Mortality Pattern of Hospitalized Neonates in Government Medical College and Hospital, Latur, Maharashtra

Lalita T. Chinte[1*], Lata B. Godale[2]

[1]Assistant Professor, Department of PSM, Government Medical College, Latur, Maharashtra, INDIA.

[2]Professor and HOD, Department of PSM, Government Medical College, Aurangabad, Maharashtra, INDIA.

[*]Corresponding Address:

dr.lchinte@gmail.com

Research Article

Abstract: **Background:** Records of vital events like death constitute an important component of Health Information System. Mortality data from hospitalized patients reflect the causes of major illnesses and care-seeking behavior of the community as well as standard of care being provided. **Objectives:** 1.To study the mortality pattern of hospitalized neonates in Govt. Medical College and Hospital, Latur, Maharashtra. 2. To study some of the antenatal, natal and postnatal factors affecting neonatal mortality. **Methods:** It is a record based cross-sectional study. A retrospective analysis of records of the neonates who were died after admission in NICU of GMCH, Latur, over a period of one year from 1 April 2009 to 31 March 2010 was done. The data was analyzed using Microsoft Excel and interpreted using appropriate statistical techniques. **Results:** There were 186 infant deaths of which 142(74.34%) were neonatal deaths. Of 142 neonatal deaths, 130(91.54%) were early neonatal deaths. The commonest cause of death were LBW 113(79.57%) and prematurity 74(52.11%) followed by sepsis 62(43.66%) and congenital anomalies 21(14.78%). In full term neonates 68(47.88%) the commonest cause for death were birth asphyxia 30(44.11%), sepsis 20(29.41%) and congenital anomalies 10(14.70%). **Conclusion:** This study identifies early neonatal period as the major contributor to neonatal mortality. The gestational age and birth weight have influenced the neonatal outcome. The pattern of neonatal mortality shows that the causes can be easily managed by strengthening and utilization of present health care services.

Keywords: Mortality, Neonate, Latur.

Introduction

India contributes 2.4 million under- five child deaths each year, a stunning 22 percent of the global burden; and nearly half are neonatal deaths. The SRS estimates for the year 2006 is about 28 per thousand live births in the early neonatal period, with about 32 for rural areas and 16 for urban areas. Neonatal mortality rate for the whole country is about 37 per 1000 live births with approximately 41 for rural areas and 23 for urban areas. For Kerala, the neonatal mortality rate is 7 per 1000 live births, with about 9 for rural and 2 for urban areas. In the early neonatal period, its about 6per 1000 live births, with 7 for rural areas and 2 for urban areas. This vast difference in the national and state mortality rates has been attributed to the wider spread of literacy (particularly female literacy) and primary health care[1] Records of vital events like death constitute an important component of Health Information System. Mortality data from hospitalized patients reflect the causes of major illnesses and care-seeking behavior of the community as well as standard of care being provided. The present study was aimed at providing statistical data related to mortality pattern seen in hospitalized neonates.

Objectives

1. To study the mortality pattern of hospitalized neonates in Govt. Medical College and Hospital, Latur, Maharashtra.
2. To study some of the antenatal, natal and postnatal factors affecting neonatal mortality.

Methods

A retrospective analysis of records of the neonates who were died after admission in NICU of GMCH, Latur, over a period of one year from 1 April 2009 to 31 March 2010 was done. It is a record based cross-sectional study. A pre-tested structured data sheet was used as the tool for the study. Data related to the different variables such as age, sex, time interval between admission and death, antenatal complications, period of gestation, mode of delivery, birth weight, cause of death etc. were retrieved from the records. The collected data was analyzed using Microsoft Excel and interpreted using appropriate statistical technique.

Results

There were total 703 admissions at NICU during the year April 2009 to March 2010. Out of total 703 admissions 398 were male and 305 were female. Total infant deaths were 186, out of that 152 (74.34%) were neonatal deaths. In that, 130 (91.54%) were early neonatal deaths and 12 (8.46%) were late neonatal deaths.

Table 1: Showing clinic-social profile of hospitalized neonates died at GMCH, Latur. n= 142

Character	No.	%
Sex male	78	54.92
Female	64	45.07
Age < 7 d	130	91.54
7-28 d	12	8.46
Residence R	86	60.56
U	56	39.43
Religion H	120	84.50
M	22	15.49
Place of delivery	No=118	
Home	17	14.40
Hospital	101	85.59
Mode of delivery	No=119	
Vaginal	84	70.58
Instrumental	05	4.00
Caesarian section	30	25.21

Table 1 shows clinico-social profile of hospitalized neonates. It shows that out of 142 died neonates 78(54.92%) were male, 130 ie.91.54% were belongs to <7 day old. Majority 86 (60.56%) belongs to rural area, 120 (84.50%) were Hindues, 101 (85.59%) were hospital deliveries and 84 (70.58%) were vaginal deliveries.

Table 2: Showing relationship between birth order and neonatal mortality n= 142

Character	No.	%
First born	92	64.78%
Second born	26	18.30%
Third born	20	14.08%
Fourth born	04	2.81%

It shows that, neonatal mortality was maximum among first born 92(64.78%) followed by second born 26(18.30%), third born 20(14.08%) and fourth born 4(2.81%).

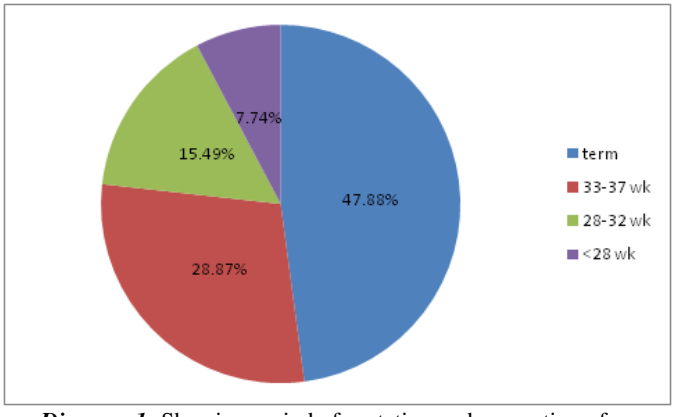

Diagram 1: Showing period of gestation and proportion of mortality

Dia.1 shows that maximum 47.88% neonatal deaths were occurred in term neonates followed by 28.87% in neonate of 33-37 week, 15.49% in neonate of 28-32 week and 7.74% in neonate of <28 week.

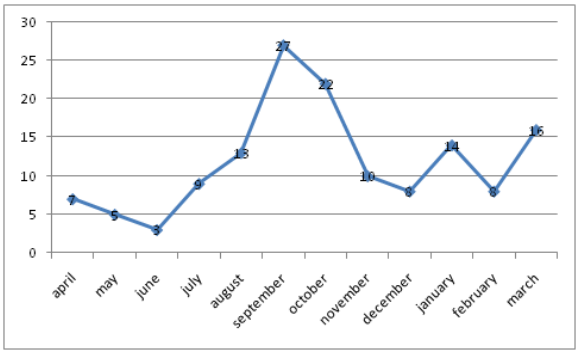

Diagram 2: Showing no. of deaths in different months

Dia.2 shows number of deaths in different months of year. Maximum deaths were occurred in October ie.27 followed by 22 in November, 16 in March, 14 in February, 13 in September and 10 in December.

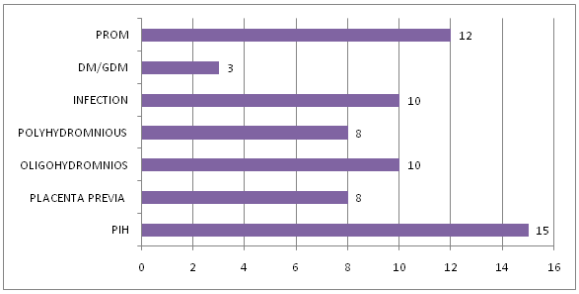

Diagram 3: Showing maternal complications and proportion of mortality

Dia.3 shows that different underlying maternal complication was present in mothers of died neonates. PIH was present in 15, PROM in 12, Infection and Oligohydromnious in 10, polyhydromnious and Placenta previa in 8 and GDM in 3.

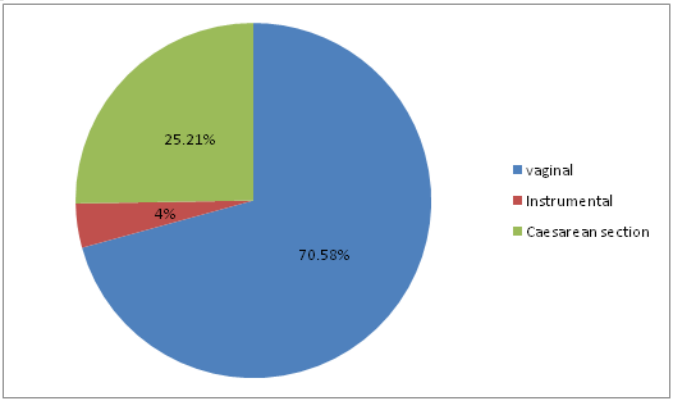

Diagram 4: Showing modes of delivery and proportions of mortality

Table 3: Showing birth weight and proportion of mortality n= 142

Birth weight	No.	%
≥ 2.5	29	20.42%
1.5-2.49	65	45.77%
0.5-1.49	45	31.69%
<0.5	03	2.11%

Table 3 shows that proportion of mortality was different in neonates having different birth weight. It was maximum 65 (45.77%) in neonates having birth weight 1.5-2.49 kg.

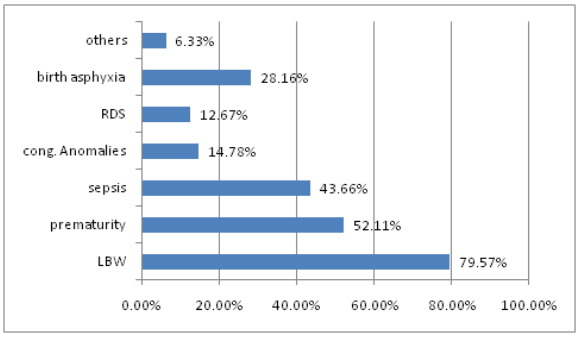

Diagram 5: Showing causes of death among neonates

Dia.5 shows that, among died neonates, most common cause of death was LBW (79.57%), prematurity in (52.11%) and sepsis in (43.66%). Other causes include birth asphyxia, congenital anomalies, RDS etc.

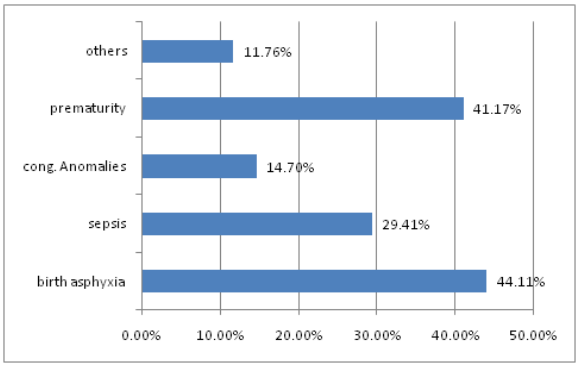

Diagram 6: Showing causes of death among full term neonates n= 68

Dia.6 shows that, in full term neonates, most common cause of death was birth asphyxia (44.11%) followed by prematurity (41.17%), sepsis (29.41%), congenital anomalies (14.70%) and others (11.76%).

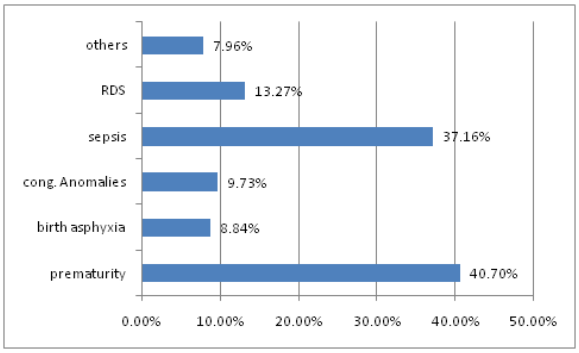

Diagram 7: Showing causes of death among LBW babies n= 113

Dia.7 shows in LBW babies, most common cause of death was prematurity (40.70%) followed by sepsis (37.16%), RDS (13.27%), congenital anomalies (9.73%), birth asphyxia (8.84%) and others (7.96%).

Discussion

The study identified early neonatal period as the major contributor to neonatal mortality. The ICMR Young Infant Study Group identified the first three days as the most hazardous period of life. They observed that ¾th of the neonatal deaths and ½ of the infant deaths occurred in the early neonatal period [2]. A study in Kolkata revealed a higher percentage (55%) of deaths within 24 hours of admission. The need for timely referral and safe transportation of cases from health centres to higher centres has been stressed upon [3]. The main causes of neonatal mortality are intrinsically linked to the health of the mother and the care that she receives before, during and immediately after giving birth. In the present study, around 47% of the deaths had maternal complications. PIH, PROM, infection and oligohydramnios were the major complications. Adequate antenatal care to at risk patients is essential and it can bring down the neonatal mortality considerably [4]. Majority of the deaths (64.78%) were firstborn. The highest mortality in the firstborn has been documented[1]. In this study, the mortality came down as the birth order increased. Out of the total deaths, majority (52.11%) were preterm, of which around 25% were less than 32 weeks of gestation. Similar findings were obtained in a study done at JIPMER, Pondicherry[5]. Birth asphyxia and septicemia were the commonest causes of death in the Kolkata study[6]. Similar study was done by Dr. Anish S. etal (2009)[7], found that, The commonest causes of death were low birth weight (75%), and prematurity (66%) followed by congenital anomalies (37%), respiratory distress syndrome (35%) and sepsis (30%). Two thirds of the deaths were preterm. Maximum mortality was seen with gestation less than 32 weeks or birth weight less than 1.5kg. Among low birth weight babies, the main causes of death were atelectasis and pneumonia (30%) followed by pulmonary haemorrhage. In term neonates the commonest causes were congenital anomalies (57%), and birth asphyxia (33%). PIH and foetal distress were the most common antenatal complications. Singh (1986) noted from hospital based data that bacterial sepsis was a major cause of neonatal mortality in India[10]. In the developing countries, prematurity, and conditions associated with it, cause more than half of the perinatal death[8]. For any given birth weight, shorter the gestational age higher the neonatal mortality[6,9]. So, attempts to prolong pregnancy each week might improve the neonatal outcome considerably[4].

Conclusion

Neonatal mortality is a measure of the intensity with which "endogenous factors" (e.g. low birth weight, birth

injuries) affect infant life. It is the most difficult part of infant mortality to alter because of endogenous factors involved which are not sensitive to improvement in environmental conditions. This study identifies early neonatal period as the major contributor to neonatal mortality. The gestational age and birth weight have influenced the neonatal outcome. With prematurity being the commonest cause of death, attempts to prolong the pregnancy each week might improve the neonatal outcome considerably. Adequate antenatal care to at risk patients is essential and advances in neonatal intensive care using sophisticated technology will improve the neonatal outcome.

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