Perinatal Mortality in Rural Hospital

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ABSTRACT

Introduction: Perinatal mortality rate is a sensitive indicator of quality and quantity of maternal and neonatal health services. Perinatal mortality statistics, despite inherent limitations, provide an important form of audit, to help us evaluate the efficiency of our obstetric and neonatal services, and to make a necessary of an era in a developing country like India. Our aim was to study the causes of perinatal deaths and the trends of early neonatal deaths in NICU with respect to the causes.

Material and methods: Our prospective study was carried out in labour room and N.I.C.U. of Rural Hospital, Loni for two years. We included still born babies with gestational age >28 weeks or weight >1000 grams and early neonatal deaths i.e, till 7th day of life in this study.

Results: In this study we came across 156 cases with the perinatal mortality of 72.4% and early neonatal mortality was 36.18 per 1000 live births. Preterm babies and low birth weight babies contributed more to early neonatal and perinatal deaths. We found birth asphyxia as the most common cause of early neonatal deaths. Two third of all early neonatal deaths occurred in the first 72 hours of life out of which majority were in the first 24 hours of life. Deaths due to birth asphyxia, respiratory distress syndrome and congenital malformations were more in the first 4 days of life and those with septicemia occurred later

Conclusion: Birth asphyxia, respiratory distress syndrome, congenital malformations and septicemia were the leading causes of early neonatal deaths. Two third of all early neonatal deaths occurred in the first 72 hours of life out of which majority were in the first 24 hours of life. Deaths due to birth asphyxia, respiratory distress syndrome and congenital malformations were more in the first 4 days of life and those with septicemia occurred later.

Keywords: Perinatal Mortality, Still Births, Early Neonatal Mortality

INTRODUCTION

The term perinatal mortality includes both late foetal deaths (still births) and early neonatal deaths. Perinatal period is defined as lasting from the 28th week of gestation to the seventh day after birth.

Perinatal mortality rate is a sensitive indicator of quality and quantity of maternal and neonatal health services. Newborns die because of poor maternal health, inadequate care during pregnancy, inappropriate management during delivery and first few hours of life, and lack of newborn care. Progresses of quality improvement in health services are expected to reduce perinatal mortality rates. Various studies from all over India have quoted a perinatal mortality rate of 60-120/1000 live births, which is alarmingly high as compared to 10-20/1000 live births in developed countries like Sweden where the perinatal mortality is mere 4/1000 live births.[1,2]

Nearly 60% of perinatal deaths are contributed by still births.[8] Pregnancy induced hypertension, antepartum haemorrhage, intrapartum asphyxia, infections make up a significant proportion of the cases for still births, although the proportion of these causes contributing individually differ in different studies.[3] The tragedy of it all is that, 70% of these are preventable with appropriate care and due precautions such as adequate antenatal care, timely interventions and early referral.

Study was done to see the probable causes of perinatal deaths attributed to maternal, foetal or placental factors and to study the trends of early neonatal deaths in N.I.C.U. with respect to the causes.

MATERIAL AND METHODS

A prospective study was carried out in labour room and N.I.C.U. of Rural Hospital, Loni for two years. Data was collected in the form of complete maternal history i.e. age occupation, education, socio-economic status habits and family history. Details of past obstetric history regarding antepartum hemorrhage, previous preterm delivery, any previous foetal or neonatal deaths and their probable causes were looked for. Any complaints in the present pregnancy pointing towards any risk factor in the mother as well as foetus were looked for. Complete general and systemic examination to look for any medical or surgical disorder in mother was done. Any laboratory investigations done in mother, routine and specific were checked. Details of baby after the birth with regard to date of birth, time of birth, birth weight were recorded. Intrapartum history was noted. Signs of foetal distress, leaking of membranes and mode of delivery was noted. The placenta was looked for any abnormalies whether gross or microscopic, in cases of still births.

Any rescuscitation required for the baby was noted. Gestational age and other external characteristics were noted. Any congenital anomaly in the was looked for.

After admission of the baby detail clinical examination was done. The treatment given in the N.I.C.U. was recorded. All

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investigations done in the baby were recorded. The course of illness was observed. Details of babies dying in N.I.C.U before 7 days of life were studied. In case of death, the cause of death was noted. Clinical autopsy was done whenever necessary.

Inclusion Criteria

1. Still born babies with gestational age >28 weeks or weight >1000 grams were included.
2. Early neonatal deaths i.e, till 7th day of life were included in this study.

Exclusion criteria

Babies born outside this hospital and dying in this hospital N.I.C.U. were excluded from this study.

Mortality	Number	Total births/ live births	Rate per 1000 births/live births
Still Births	81	2154	37.6
Early Neonatal Deaths	75	2073	36.18
Perinatal Mortality	156	2154	72.4

Table-1: Still Birth rate, Early neonatal death rate, Perinatal Mortality rate

Sex	Still births		Early neonatal deaths		Perinatal deaths	
	No.	%	No.	%	No.	%
Male	41	50.6	45	60	86	55.1
Female	39	48.1	30	40	69	44.2
Unidentified	1	1.2	0	0	1	0.6

Table-2: Sex of baby and perinatal mortality

Weight	Total births	Perinatal deaths	Perinatal mortality rate
1000-1499	57	51	894.7
1500-1999	133	34	255.6
2000-2499	511	33	64.5
2500-2999	993	24	24.1
3000-3499	400	13	32.5
>3500	60	1	16.6

Table-3: Birth weight and Perinatal mortality rate (per 1000 births)

Maturity	Still births		Early neonatal deaths		Perinatal deaths	
	No.	%	No.	%	No.	%
Preterms	45	55.5	42	56	87	55.7
Full-terms	35	43.2	32	42.6	67	42.9
Post-terms	1	1.2	1	1.3	2	1.2

Table-4: Contribution of Preterms /Fullterms to Perinatal Mortality

RESULTS

Table-1 shows the distribution of cases and their respective mortality in each group. In this study we came across 156 cases with the perinatal mortality of 72.4%. Males contributed more in still births, early neonatal deaths and perinatanal deaths as well (table-2). Perinatal mortality rate is high in LBW babies (table-3). Preterm babies contributed more to early neonatal and perinatal deaths (table-4).

Birth asphyxia is the most common cause of early neonatal deaths (table-5).

DISCUSSION

This study was a prospective one, during which we came across 2154 cases.

From Table No.-1, it is evident that, amongst 2154 births there was a still birth rate of 37.6 per 1000 births. Out of all live births (2073) there were 75 deaths giving a early neonatal death rate of 36.18 per 1000 live births. Thus the total perinatal mortality was found to be 72.4.

Manorama Verma (1992) reported perinatal mortality rate of 74/1000 births over a period of 7 years in CMC Ludhiana, Punjab.[4] M. Ravikumar and B.V. Bhat (1996) reported early neonatal mortality among 12,283 consecutive live births to be 26.6/1000 live births.[3] C. Kameshwaran (1993) reported a perinatal mortality rate of 57/1000 births, still birth rate of 35.1/1000 and early neonatal death rate to be 22.7/1000.[5] S.S. Gaddi et al (2001) from Bellary q uoted a highest perinatal mortality of 106.8/1000 live births.[6] Lowest perinatal mortality is reported by Anjali Kamath from Panaji, Goa to be 40.99/ 1000 births.[7] As most of the studies are hospital based, there is wide variation in the reports.

In our study, we found that the still birth rate, early neonatal death rate was high in primiparae, multiparae and grand multiparae. Perinatal mortality is very high in mothers above 30 years of age.

R.K.Puri (1981) reported perinatal mortality rate of 120.5 in elderly mothers above 35 years and also stated that high perinatal risk in mothers of age more than 20 years age is probably more related to relatively large number of 1st

Causes	Day						
	1	2	3	4	5	6	7
Birth asphyxia	10	5	1	1	-	-	-
Respiratory distress syndrome	6	4	2	2	1	-	-
Meconium aspiration with birth asphyxia	4	1	5	2	2	-	-
Septicemia	-	-	-	3	2	2	3
Congenital malformations	4	1	2	1	-	-	2
Birth asphyxia with septicemia	-	-	-	-	-	1	1
R.D.S with septicemia	-	-	-	1	1	-	1
Others	1	1	1	-	1	-	-

Table-5: Cause of death and its relation with age at death:

pregnancies rather than low maternal age.[8]

It is clear that the perinatal mortality rate was very high in very low birth weight babies and there was inverse relation between birth weight and all the death rates. Meherban Singh et al (1982) in their study showed that mortality in infants with birth weight between 1001-1500 grams was 63.7% between 1501-2000 grams was 15.3% and between 2001-2500 grams was 4.05%.[1] C. Kameshwaran (1993) stated that the perinatal mortality in very low birth weight babies was 57.45.[5]

We found that low birth weight babies contributed nearly 75% in still births, early neonatal deaths and perinatal deaths. R.K.Kapoor in his study reported that 76.4% of all still births had birth weight less than 2500 grams.[9]

It is evident that preterms contributed by 55.5, 56 and 55.7% in the still births,early neonatal deaths and perinatal deaths respectively. Usha Shah (1986) found that preterm babies were responsible for 54% of early neonatal deaths.[10] Tan K.C. (1989) showed that among the still births 54% were born prematurely and most of the macerated still births were in preterm babies.[11] Meherban Singh et al (1982) showed prematurity 66% in perinatal mortality rate.[1] Pradeep M. (1995) stated that more than 85% of perinatal deaths occurred in low birth weight and preterm babies.[12]

It is seen that males contributed slightly more than females with regard to still births but significantly more than females in early neonatal deaths. The overall contribution of males was more than females.

It is clear that birth asphyxia with/without meconium aspiration accounted for 40.57% of early neonatal deaths. C. Kameshwaran (1993) reported that severe birth asphyxia was responsbile for 33.3% of early neonatal deaths.[5]

M.Ravikumara (1996) stated that birth asphyxia with/without meconium aspiration was important cause of early neonatal deaths in 50% cases. He also stated that most of these asphyxiated babies were born to unbooked mothers who were referred / sought medical care very late in labour.[3]

It is also evident that respiratory distress syndrome alone contributed by 19.8% in perinatal mortality. It is seen that septicaemia alone accounted for 13.86% of early neonatal death. R.K. Kapoor (1996) quoted an incidence of sepsis to be 12.3% as a cause of early neonatal death.[9] M.Ravikumara (1996) stated an incidence of 10.4% of sepsis as a cause of early neonatal deaths.[3]

It is also evident that congenital malformations contributed by 11.88% in the perinatal deaths. Maximum early neonatal deaths were in the first 3 days of life (63%). C. Kameshwaran (1993) reported that about 92% of early neonatal deaths were in first 72 hours.[5] It is evident that the major and predominant causes of early neonatal deaths were birth asphyxia with/without meconium aspiration, respiratory distress syndrome, septicaemia and congenital malformation and deaths due to these causes was maximum in first 3 days of life and deaths due to sepsis were later. C.K. Kameshwaran quoted that 3 major causes of early neonatal deaths were severe birth asphyxia, HMD and meconium aspiration syndrome and nearly 92% of deaths were in first 72 hours of life.[5]

CONCLUSION

The perinatal mortality was 72.4 per 1000 live births and early neonatal mortality was 36.18 per 1000 live births. There was an inverse relationship between birth weight and the still birth, early neonatal death and perinatal death rate. Low birth weight babies contributed more than three times to still births, early neonatal deaths and perinatal deaths as compared to babies with normal birth weight. Preterm babies contributed significantly more than term babies in still births, early neonatal deaths and perinatal deaths. Male babies contributed more than female babies in stll births, early neonatal deaths and perinatal deaths.

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