

Epidemiology clinical features and outcome of neonatal sepsis at tertiary care hospital in Sangli district of Maharashtra, INDIA: a descriptive study

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Abstract

Improvement in Neonatal perinatal survival is a priority health agenda in India. Over one million newborn infants die every year before completing first four weeks of life in our country. Neonatal sepsis remains a significant cause of morbidity and mortality in newborns especially in developing countries like India. Present study was undertaken to describe the clinical profile of Neonatal sepsis patients from a tertiary care centre in Sangli district of Maharashtra, India. Study was carried over a period of one year at the Department of Paediatrics of PVPGH Sangli and Govt Medical College, Miraj. One hundred and five neonates (0 to 28 days) with clinical diagnosis of sepsis were included in the study. Patients who underwent surgery and those who were older than 28 days were excluded. Age and gender of the participants was recorded. Detailed history was taken and clinical examination was done. Incidence of neonatal sepsis was found to be 22.95 per one thousand live births. There was male predominance with male: female ratio of 1.62:1. Neonatal sepsis was found to be more common in low birth weight babies. Among the patients of neonatal sepsis, there were a higher percentage of Preterm babies as compared to full term babies. The most common clinical feature was non acceptance of feeds which was reported in 68.6% of the cases. Mortality was found to be high in preterm babies and among the low birth babies.

Key Word: neonatal sepsis, Sangli.

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INTRODUCTION

Septicaemia is a common cause of morbidity and mortality in neonates. Numerous risk factors have been identified both in the neonates and children that make

them susceptible to infections¹. The database comprising 18 tertiary care neonatal units across India found sepsis to be one of the commonest causes of neonatal mortality contributing to 19% of all neonatal deaths². Early onset (within first week of life) neonatal sepsis is generally acquired from pathogens of maternal genital tract, whereas late onset sepsis (after first week till 28 days of life) has its origin either from the community or from hospital³. Knowledge of clinical profile of the disease in the local population will help in designing preventive measures and also proper management of the disease. Present study was undertaken to describe the epidemiology, clinical profile and outcome of neonatal sepsis patients from a tertiary care centre in Sangli district of Maharashtra, India.

METHODS

Study was carried over a period of one year at the Department of Paediatrics of PVPGH Sangli and Govt Medical College, Miraj. One hundred and five neonates (0 to 28 days) with clinical diagnosis of sepsis were included in the study. Patients who underwent surgery and those who were older than 28 days were excluded. Informed and written consent of parents of babies was taken before enrolment of baby for the study. Approval was taken from Ethics Committee of Govt Medical College, Miraj prior to commencement of the study. Data regarding total number of live births during study period at the hospitals was obtained. Age and gender of the participants was recorded. Detailed history was taken with reference to mode of delivery, condition of baby at birth and detailed clinical examination was done. Outcome was recorded in terms of mortality and analyzed in relation to age, maturity, birth weight and sex.

RESULTS

Table 1: Clinical features

Clinical Feature	Number of patients	Percentage
Not accepting feed	72	68.6
Decreased activity	67	63.8
Respiratory Distress	38	36.2
Hypothermia	29	27.6
Sclerema	31	29.5
Apnoea	17	16.2
Hepatomegaly	30	28.6
Jaundice	14	13.3
Fever	13	12.4
Seizures	12	11.4
Bleeding	10	9.5
Abdominal distension	1	0.95

During the study period there were 3354 live births at the study site. Total of 105 cases fulfilled the inclusion criteria. Thus, the incidence of neonatal sepsis was 22.95 per 1000 live births. Total of 85 cases (80.95%) had birth weight of less than 2.5 kg whereas 20 cases (19.04%) had a birth weight of 2.5 kg and above. When further analyzed it was found that 3 cases had birth weight less than 1 kg, 23 cases had birth weight of 1 to 1.5 kg, 46 cases had birth weight of 1.5 to 2 kg, 13 cases had birth weight of 2 kg to less than 2.5 kg whereas 20 cases had birth weight of 2.5 kg and above. Average weight of the babies with sepsis was 1.79 kg. Analysis with respect to sex of the baby showed that 65 cases (61.9%) were males and 40 cases (38.09%) were females with a male: female ratio of 1.62: 1. With respect to maturity, there were 72 preterm babies (68.57%) as compared to 33 full term babies (31.42%). 56 neonates (53.33%) developed sepsis in first 72 hours of life i.e. early onset sepsis whereas 49 neonates (46.66%) developed sepsis after 72 hours of life

i.e. late onset sepsis. Out of 105 cases, 68 neonates (64.76%) had a normal vaginal delivery, 4 neonates (3.8%) were delivered by forceps and 33 neonates (31.42%) were delivered by caesarean section. Table-1 highlights the presence of clinical features in subjects. Not accepting feed and decreased activity were the most common clinical features. Mortality was high in the study population with 54 cases (51.4%) not surviving whereas 51 cases (49.6%) recovered and were discharged. Mortality was almost the same in early onset sepsis (50%) and late onset sepsis (53.06%). Out of 72 preterm babies with neonatal sepsis, 45 (62.5%) died while out of 33 full term babies only 9 (27.3%) died. Thus, mortality was very high in preterm babies. Similarly, out of 85 low birth weight babies with neonatal sepsis, 50 (58.8%) died while out of 20 normal weight babies only 4 (20%) died. Thus, mortality was very high in low birth weight babies. Among the 65 male neonates, 32 died (49.2%) while among 40 female neonates, 22 died (55%) died.

DISCUSSION

The incidence of neonatal sepsis was 22.95 per 1000 live births in our study. The incidence found by other workers is comparable with K Monga *et al*⁴ reporting incidence of 26.3 per 1000 live births and GP Mondal *et al*⁵ reporting incidence of 15.5 per 1000 live births. However, Kathua SP *et al*⁶ reported an incidence of 10.97 per 1000 live births. Total of 85 cases (80.95%) were low birth weight babies in our study. Similarly, Kathua SP *et al*⁶ reported 79.3% cases being low birth weight babies in their study. Philip Alistair *et al*⁷ reported 58% cases as low birth weight babies in their study. With respect to maturity, there were 72 preterm babies (68.57%) as compared to 33 full term babies (31.42%) in our study. Similarly, Kathua SP *et al*⁶ reported 63% cases being premature babies in their study. The higher incidence of sepsis in low birth weight babies can be explained by the fact that they have low IgG levels. Many premature infants have a deficiency of IgG, as the transplacental transfer of IgG from the mother increases appreciably after 32-33 weeks' gestation and the synthesis rates of immunoglobulin are very low in newborn infants. In addition, the transient opsonic defect is more pronounced in premature infants⁸. Present study showed male: female ratio of 1.62: 1. Philip Alistair *et al*⁷ reported male: female ratio of 1.4: 1 whereas Kathua SP *et al*⁶ reported male: female ratio of 2.3: 1. High mortality was found in our study in low birth weight babies which is consistent with the findings of Kathua SP *et al*⁶. The limitations of our study include a descriptive design which lacks a hypothesis; however it describes the high risk factors associated with neonatal sepsis. Further studies need to be done on a larger scale and with better study design to understand the factors associated with

neonatal sepsis which can help in reducing the burden og morbidity and mortality associated with it especially in our country.

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