

Hospital based study on perinatal mortality in RIMS, Manipur

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I. Introduction

Over 130 million babies are born every year, large numbers of children die soon after birth, many of them in the first four weeks of life (neonatal deaths) and most of them in the first week (early neonatal deaths). For every baby who dies in the first week after birth, another is born dead (fetal deaths/ stillbirths). More than 98% of the estimated 3.7 million neonatal deaths and 3.2 million stillbirths per year occur in the developing countries.¹ Neonatal deaths and stillbirths have many common causes and determinants. For the past 50 years the term "perinatal mortality" has been used to include deaths that might somehow be attributed to obstetric events, such as stillbirths and neonatal deaths in the first week of life.² The legal requirements for registration of fetal deaths and live births vary between and even within the countries. WHO recommends that, if possible, all fetuses and infants weighing at least 500 g at birth, whether alive or dead, should be included in the statistics. The inclusion in national statistics of fetuses and infants weighing between 500g and 1000g is recommended both because of its inherent value and because it improves the coverage of reporting at 1000g and over. For international comparison, 1000g and / or 28 weeks gestation is recommended. The global estimation of perinatal mortality rate (PMR) is 10 per 1000 births in developed countries, 50 per 1000 births in developing countries and 60 per 1000 births in least developed countries.² The highest neonatal mortality rates and rates of stillbirth occur in sub-Saharan Africa, followed by Asia and Latin America. The United Nation's fourth and fifth Millennium Development Goals target for reducing child and maternal mortality to by 2015.³

Ensuring that the labor and the first 24 hours postpartum are managed by a skilled care provider is one of the keys to achieving this aim.⁴ Measures of perinatal mortality can be derived using data from vital statistics, routine health services data, or sample surveys. However, in developing countries, incomplete registration of the births and deaths results in inaccurate vital statistics.⁵ Reduction in the perinatal mortality requires community based interventions in combination with more advanced facilities, technology, and skilled human resources.^{6,7} The present study aims to find out the causes in our institute and detect further possible measures to reduce the mortality.

II. Materials and Methods

The study is retrospective analysis of all deliveries conducted at Regional Institute of Medical Sciences (RIMS) from January 2010 to June 2011. All perinatal deaths i.e. stillbirths and early neonatal deaths were analyzed in detail. Pregnant women having at least three antenatal visits were considered booked cases while one without any antenatal visits anywhere was taken as unbooked cases. Parameters include age, parity, booked or unbooked, different causes of deaths including antepartum, intrapartum and early neonatal death, birth weight as well as gestational age.

III. Results

There were a total of 150 perinatal deaths out of 15526 births during the study period giving a perinatal mortality rate of 9.66 as shown in Table 1. There were 143 women, out of which 7 had multiple pregnancy. Delivery was conducted vaginally in vertex presentation in 97 births (64.67%), assisted breech delivery in 19 (12.67%), Ventouse in 13 births (8.67%), cesarean section in 20 births (13.33%) and one hysterectomy for rupture uterus. Poor Apgar score of less than 7/10 at 5 minutes was seen in 36 births. Table 2 and Table 3 show the perinatal deaths in relation to gestational age and birth weight. The maximum perinatal death was seen in 20-30 years age group (Table 4) and P0 constituted maximum perinatal deaths (Table 5).

Table 1: Perinatal index

Characteristics	Booked	Unbooked	Total
Livebirths	9815	5603	15418
Antepartum deaths	27	41	68
Intrapartum deaths	23	17	40
Early neonatal deaths	20	22	42
Stillbirths (Ante partum + Intra partum)	39	69	108
Perinatal deaths	49	91	150
Perinatal mortality rate (PMR) per 1000 births	4.99	16.24	9.66
Stillbirth rate per 1000 births	3.96	12.17	7.01
Early neonatal death rate per 1000 livebirths	2.04	3.93	2.72

Table 2: Gestational age and perinatal mortality

Gestational age in weeks	Total births	Perinatal deaths	PMR
28- <32	982	42	42.77
32 - <37	3189	36	11.29
37- <42	11323	71	6.27
≥42	32	1	31.25

Table 3: Birth weight and PMR

Birth weight in grams	Total births	Perinatal deaths	PMR
500 - < 1000	74	7	94.59
1000- <1500	222	12	54.05
1500- < 2500	1615	51	31.58
≥2500	13615	70	5.14

Table 4: Showing the distribution of age

Age in years	Perinatal deaths	Percentage (%)
10-<20	12	8.39
20-<30	79	55.24
30-<40	46	32.17
≥40	6	4.20

Table 5: Distribution of parity

Parity	Perinatal deaths	Percentage (%)
P0	73	51.05
P1	35	24.48
P2	18	12.59
P3	8	5.59
P4	7	4.89
≥P5	2	1.39

Table 6: Showing different causes of deaths

Causes	Deaths (n=150)	Percentage%	Booked (n=49)	Unbooked (n=91)
Undetermined	31	20.67	13	18
Prematurity	23	15.33	9	14
Antepartum hemorrhage (APH)	17	11.33	5	12
Severe preeclampsia and eclampsia	15	10	6	9
Congenital anomaly	14	9.33	5	9
Cord prolapsed & cord problems	12	8	2	6
Birth asphyxia	9	6	4	5
Infections	7	4.67	2	5
Multiple pregnancy	5	3.33	2	3
Meconium aspiration syndrome(MAS)	4	2.67	1	3
Severe intrauterine growth restriction(IUGR)	4	2.67	1	3
Obstructed labor	3	2	0	3
Gestational diabetes	2	1.33	1	1
Oligohydraminos	2	1.33	0	2
Rupture uterus	1	0.67	0	1
Severe anemia	1	0.67	0	1

IV. Discussion

The PMR in our study is 9.67 per 1000 births. In booked cases it is only 4.99 compared to 16.24 in unbooked cases. The PMR is lower than reported by many authors though less than other western literature. The lower rate may be due to exclusion of perinatal deaths delivered at home. Hospital studies are not an appropriate source of data for calculating mortality incidence unless all babies are born in a health facility. Stillbirth rate in the study is 7.01 per 1000 births. The rate is higher in unbooked cases (12.17 vs. 3.96 per 1000 births). The rate is still lower than reported by other authors. The early neonatal rate is only 2.72 per 1000 live births. More perinatal deaths occurred in patients not receiving antenatal care and these are consistent with Aras RY et al⁸ and Sujata et al.⁹

The PMR is more in lower gestational age and births weight. The major causes are prematurity, preeclampsia or eclampsia, ante partum hemorrhage, congenital anomaly and cord problems. Undetermined group still constitutes about 20.67 % of the perinatal deaths. Fetal autopsy may help to determine some of the causes. Preterm labor has been the subject of research for many years. Antenatal steroids and up gradation of the

neonatal set up will further decrease deaths. Preeclampsia/ eclampsia accounted for 11.33% of deaths but mostly related to lack of proper antenatal care with poor nutrition. Ante partum hemorrhage can be anticipated to some extent by early localization of placenta by ultrasonography. Congenital abnormality also accounted for 9.33%.

Routine screening programs and expensive equipment with high degree of expertise are needed to pick up anomaly earlier.¹⁰ Some of the cord problems can also be tackled by identification of malpresentations early and availability of emergency obstetric care unless brought late in the hospital. Birth asphyxia is another cause of neonatal death. Proper use of partogram and timely intervention during delivery will decrease the incidence. Infections, multiple pregnancies, MAS, severe IUGR, obstructed labor, gestational, oligohydraminos, rupture uterus and severe anemia are other causes. Adequate antenatal care can thus prevent many future consequences of low birth weight babies, still births and neonatal deaths.

V. Conclusion

We still need to reduce more by not only awareness of proper antenatal checkup but establishment of emergency obstetric care as well as essential newborn care. Early diagnosis and control of hypertension, early detection of congenital anomaly, and prevention of maternal infections, proper intra partum management and an intensive neonatal unit will further decrease it. Fetal autopsy in future may detect many unknown causes.

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