STUDY OF PREMATURE BABIES IN RELATION TO ITS OUTCOME AND ANTENATAL RISK FACTORS AT GENERAL HOSPITAL SANGLI
Satish D. Ashtekar¹, Suresh K. Kumbhar², Renuka S. Ashtekar³

HOW TO CITE THIS ARTICLE:
Satish D. Ashtekar, Suresh K. Kumbhar, Renuka S. Ashtekar. “Study of Premature Babies in Relation to its Outcome and Antenatal Risk Factors at General Hospital Sangli”. Journal of Evolution of Medical and Dental Sciences 2014; Vol. 3, Issue 30, July 28; Page: 8506-8510, DOI: 10.14260/jemds/2014/3078

ABSTRACT: OBJECTIVE: To know the neonatal outcome and antenatal risk factors among premature babies. MATERIAL & METHODS: STUDY DESIGN: A retrospective study. SETTING: Neonatal Intensive Care Unit (NICU) of General Hospital Sangli under Government Medical College, Miraj. SAMPLE SIZE: 134 Premature babies admitted during the year 2013 in NICU. DATA COLLECTION: From the case sheet of the study subjects, with the help of pre structured proforma. STUDY PERIOD: January 2013 to December 2013. STATISTICAL ANALYSIS: Data analyzed with percentages. RESULTS: Out of 134 premature babies 34 (25.3%) were SGA, 24 (17.9%) LGA and 78 (58.2%) were AGA. Jaundice (44.7 %), RDS (37.3 %) and Sepsis (14.9 %) were the commonest morbidities among the premature babies. RDS (85.4%), Sepsis (10.4 %) and Aspiration Pneumonia (4.1 %) were the causes of mortality. Mortality was higher among premature babies with birth weight < 1400grams. PROM (50.7 %), Anemia (35.8 %) and Twin (17.9 %) were the maternal risk factors. CONCLUSION: Jaundice, RDS and Sepsis were the common morbidities among the premature babies. Overall mortality among premature babies was 35.8 %. PROM and Anemia are the commonest maternal risk factors for the premature births.

KEYWORDS: Antenatal risk factor, Premature birth, Mortality.

INTRODUCTION: Preterm birth is one of the major clinical problems in neonatology, as it is associated with perinatal mortality, serious neonatal morbidity and in some cases childhood disability. Preterm babies is very challenging complications encountered by the pediatricians.¹

Due to continued innovation in neonatal intensive care facilities and obstetric interventions, fetal survival is now possible even at 20weeks gestation in developed countries. However in developing countries, survival is rare below 28weeks of gestation. Incidence of preterm birth is rising worldwide because of increased frequency of multiple births, due to increasing psychological stress and medically induced preterm delivery. However during the last two decades, the survival of premature infants has significantly increased due to advancement in perinatal and neonatal treatment expertise and improvement in the care of high risk mother. The survival rate of low birth weight babies has increased from 10% to 50–60%.²

According to many studies conducted in India and abroad various maternal risk factors have been identified for the premature births as well as outcome of premature babies have been studied. In this study, we tried to find out maternal risk factors and the neonatal outcome among premature births in our hospital.

OBJECTIVES
1. To study neonatal outcome among premature babies.
2. To know the maternal risk factors among premature babies.
MATERIALS AND METHODS: A retrospective study was conducted on 134 premature babies admitted in Neonatal Intensive Care Unit of General Hospital Sangli, during the year 2013. Data in relation to demographic profile, antenatal risk factors, neonatal complications, treatment profile and outcome was collected with the help of case sheets of premature babies obtained from Medical Record Section and analyzed with percentages and proportions.

Inclusion Criteria: All the live born infants delivered before 37 weeks of gestation and admitted in Neonatal Intensive Care Unit.

To find out the morbidity pattern, in each preterm neonate at the time of admission in NICU, following blood investigations like TC /DC (Total count/ Differential count), P/ S (Peripheral smear), ESR (Erythrocyte sedimentation rate), Band count, CRP (C-reactive protein) and Blood sugar levels were done wherever necessary.

Other investigations were carried out, as and when thought to be necessary like X ray chest/or other, Sr. electrolytes, Sr. blood urea, Sr. Calcium, Blood Culture, Cranial ultrasound, EEG, CT and MRI study.

OBSERVATIONS: Out of 134 premature babies, 84 (62.6 %) were female babies and 50 (37.3 %) were male babies. 34 (25.3%) of these babies were Small for Gestational age (SGA), 24 (17.9%) of the babies were Large for Gestational age (LGA) and 78 (58.2%) were Appropriate for Gestational age (AGA).

80.5% (108) babies birth weight was < 1600 grams and only 19.5% (26) babies birth weight was > 1600 grams but none of the babies birth weight crossed 2000 grams.

| Diseases                              | No. | Percent (n=134) |
|---------------------------------------|-----|----------------|
| Jaundice                              | 114 | 44.7          |
| RDS (Respiratory distress syndrome)   | 97  | 37.3          |
| Sepsis                                | 43  | 14.9          |
| Birth asphyxia                        | 26  | 7.4           |
| Others                                | 28  | 10.4          |

Table 1: Clinical profile of premature babies

# Conditions are mutually exclusive.

Among 134 premature babies 48 (35.8%) died and their cause of death given in the Table 2.

| Cause of death                                      | No. | Percent (n=48) |
|----------------------------------------------------|-----|----------------|
| RDS                                                | 41  | 85.4           |
| Sepsis                                             | 5   | 10.4           |
| CHD (Congenital heart disease), Aspiration pneumonia| 2   | 4.1            |
| Total                                              | 48  |                |

Table 2: Cause of death among died premature babies
Birth Weight | No. | Death | Mortality %
---|---|---|---
< 800 | 6 | 6 | 100
800-1000 | 12 | 10 | 83.3
1000-1200 | 24 | 10 | 41.6
1200-1400 | 28 | 10 | 35.7
1400-1600 | 38 | 6 | 15.8
1600-1800 | 16 | 4 | 25
1800-2000 | 10 | 2 | 20

Gender wise
- Male: 50 (20) 40%
- Female: 84 (28) 33.3%

Table 3: Mortality of the premature babies in relation to their birth weight and gender

Among 134 premature babies, 64 (47.7%) babies were of first birth order, 44 (32.8%) were of second birth order, while 26 (19.3%) were of birth order third or more. Table 4 shows distribution of premature babies in relation to maternal age.

Age of mother | No. | Percent (n=134)
---|---|---
18-20 | 36 | 26.8
21-23 | 54 | 40.3
24-26 | 38 | 28.3
27-29 | 2 | 1.5
30-32 | 4 | 2.9

Table 4: Distribution of premature babies in relation to maternal age

Among 134 premature babies, 97 (72.3%) belongs to families of Lower socio economic status, 23 (17.1 %) belongs to families of Upper lower socioeconomic class and 14 (10.4%) belongs to Lower middle class.

Antenatal condition | No. | Percent (n=134)
---|---|---
PROM (Prolonged rupture of membrane) | 67 | 50.7
Anemia | 49 | 35.8
Twin | 24 | 17.9
Oligohydroamnios | 18 | 13.4
PIH (Pregnancy induced hypertension) | 16 | 11.9
BOH (Bad obstetrics history) | 12 | 8.9
Breech | 7 | 5.9
Eclampsia | 6 | 4.5
Hyperthyroidism | 3 | 1.5
Congenital anomaly | 2 | 1.5
DISCUSSION: In this study commonest morbidities among preterm babies were Jaundice, RDS and Sepsis. Similar findings observed by Arvind Sehgal, Sucheta Telang et al in their study. While Wei-Qin Zhou et al found RDS, Sepsis and Pulmonary hemorrhage are the commonest morbidities among preterm babies.

In this study overall mortality was 35.8% which is almost similar to other studies. While in a study conducted by Mehta B. et al overall mortality was 17% and in a study by Singh Uma et al overall mortality was 12.7% . Common causes of mortality were RDS (85.4 %), Sepsis (10.4 %) and Aspiration pneumonia (4.1 %). In a study conducted by Singh Uma et al common causes for mortality were RDS (62%), Sepsis (16.8%) and Birth asphyxia (9.2%). K. K. Roy et al found sepsis (20.3%) was the main cause of mortality.

In present study commonest antenatal risk factors among study subjects were PROM (50.7%) and Anemia (35.7%). In the study conducted by Singh U et al found commonest cause is PROM (25.9 %). In another study by Roy K Ketal found Anemia (32.6%) as a commonest cause and Arvind Sehgal et al found in 65% cases. Mayur Bavaliya et al found that lack of antenatal care (72%), Anemia (68%) and maternal illnesses like hypertension (58%) are the commonest maternal risk factors in their study.

In our study preterm babies had higher mortality rates; this is quite different from the spectrum in the developed world. Also antenatal risk factors for premature birth were PROM and Anemia which can be always preventable. Similar studies from multiple settings in India would give us a real picture regarding the status of these premature newborns in our country.

CONCLUSION: Jaundice, RDS and Sepsis were the common morbidities among the premature babies. Overall mortality among premature babies was 35.8 %. PROM and Anemia are the commonest antenatal risk factors for the premature births.

REFERENCES:
1. Singh U, Singh N, Seth S: A Prospective analysis of etiology and outcome of preterm labour. J Obstet Gynecol India 2007; 57 (1): 48-52.
2. K.K. Roy, Jinee B, Suresh K, Neena M, A.K. Deorari and J.B. Sharma: Maternal Antenatal profile and immediate neonatal outcome in VLBW and ELBW babies. Indian J Pediatr 2006; 73 (8): 669-673.
3. Arvind Sehgal, Sucheta T, S. M. Passah, M.C.Jyothi: Maternal and Neonatal profile and immediate outcome in ELBW babies. Indian J Pediatr.2003; 40: 991-995.
4. Wei-Qin Zhou et al: Neonatal outcomes of very preterm infants from a neonatal intensive care center. World J Pediatr. 2014; Vol 10 No. 1:53-58.
5. Brothwood M, Wolke D, Gamsu H, Cooper D. Mortality, morbidity, growth and development of babies weighing 501-1000 grams and 1001-1500 grams at birth. Acta Pediatr Scand 1988; 77:10-18.

6. Doyle LW, Bowman E, Callanan C, Carse E, Charlton MP, Drew J et al. Changing outcome for infants of birth weight 500-999 g born outside level 3 centers in Victoria. Aus NZ J Obstet Gynecol 1997; 37: 253-257.

7. Mehta B, Kulkarni B, Kaul S, Gupta V, Balan S. Outcome in VLBW infant. In: Kler N, Dadhich JP, editors. 21st Annual Conference of National Neonatology Forum 2001 Nov 7-11; Guwahati, India. Guwahati: Saralgaht Publishers; 2001; p 72.

8. Mayur Bavaliya, Bela Shah, Sucheta Munshi: Study of Risk Factors for Preterm Neonates International Journal of Science and Research. January 2014; Volume 3 Issue 1:9-10.

AUTHORS:
1. Satish D. Ashtekar
2. Suresh K. Kumbhar
3. Renuka S. Ashtekar

PARTICULARS OF CONTRIBUTORS:
1. Assistant Professor, Department of Paediatrics, Government Medical College, Miraj, Sangli.
2. Associate Professor, Department of Community Medicine, ESIC Medical College & PGIMSR, Rajajinagar, Bangalore.
3. Associate Professor, Department of Dermatology, Bharati Vidyapeeth Medical College, Sangli.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:
Satish D. Ashtekar,
1588-A, 8th Lane,
Near Rotary Swimming Tank,
Ganesh Nagar,
Sangli-416416,
Maharashtra.
Email: drsatish11@yahoo.co.in

Date of Submission: 07/07/2014.
Date of Peer Review: 08/07/2014.
Date of Acceptance: 14/07/2014.
Date of Publishing: 26/07/2014.