

# Mortality Pattern of Preterm Infants and Etiological Factors of Preterm Births in Rural Tertiary Care Center: A Retrospective Study

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**Abstract-** A substantial number of premature deliveries occur in hospitals lacking neonatal intensive care facilities. Advances in perinatal and neonatal care over the last 30 years have contributed to improved survival among extremely low birth weight (ELBW) infants. Little is known about how birth outcomes vary in rural referral hospitals, by degree of rural isolation.

We conducted a retrospective cohort study, from Feb 2012- Jan 2013, about etiologies and the mortality of preterm birth in MVJ medical college, Hoskote, which is a rural hospital. Much higher neonatal death rates were observed for preterm or low-birth weight babies in rural areas with no metropolitan influence, suggesting inadequate access to optimal neonatal care.

We conclude that birth outcomes in rural areas differ according to the degree of rural isolation. Fetuses and infants of mothers from rural areas with weak or no metropolitan influence are particularly vulnerable to the risks of death during the perinatal and postnatal periods.

**Index Terms-** Premature, Extremely low birth weight, Rural areas

## I. INTRODUCTION

Progress in neonatology is generally portrayed as inexorable: doing better and better with smaller and smaller. This also has led to us pushing down the boundaries of viability and also increasing the morbidity and also the mortality. A number of babies born after a greatly curtailed pregnancy develop into normal adults. Unfortunately, this is not always the case and therefore issues on survival and disability of preterm babies are important in perinatal medicine [1, 2]. In industrialized countries, preterm delivery is responsible for 70% of mortality and 75% of morbidity in the neonatal period. It also contributes to significant long-term neurodevelopment problems, pulmonary dysfunction, and visual impairment [3,4].

Among the neonates, very low birth weight (VLBW) preterm babies are at increased risk of perinatal, neonatal and postnatal mortality and morbidity, mainly due to infections and complications of prematurity. Mortality of VLBW neonates is 30 times more than that of newborns of normal weight[5]. This study is conducted to figure out areas where we can intervene to prevent or decrease preterm mortality.

## II. MATERIALS AND METHODS

This study was done at Neonatal unit of MVJ Teaching Hospital. It is a level III neonatal intensive care unit. The study population comprised of neonates admitted to NICU with gestational age less than 37 completed weeks over a period of one year from Feb 2012- Jan 2013. In this retrospective study, data was collected from hospital records of labour room, NICU and medical records of the admitted preterm babies were reviewed. Data regarding gestational age, birthweight, causes of preterm birth, duration of hospital stay, various morbidity and mortality patterns and treatment provided in the NICU were reviewed. Maternal risk factors contributing to preterm delivery were also analyzed.

## III. RESULTS

During the study period, total of 58 preterm babies were included. Among 58 preterm 53% were late preterm (gestation age 34-37 weeks), 24% were 28- 34 weeks, remaining 3% were <28 weeks. Among them 66% were weighing 1500-2500gms and 5% were < 1000gms. Preterm babies with less than 28 weeks gestation accounted to 8% of all preterm deaths where as neonates with 28-34 weeks and 34-37 weeks accounted to 41% and 50% of all mortality. . Mortality patterns were more in lesser gestational age. Of the 3 neonates with Gestation < 28 weeks 2 expired. Causes of preterm birth were anemia & poor antenatal visits in 57% mothers and PIH in 22% of the cases.

**Table 1: Etiology of preterm birth according to gestational age**

Etiology	Gestation age in weeks			Total cases (% of cohort )
	<28	28-34	34- 37	
PIH	0	12	3	15(25.86%)
Fetal distress	0	0	3	3(5.17%)
Infection	0	3	0	3(5.17%)
Twins	3	0	0	3(5.17%)
Oligohydromnios	0	1	3	4(6.89%)
Anemia and	0	8	22	30

Irregular ANC				
<b>Total</b>	<b>3(5.17%)</b>	<b>24 (41.37%)</b>	<b>31 (53.44%)</b>	<b>29 (48.3%)</b>

**Table 2: Mortality according to gestational age**

Mortality	Gestation age in weeks			Total cases
	<28	28-34	34- 37	
Live	3(5.17%)	21(36.20%)	29(50%)	53(91.37%)
Dead	2(3.44%)	3(5.17%)	0	5(8.62%)
<b>Total</b>	<b>5(8.62%)</b>	<b>24 (41.37%)</b>	<b>29 (50%)</b>	18(31.03%)

#### IV. DISCUSSION

Progress in the frontiers of neonatology has continually pushed back the limit of viability and significantly improved the survival of extremely preterm infants [6, 7, 8]. Regardless of the cause, the burden of prematurity is enormous for the infant, health care system, family and the society [9, 10]. In this study, all cases had obstetrical reasons for premature delivery, which were PIH, multiple pregnancy, oligohydramnios, fetal distress, infection and anemia and irregular ANC.

This was different in comparison to data described from a study done in USA by Ananth CV et al from 1989-2000 that showed cause of premature deliveries is idiopathic in 45-50%, PROM in 30% and preterm deliveries in 15-20% were medically indicated[11]. This difference can be explained by the fact that, our hospital being a tertiary level referral centre, complicated cases are referred from the different parts.

In this study, 53.44% of preterm babies were late preterm which is consistent with proportion described by Goldenberg RL et al [12]. Mortality was 8.62% in this study, which was lesser than seen in a study done by Khan MR et al[13]. In a similar study population and found mortality to be 14%. According to Baki MA et al, Mortality was 36% and was related to gestational age, birth weight, respiratory distress syndrome and requirement of mechanical ventilation [14].

#### V. CONCLUSION

The main risk factors for preterm delivery were anemia, inadequate antenatal check-up and pregnancy induced hypertension. Mortality is inversely proportional to the gestational age. Type of interventions & outcome of the neonate depends on financial Prowess and resourceavailability. Major causes of preterm birth mortality are easily preventable causes like anaemia, regular ANC and sepsis.

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