CONS, particularly Staphylococcus epidermidis, Staphylococcus aureus, Pseudomonas species, Anaerobes, and Candida species.[11,12]The present study was conducted to assess clinical outcome of neonatal sepsis.

We found that out of 94 neonates, boys were 54 and girls were 40. Angus et al[13]determined the incidence, cost, and outcome of severe sepsis in the United States. They identified 192,980 cases, yielding national estimates of 751,000 cases (3.0 cases per 1,000 population and 2.26 cases per 100 hospital discharges), of whom 383,000 (51.1%) received intensive care and an additional 130,000 (17.3%) were ventilated in an intermediate care unit or cared for in a coronary care unit. Incidence increased >100-fold with age (0.2/1,000 in children to 26.2/1,000 in those >85 years old). Mortality was 28.6%, or 215,000 deaths nationally, and also increased with age, from 10% in children to 38.4% in those >85 years old. Women had lower age-specific incidence and mortality, but the difference in mortality was

explained by differences in underlying disease and the site of infection.

We found that age of patients was 0-7 days in 50 and 8-28 days in 44, duration of labour was <6 hours in 26, 6-12 hours in 24, 12-24 hours in 30 and >24 hours in 14. ANC was seen in 60, gestational age was pre-term in 64 and term in 30, mode of delivery was vaginal in 70 and caesarean in 24, TWBC count was <5000/ mm3 in 36, 5000-12000/ mm3 in 24 and >12000 /mm3 in 34 patients. We observed that type of antibiotic used was Cloxacillin in 15%, Ampicillin+ Gentamicin in 60%, Benzyl Penicillin in 20% and Ciprofloxacin in 5%. Woldu et al[14]assessed the risk factors, antimicrobial use pattern and clinical outcomes of neonatal sepsis. Among the total 306 neonates (0-28 days of age) recruited, 249 (81.4%) were age ≤7 days, 169 (55.23%) were male, 251 (82%) were attended antenatal care, 136 (44.44%) were low in birth weight (≤2.5 kg) and 155 (50.7%) had total of white blood cell count ≥12000/mm3. 221 (72.2%) of the neonates diagnosed as sepsis received antibiotics while 74 (24.2%) received antibiotics for other diagnosis. The most frequently prescribed antibiotic was the combination of 'ampicillin + gentamicin' prescription 67 (21.9%) followed by the single antibiotic prescriptions of benzyl penicillin 33 (10.8%) and cloxacillin 8 (2.6%). A significant number of neonates were born in health centre and developed sepsis. This value is 4.2 times higher when compared with the neonates born in the home. A significant number of neonates using instrument in hospitals were also developed sepsis. The risk of acquiring sepsis in neonates born using instrument was almost 6.2 times more common than children born vaginal in the natural way. A significant number of neonates born from mothers with urinary tract infections (UTI) developed sepsis and this figure was almost 2.9 times higher compared to neonates born from mothers with no UTI diagnosis.

CONCLUSION

Authors found that boys were affected more than girls. Neonates with sepsis were mostly managed with Ampicillin+ Gentamicin combination.

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