ORIGINAL RESEARCH PAPER

VOLUME-6 | ISSUE-5 | MAY - 2017 | ISSN No 2277 - 8179 | IF : 4.176 | IC Value : 78.46

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

PRETERM BIRTH: ITS CAUSES AND PERINATAL OUTCOME

Gynaecology

Dr. Smrity Naik Assistant Professor, Obstetrics and Gynecology Department, Pt. JNM Medical College, Raipur,C.G,

Dr. Abha Singh 2Dean and Director Professor, Obstetrics and Gynecology Department, Pt. JNM Medical College, Raipur,C.G,

ABSTRACT

Objective: To find the etiological factors of preterm births and the perinatal outcome. Method: All birth occurring after 28weeks and before 37 completed weeks were included in the study. Study design: Retrospective observational study. Results: There were 7714 total deliveries, out of which 892 were preterm deliveries and it contributed to 11.56% of total deliveries. In majority of cases the cause was unknown (41.03%), hypertensive disorders (21.08%) and PPROM (19.06%) are the main factors which caused preterm deliveries. The preterm still born rate was 26.12%. 416 babies were admitted in the nursery giving a preterm admission rate of 46.64%. The mortality rate among preterm was 18.95%. We had perinatal mortality rate of 428.25 per thousand preterm births. Conclusion: Preterm births and infants needs prompt attention and intervention, to reduce psychological and financial stress in the society.

KEYWORDS:

Preterm birth, hypertensive disorder of pregnancy, perinatal outcome

INTRODUCTION

Preterm births are deliveries occurring before 37weeks of gestation. It can be divided on the basis of gestational age into extremely preterm (<28 weeks), very preterm (28 to <32 weeks) and moderate preterm (32 to <37weeks). Moderate preterm is further split to early and late preterm from 32 to <34 weeks and 34 to <37 weeks of gestation respectively.1 Worldwide 15million of preterm births occur annually, which contribute to 11.1% of total live births. Of these South Asia and Sub Saharan Africa contribute 60%.2 India has prevalence of preterm birth of 15%.3

It can be spontaneous or provider initiated. Preterm pre labor rupture of membrane, preterm labor, infections, multiple pregnancy and hypertensive disorders are some of the various reasons which lead to preterm deliveries.4 Most of the preterm deliveries are there in which cause is unknown.5

Premature delivery of a fetus not only causes immediate complications like respiratory distress, intraventricular haemorrhage, bronchopulmonary dysplasia and necrotizing enterocolitis but also delayed problems such as cerebral palsy, visual and hearing impairment. It also leads to hypertension and diabetes later in life. This exerts huge burden on the family, society and health system. Considering the complications associated with prematurity, 7th November is declared as World Prematurity Day.

Prematurity is the leading cause of neonatal mortality and 2nd most common cause of under-5 deaths.

MATERIAL AND METHODS

It is a retrospectively collected data. The study was conducted in Obstetrics and Gynecology Department, Raipur Medical College in association with Pediatrics Department. The study period was from 1st January 2016 to 31st December 2016.

All deliveries occurring after 28weeks up to 37weeks of gestation were included in the study. The deliveries before 28weeks and beyond 37weeks were excluded. Gestational age was obtained from the last menstrual period and early weeks ultrasound scan.

Our aim was to evaluate the causes of preterm deliveries and outcome in preterm infants.

Perinatal mortality was calculated by

Early neonatal deaths + stillbirths/total births×1000
Total births=live births + still births.

RESULTS

We had 7714 total deliveries, out of which 892 were preterm deliveries and it contributed to 11.56% of total deliveries. The mean gestational age of preterm infants was 33.6weeks, with SD±2. The majority of preterm were of late preterm group that is 66.37% (Table 1) and the mean birth weight was 1.89±0.63kgs (Table 2).

TABLE – 1 GESTATIONAL AGE DISTRIBUTION

GESTATIONAL AGE (IN WEEKS)	NUMBER	PERCENTAGE
28 -<32	149	16.7%
32 -<34	151	16.93%
34 -<37	592	66.37%
TOTAL	892	100%

TABLE – 2 BIRTH WEIGHT DISTRIBUTION

BIRTH WEIGHT (IN KGS)	NUMBER	PERCENTAGE
<1	34	3.7%
1 - 1.49	117	12.75%
1.5 - 1.9	193	21.02%
2 - 2.49	278	30.28%
≥2.5	296	32.25%
TOTAL	918	100%

In majority of our cases the cause was unknown (41.03%), hypertensive disorders (21.08%) and PPROM (19.06%), IUGR (4.15%), multiple pregnancy(4.26%), APH(3.7%) and miscellaneous(6.72%) are the other factors which led to premature deliveries.

Out of 892 preterm deliveries 233 were still born which showed preterm still born rate of 26.12%. 416 babies were admitted in the nursery giving a preterm admission rate of 46.64%. The main reasons of admission to NICU were low birth weight(55.05%), respiratory distress syndrome(21.64%), neonatal jaundice(7.69%), perinatal asphyxia(7.21%), others(4.09%), hypoglycemia(1.20%), hypothermia(0.48%), shock(1.20%), refusal to feed(0.96%),

abdominal distension(0.24%) and convulsion(0.24%)(Table 3).

TABLE – 3 REASONS OF ADMISSION TO NICU

REASONS OF ADMISSION	NUMBER	PERCENTAGE
Low birth weight	229	55.05%
Respiratory distress syndrome	90	21.64%
Neonatal jaundice	32	7.69%
Perinatal asphyxia	30	7.21%
Hypoglycemia	05	1.20%
Hypothermia	02	0.48%
Shock	05	1.20%
Refusal to feed	04	0.96%
Convulsions	01	0.24%
Abdominal distension	01	0.24%
Others	17	4.09%
TOTAL	416	100%

169/892 premature infants after getting admitted in NICU, died and the mortality rate among preterm was 18.95%. The causes of death were RDS(39.65%), prematurity(17.75%), sepsis(15.98%), birth asphyxia(9.47%), extremely low birth weight(6.5%), meconium(3.55%), tetanus(0.59%), meningitis(1.18%) and others(5.32%). 149/169 were early neonatal deaths and we had perinatal mortality rate of 428.25 per thousand preterm births.

DISCUSSION

Our study showed that during the study period total deliveries were 7714, out of which 892 were preterm deliveries and it contributed to 11.56% of total deliveries. The similar incidence of 13.2%6 and 12.2%7 was also seen in other parts of India. It was more than in U.S. which was 9.6%.8,9 The mean gestational age of preterm infants was 33.6weeks, with SD±2.4 in contrast to mean GA of 31.4weeks, with SD±5.34 found by other study.10 The majority of preterm belonged to late preterm group that is 66.37% (Table 1) and is nearly comparable to 69.39%11 of late preterm admissions. The above factors could be one of the many reasons that even though being delivered preterm, they had better outcome and chance of better survival as compared to extremely preterm and very preterm.

The mean birth weight was 1.89±0.63kgs (Table 2) which is nearly same that is 2.19±0.48kgs in a study by Karegoudar D et al.12 During our study in maximum number of cases the cause was unknown (41.03%), hypertensive disorders (21.08%) and PPROM (19.06%) were the next main etiological factors. The similar findings were seen by others.13,14 In hypertensive disorders we included eclampsia (3.14%), hypertensive disorder of pregnancy (10.65%) and hypertensive disorder with IUGR (7.29%). Whereas PPROM (36.4%), multiple gestation (27.3%), hypertensive disorders (24%) and previous preterm deliveries (12.4%) were main causes of preterm delivery in a study by Akintayo et al.[4]

A study done by Patel PK et al5 showed that infection, which included bacterial vaginosis (32.5%), chorioamnionitis(21.7%), urinary tract infection(12.5%) and prior 2nd trimester abortion(13.3%) are the main factors.

We found IUGR (4.15%), multiple pregnancy (4.26%), APH (3.7%) and miscellaneous (6.72%) as the other factors which led to premature deliveries. In miscellaneous group we included anemia, oligohydramnios, polyhydramnios and infection. IUGR (with or without hypertensive disorder of pregnancy) was associated in 11.44% of preterm infants but in a study by Abdulkader et al IUGR was seen in 19.84% of preterm infants.15

Out of 892 preterm deliveries 233 were still born which showed preterm still born rate of 26.12% and this was different from the study done by Iyoke CA et al who had still born rate of 22%.[2]

We also found that 416 babies were admitted in the nursery and our preterm admission rate was 46.64% which is very high compared to a study conducted in a rural Medical College of Tamil Nadu11 which showed preterm admission rate of 30.95%. The main reasons of admission to NICU were low birth weight(55.05%), respiratory distress syndrome(21.64%) similar causes of neonatal morbidity were seen by others.7 The other causes are neonatal jaundice(7.69%), perinatal asphyxia(7.21%), others(4.09%), hypoglycemia(1.20%), hypothermia(0.48%), shock(1.20%), refusal to feed(0.96%), abdominal distension(0.24%) and convulsion(0.24%)(Table 3). In others group we included those preterm infants whose mothers were high risk and the babies required observation.

In our study, 169/892 premature infants after getting admitted could not survive and the mortality rate among preterm was 18.95% which is contradictory to 8.62% in a study by N chowdareddy et al.13 The main reason behind death were RDS(39.65%), prematurity(17.75%), sepsis(15.98%), birth asphyxia(9.47%), extremely low birth weight(6.5%), meconium(3.55%), tetanus(0.59%), meningitis(1.18%) and others(5.32%). Shock, neonatal jaundice and babies with congenital malformation were included in others group. But the other studies found birth asphyxia, septicemia, respiratory distress and prematurity as the main causes.6,16

We also found that out of 169 preterm deaths, 149 were early neonatal deaths. Thus we had perinatal mortality rate of 428.25 per thousand preterm births. And the same mortality rate of 426.4 per thousand preterm births was seen by Asalkar MR et al.[7]

CONCLUSION

Preterm birth is challenging and yet unmet goal of health care professionals. Since prematurity is the leading etiological factor for neonatal mortality, especially in developing country like ours, it becomes our prime responsibility to overcome it. Better prenatal care, early identification of high risk and complicated cases, regular follow up, proper management, early referral to higher center can help us in reducing preterm births. Advanced facilities, infrastructure, proper handling and management in neonatal intensive care unit will definitely help a premature born infant to fight against the various odds of life.

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