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Research Article

Maternal Risk Factors in Diagnosed Cases of Early Neonatal Sepsis

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ABSTRACT

Objective: to record the rate of maternal risk factors in diagnosed cases of early neonatal sepsis
Methodology: A total of 200 diagnosed cases of neonatal sepsis presenting within 24 hours of symptom of either gender and the age range was 1-3 days of early life. The duration of study was conducted during 2015-16 at Department of Pediatrcis, Lahore General Hospital, Lahore. Maternal risk factors i.e. PROM, meconium stained liquor and preterm delivery was recorded. **Results:** Of 200 cases, 70.5%(n=141) cases between 1-2 days of life whereas 29.5%(n=59) had 3 days of age, mean age was 1.84±0.57, 66.5%(n=133) cases male whereas 33.5%(n=67) were females, frequency of maternal risk factors in diagnosed cases of early neonatal sepsis was recorded 66%(n=132) for PROM, 24.5%(n=49) had preterm delivery, 33.5%(n=67) had meconium stained liquor. **Conclusion:** We found PROM as a leading maternal risk factors in diagnosed cases of early neonatal sepsis.

Keywords: Early Neonatal sepsis, maternal risk factors, PROM, Meconium stained liquor, preterm delivery

INTRODUCTION

Neonatal sepsis (NS) is known as a clinical syndrome due to bacterial infection during first 30 days of life and categorized with signs and symptoms of systemic involvement.[1] NS may be early or late onset. Around 85% of early onset sepsis presenting during 24 hours whereas 5% during 24-48 hrs and rare cases present in 48-72 hrs.[2]

The rate of NS is around 1-10/1,000 live births in industrialized countries, but it was three times higher in third 0a severe disease and has high mortality rate. The clinical signs of EONS are nonspecific and theconfirmation of diagnosis may be consuming time. Therefore, the diagnostic approach is necessary by considering the risk factors.[1]

Prolonged rupture of membrane (PROM), defined as rupture of membrane lasting more than 18 hours before labor, is found in approximately 8%-10% of all pregnancies. PROM is an important risk factor for both early onset neonatal sepsis (EONS) and preterm births.[4]

Regarding maternal risk factors Sudhiret al[5] revealed PROM in 71.4%, meconium liquor in 35.7% and preterm delivery in 24% of the cases while Agarwalet al[7]recorded these findings in 35%, 20% and 50% of the cases for PROM, meconium liquor and preterm delivery respectively.

The above mentioned two recent studies showing significant different frequency of maternal risk factors while no local study (as per best of our knowledge) is done to address this issue. This study was aimed to determine the frequency of maternal risk factors in early neonatal onset of sepsis in our population considering the fact that previous literature is variant while local studies are also lacking. However, our study will be helpful to our local population by recording magnitude and for the pediatricians to control the morbidity by controlling these risk factors.

METHODOLOGY

This study contained 200 diagnosed cases of neonatal sepsis presenting within 24 hours of symptom of either gender and the age range was 1-3 days of early life whereas all those not willing to participate in the study were excluded from this trial. The duration of study was conducted during 2015-16 at Department of Pediatrcis, Lahore General Hospital, Lahore. All the cases were enrolled from Nursery department. Basic demographic information of each case (name, age, address and contact) was also noted. Maternal risk factors i.e. PROM, meconium stained liquor and preterm delivery was recorded. SPSS 12 was used for data analysis.

RESULTS

Age distribution shows 70.5%(n=141) cases between 1-2 days of life whereas 29.5%(n=59) had 3 days of age, mean age was 1.84±0.57 (Table No. 1)

Gender distribution shows 66.5%(n=133) cases male whereas 33.5%(n=67) were females. (Table No. 2)

Frequency of maternal risk factors in diagnosed cases of early neonatal sepsis was recorded 66%(n=132) for PROM, 24.5%(n=49) had preterm delivery, 33.5%(n=67) had meconium stained liquor. (Table No. 3)

TABLE No. 1: Age Distribution (N=200)

Age(in days)	No. of patients	%
1-2	141	70.5
3	59	29.5
Total	**200**	**100**
Mean±sd	**1.84±0.57**	

TABLE No. 2: Gender Distribution Of Neonates (N=200)

Gender	No. of patients	%
Male	133	66.5
Female	67	33.5
Total	**200**	**100**

TABLE No. 3: Frequency Of Maternal Risk Factors In Diagnosed Cases Of Early Neonatal Sepsis(N=200)

Risk factors	No. of patients	%
PROM	132	66
Preterm delivery	49	24.5
Meconium stained liquor	67	33.5

DISCUSSION

The finding of our study are comparable with Sudhiret al[5] who revealed PROM in 71.4%, meconium liquor in 35.7% and preterm delivery in 24% of the cases, these findings are in agreement with our study however, the results of a study by Agarwalet al[6] shows 35%, 20% and 50% of the cases for PROM, meconium liquor and preterm delivery respectively, these findings do not match with our results.

Another study by Kurien Anil Kuruvilla et al in 1998[7] showed only meconium stained liquor and multiple vaginal examinations to be significantly associated with EOS.

Shah GS and others[8] studied the maternal and neonatal risk factors for neonatal sepsis and revealed that the factors which carried a significant risk for development of neonatal sepsis were premature rupture of membrane (PROM), meconium stained amniotic fluid (MSAF), foul smelling liquor, low birth weight, prematurity and low Apgar score at birth. The blood culture was positive in 22% of cases. The commonest organisms isolated were S. aureus and Klebsiella. The overall mortality was 11%. The incidence of risk factors was almost equal in culture positive and culture negative cases. They concluded that the study identifies PROM, MSAF, foul smelling amniotic fluid, prematurity, low birth weight and low Apgar score at birth as strong risk factors for development of neonatal sepsis. In the presence of above factors, the neonate should be screened and observed for sepsis and considered for early institution of antibiotics.

Destaalem Gebremedhin and others[9] determined the risk factors of neonatal sepsis in public hospitals of Mekelle City, Tigray Region, North Ethiopia, 2015 and recorded that out of 78 cases and 156 controls were included in this study. More than three quarters (76.8%) of cases had early onset sepsis. The multivariable logistic regression analysis showed that the possible risk factors of neonatal sepsis in this study were; history of maternal urinary tract infection or sexually transmitted infection [AOR=5.23; 95% CI (1.82, 15.04)], prolonged rupture of membrane [AOR = 7.43; 95% CI (2.04, 27.1)], Place of delivery; health center delivery [AOR = 5. 7; 95% CI (1.71, 19.03)], intrapartum fever

[AOR = 6.1 95% CI (1.29, 28.31)], APGAR score <7 at 5th minute [AOR = 68.9; 95% CI (3.63, 1308)] and not crying immediately at birth [AOR = 124. 0; 95% CI (6.5, 2379)].

Finally, the results of our study are primary in our population which may be helpful for the pediatricians and patients to control the morbidity by controlling these risk factors.

CONCLUSION

- We found PROM as a leading maternal risk factors in diagnosed cases of early neonatal sepsis.

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