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A STUDY ON PRETERM NEONATES WITH FUNISITIS.

Paediatrics

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ABSTRACT

INTRODUCTION: Prematurity and preterm birth is considered a serious problem worldwide and specially in the developing countries. Chorioamnionitis is one of the common causes of preterm birth. The present study was undertaken to determine the prevalence of funisitis in preterm neonates and also to see outcomes on various parameters in infants with or without funisitis.

AIMS AND OBJECTIVES: To study the clinical profile of preterm neonates with and without funisitis.

MATERIALS AND METHOD: Consecutively born preterm, intramural neonates constituted our study population. Umbilical cord has been sent for histological examination for presence of evidence of funisitis. All the neonates were monitored till discharge for their short term outcomes. All relevant data regarding mother's present obstetrics history were also collected from the treatment files.

RESULTS: Total sample size was 172. Total number of boys and girls in the group was 62.2% & 37.8% respectively. 12 preterm newborn was found to have histopathological evidence of funisitis. There was increased incidence of morbidities in neonates with funisittis. There was increased incidence of hyperbilirubinemia, hypoglycaemia, need for resuscitation, sepsis, respiratory difficulties etc. in neonates with funisitis in comparison to preterm neonates without funisitis. Mortality was also higher in neonates with funisitis.

CONCLUSION: This research demonstrates that a good number of preterm newborn may be born with funisitis. They are at increased risk of morbidity & mortality in comparison to those preterm neonates without funisitis.

KEYWORDS

Preterm, funisitis, chorioamnionitis.

INTRODUCTION:

Prematurity and preterm birth is considered a serious problem worldwide and specially in the developing countries. Chorioamnionitis is one of the common causes of preterm birth.[1] Clinical chorioamnionitis is less common than subclinical/histologic chorioamnionitis, which is asymptomatic and defined by inflammation of the chorion, amnion, and placenta. The present study was undertaken to determine the prevalence of funisitis in preterm neonates and also to see outcomes on various parameters in infants with or without funisitis.

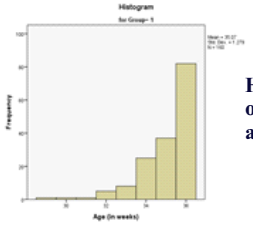
AIMS AND OBJECTIVES: To study the clinical profile of preterm neonates with and without funisitis.

MATERIALS AND METHOD: This prospective, observational study was carried out in a peripheral medical college of West Bengal. 172 consecutively born preterm intramural neonates constituted our study population. Umbilical has been sent for histological examination for presence of evidence of funisitis. All the neonates were monitored till discharge for their short term outcomes. All relevant data regarding mother's present obstetrics history were collected from the treatment files.

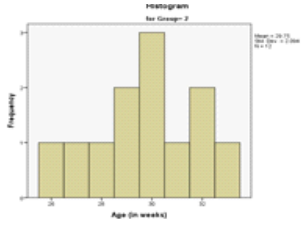
EXCLUSION CRITERIA: Preterm neonates with clinically detectable mojor congenital malformations, inborn error of metabolism or born out of multiple pregnancy were excluded from our study.

RESULTS AND ANALYSIS

Total sample size (N) was 172. Total number of boys and girls in the group was 107 (62.2%) and 65 (37.8%) respectively. 12 preterm newborn was found to have histopathological evidence of funisitis. 7 were girl & 5 were boy. Age and Weight wise distribution of cohorts with and without funisitis has been depicted in histograms below (Fig. 1 & 2).

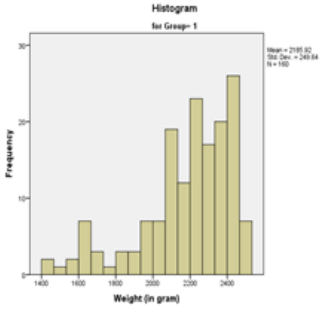


Histogram depicting distribution of study subjects without funisitis according to age (in weeks).



Histogram depicting distribution of study subjects with funisitis according to age (in weeks).

Fig 1



Histogram depicting distribution of study subjects without funisitis according to weight (in gram).

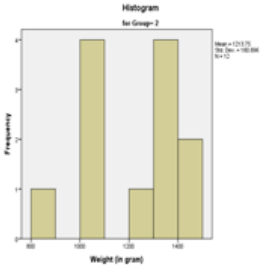


Fig 2

Histogram depicting distribution of study subjects with funisitis according to weight (in gram).

Total of 133 (77.3%) neonates required intervention for hyperbilirubinemia but all 12 neonates with funisitis needed treatment for hyperbilirubinemia.

Total 26 (15.1%) neonates suffered from convulsion in the whole group while 2 (16.7%) in the funisitis group. The association was not statistically significant.

Overall incidence of hypoglycaemia in our study population was 5.8%(10/172) and in funisitis group it was 25%(3/12).

Total of 38 (22.1%) neonates had respiratory symptoms in our study population. The presence of respiratory difficulty were 11 (91.7%) and 27 (16.9%) respectively in newborns with and without funisitis. This association was statistically significant. Meconium Stained Amniotic Fluid (MSAF) was found in 41.7% cases of infants with funisitis.

83.3% preterm neonates having funisitis required resuscitation. Resuscitation was not required for 90% of the cases who did not have funisitis. This was statistically significant.

Total 31.9% neonates had contracted sepsis among the whole group. The figure increased to 66.7% when considering the cohort with funisitis. The sepsis group comprised of patients with septicemia, meningitis, urinary tract infections, pneumonia and clinical sepsis (sepsis screen positive but blood culture negative).

12.8% (22/172) of the total study population expired during the study. In case of preterm neonates with funisitis this was found to be as great as 83.3%. This was unearthed to be statistically significant. 60% of the deaths in the funisitis cohort (83.3%,10/12) was ascribed to Respiratory Distress Syndrome (RDS), Pneumonia contributed 20% of the deaths, the rest were due to IVH and Septicaemia (10% each).

Mortality in the group of neonates without funisitis (7.55%, 12/160) revealed pneumonia to be the major cause (58.3%) followed by septicaemia (25%). Convulsion (8.3%) and meningitis (8.3%) were also contributory to the mortality in this group.

Total 12 (6.9%) preterm births were associated with PROM. Total 5 (2.9%) mothers contracted fever prior to delivery. 3 (25%) mother had history of fever in funisitis group while it was 2 (1.3%) in mothers with neonates without funisitis.

DISCUSSIONS

Prematurity is considered a looming cause of perinatal mortality and long term morbidity that also raise healthcare costs worldwide, more so in developing countries. This is in keeping with the global action report by WHO on preterm birth and an Australian study by Law et al[2,3]. The present study was undertaken to evaluate the proportion of funisitis in preterm births and the outcomes in neonates with or without funisitis.

In the present study, 172 neonates were included. Among those, 12 (6.97%) were diagnosed to be suffering from funisitis.

77.3% of the total study population had to be intervened for having hyperbilirubinemia. 100% of neonates with funisits had to be intervened for the same though it was statistically not significant.

15.1% of infants suffered from convulsions. 16.7% of those with funisitis suffered the same fate. This was also statistically insignificant. Meningitis and septicaemia each were the causes in 2 cases with convulsion with funisitis. In the non-funisitis group, meningitis contributed to 20.8%, hypoglycemia and pneumonia each 16.6%, septicaemia was associated with 12.5% of the cases. Intraventricular haemorrhage and dyselectrolytaemia were found in 8.3% of the cases. In 12.5% cases a specific cause or association could not be ascertained.

5.8% of the total babies suffered from hypoglycemia. 25% of the subjects with funisitis had hypoglycemia. This association was statistically significant. The study by Andrews et al.[4] also mentions these outcomes.

Approximately, 22% of study neonates had some form of respiratory difficulty including Respiratory Distress Syndrome (RDS), pneumonia, asphyxia or apnea. 91.7% of the neonats with funisitis was associated with a respiratory ailment. The association of funisitis with respiratory difficulties was found to be statistically significant. Our respiratory complication results did not corroborate with another study [5]. The study by Hyde et al. [6] illuminates a possible mechanism for respiratory problems and hypoxia in neonates with funisitis.

Total 15.1% neonates suffered from pneumonia in the whole population while 16.7% of those with funisitis had feature of pneumonia. This was not statistically significant.

Overall 6.9% subjects had Respiratory Distress Syndrome (RDS) but 83.3% neonates with funisitis were with features of RDS. This was statistically significant. This is similar to the findings of the study conducted by T. J. M. Moss [7].

Resuscitation was not required for 90% of the cases who did not have funisitis. But 83.3% neonates with funisitis required resuscitation. This was statistically significant. This supports the findings of a study by Flood and Malone [8].

Increased incidence of sepsis in neonates with funisitis, were statistically significant in our study (66.7% vs 8.1%). In the subjects having septicaemia without funisitis, the etiologic organisms were *Klebsiella sp*. and *Staphylococcus aureus* (both 38.5%), *Escherechia coli* (15.4%) and Coagulase Negative *Staphylococcus sp.* (CONS) (7.6%). This profile of organisms was in accordance to various published studies.

Urinary tract infection was only found in the non-funisitis cohort (1.35%). *Proteus sp.* and *Escherechia coli* was found to be the causative organisms.

Overall 13.4% of the study population had IVH irrespective of seriousness. Intraventricular haemorrhage was found in 25% neonates with funisitis, which was statistically significant. This is a known complication as elucidated by a number of studies [9,10].

Meconium Stained Amniotic Fluid (MSAF) was found in 41.7% cases of infants with funisitis and its association was found to be statistically significant. This result of our study supports the work carried out by Piper et al.[11] and Wen et al.[12]

25% of mothers of neonates with funisitis had history of fever during the prenatal / perinatal period. But overall incidence of maternal fever was 2.9%. This was found to be statistically significant. Our study result echoes the findings in the study led by Gibbs et al.[13]

Premature Rupture Of Membranes (PROM) and prolonged labour are two very well known associations with maternal chorioamnionitis and fetal funisitis as depicted in many studies [14,15]. Our study revealed it to be present in 41.7% of funisitis and it was evaluated to be statistically significant thus endorsing the current view of association between PROM/ Prolonged labour with funisitis.

Mortality was found to be significantly higher in preterm neonates with funisitis (83.3% vs 7,55%). This finding corroborates and supplements the findings as declared by The Global Action Report on Preterm Birth, WHO[3].

60% of the deaths in the funisitis cohort were ascribed to Respiratory Distress Syndrome (RDS). Pneumonia contributed 20% of the deaths and the rest were due to IVH and Septicaemia (10% each).

CONCLUSION:

This research demonstrates that a good number of preterm newborn may be born with funisitis. They are at increased risk of morbidity & mortality in comparison to those preterm neonates without funisitis.

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