Original article

Perinatal Mortality and Related Obstetric Risk Factors in Dhaka National Medical College Hospital

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Abstract:

Objective: To determine perinatal mortality and its related risk factors in Dhaka National Medical College Hospital.

Study design: Prospective observational study.

Setting: Obstetrics and Gynaecology Department in Dhaka National Medical College Hospital from January to December 2011.

Patients and Methods: All perinatal deaths including stillbirths (SBs) and early neonatal deaths (ENNDs) within 0-7 days of delivery after 28 wks of gestation were studied during the study period, while pregnancies <28 wks of gestation were excluded from the study. The relevant information was collected through a pre-designed data sheet.

Results: A total number of 1882 deliveries were analysed for perinatal mortality (PNM). Among them, there were 41 perinatal deaths (PNDs) giving a perinatal mortality of 21.78/1000 births. There were 36 SBs and 05 ENNDs. Out of all patients, 58.53% women were multipara and 75.61% were booked case. Common risk factors for PNM were hypertensive disorders in pregnancy (26.82%), followed by antepartum haemorrhage (9.75%) and congenital anomalies (9.75%). Malpresentation were found in 7.31% of PNDs, while prolonged labour and prematurity both contribute to 4.87% . In 2.43% cases, septicaemia of neonate and maternal medical disorder (Gestational diabetes mallitus) was the underlying cause. However, in 31.7% cases cause was unknown.

Conclusion: The perinatal mortality in present study is not so high. Many of the causes of perinatal death though unknown but other risk factors can be prevented.

Key Words: Perinatal mortality, Risk factors, Still births, Early neonatal deaths.

Introduction:

Perinatal mortality rate (PNMR) is defined as the number of still births and the first week death per thousand total birth[1, 2]. It is the most sensitive index of maternal and neonatal care and the socioeconomic standard of a particular area. Health of a mother determines the health of her child and maternal health is affected by health over the life cycle starting from childhood through adolescence and pregnancy. Complications during pregnancy and labour therefore remain important factors to determine fetal and neonatal survival and health.

Better monitoring and management of labour, delivery and the immediate postpartum period are thought to be critical to reducing rates of maternal mortality and

perinatal mortality.[3] Ensuring that labour and the first 24 hours postpartum are managed by a skilled care provider is one of the keys to achieving this aim.[4] PNMRs vary widely and may be below 10 per thousand for certain developed countries and more than 10 times higher in developing countries.[5] Though PNMRs is still high in our country but Bangladesh is on track for MDG-4, and has made more progress in reducing neonatal deaths than most low-income countries. In Bangladesh the neonatal mortality decline in the last decade to 4% (27 in 1000 live birth), which is double the regional and global averages (2.0% and 2.1% per year respectively); however, the decline for children 1-59 months was double this rate.[6]

Three-quarters of neonatal deaths (75%) occur in the first week of life with the highest risk of death on the first day of life. Recent evidence shows that perinatal mortality accounts for about 40% of infant mortality and 60% of all under five deaths.[7] It is therefore obvious that MDG-4 cannot be achieved without substantially reducing perinatal deaths.

The prevention of perinatal death is greatly dependent on ascertaining the cause of deaths and the background factors associated with them. Several studies in low income countries has shown that a large proportion of perinatal deaths occur in women who did not receive antenatal care (ANC) during pregnancy[8]. Antepartum haemorrhage secondary to placenta praevia or abruptio placenta; Pre eclampsia or eclampsia all predispose to fetal loss. Multiple pregnancies are associated with preterm delivery and low birth weight, which are leading cause of perinatal morbidity and mortality. In addition, certain maternal health conditions such as diabetes mellitus, anaemia, infections predispose to perinatal death.

Through this study we try to determine PNMR and related obstetrics risk factors, which may serve an important source of information to guide the public health policy and health care providers.

Materials and Methods :

This was a prospective observational study for a period of one year, between January to December 2011. The study was done in Dhaka National Medical College hospital by the Departments of Obstetrics and Gynaecology.

All the deliveries occurring during the study period were included for analysis. Multiple births were recorded as a single pregnancy and the outcome was considered a perinatal death if one or more of the neonates was stillborn or died within one week of birth. The newborn babies were followed upto seven days following their births to record any health problem. A special data sheet was designed to record all the information about the mothers and their newborn babies and was collected by a doctor. We could not do autopsy as it is not routinely practiced in our country.Ethical consideration was taken from the authority.

Results :

During the study period total number of Obstetrics patient admitted in the hospital was 2439 and total deliveries were 1882. Among them, caesarian sections were 1235 and normal deliveries were 647. Out of these, perinatal deaths were 41 with PNMR of 21.78/1000 births. Among the perinatal deaths (PNDs), stillbirths (SBs) were 36 and early neonatal death (ENNDs) were 05 (Table 1). About maternal demographic characteristics most of the mothers (56.09%) were in the age group of 21-30 yrs with para 1-5 (58.53%). Regarding gestational age in weeks, 39% of PNDs occurred in term and 34% occurred in preterm deliveries between 32-36(+6days)weeks. Considering ANC, 75.61% women were booked case and 24.39% had no antenatal care (ANC) (Table II).

The risk factors for the perinatal death are summarized in Table III. Main factors were hypertensive disorder in pregnancy (28.82%) followed by Antepartum haemorrhage in 9.75% cases and congenital anomaly in 9.75% cases. Malpresentation was found in 7.31% cases and prolonged labour which causes fetal asphyxia contributes 4.87%. Prematurity also responsible for 4.87% while maternal medical disorders (gestational diabetes mellitus) were found in 2.43% cases.

Septicaemia of newborn also causes 2.43% perinatal deaths. However, in this study majority (31.7%) cases had no obvious detectable reason (Table III). Regarding mode of delivery, 48.78% delivered by inductions either by misoprostol (34.14%) or by oxytocin (4.87%) or by cervical catheter (7.31%). Spontanous deliveries occurred in 41.46% cases and LUCS needed in 9.75% cases (Table IV).

Fetal weight estimation at birth showed that 43.9% between 1.5-2.5 kg, 31.7% between 2.5-3.5 kg, while 17.07% had <1.5 kg weight. There were only 7.31% babies whose weight were >3.5 kg (Table V).

Table I: Frequency of Deliveries and Deaths

Total number of admission	2439
Total number of deliveries	1882
Total number of LUCS	1235
Total number of normal delivery	647
Total number of still births	36
Total number of ENND (Early Neonatal Death)	05
Total number of perinatal death	41
Perinatal mortality rate	21.78/1000 births
Still birth rate	19.12/1000 births
Early neonatal death rate	2.65/1000 live birth

TableII: Maternal Demographic Characteristics (n=41)

Demographic Characteristics	Frequency	Percentage
Age in years		
<20	08	19.51
21-30	23	56.09
>30	10	24.39
Pariety		
Primiparae	15	36.58
Para 1-5	24	58.53
>5	02	4.87
Gestational age in weeks		
28-31+6days	11	26.82
32-36+6days	14	34.14
>37	16	39.02
Antenatal check up		
Booked	31	75.61
Regular	19	46.34
Irregular	12	29.27
Unbooked	10	24.39
Socio-economic condition		
Low	15	36.58
Medium	22	53.65
High	04	9.75
History of previous Still birth/Neonatal death	02	4.87

Table III: Risk Factor for Perinatal Death (n=41)

Risk Factor	No. of Patients	Percentage
Hypertensive disorders	11	26.82
Gestational Hypertension	4	9.57
Pre-Eclampsia	5	12.19
Eclampsia	2	4.87
Antepartum Hemorrhge	4	9.75
Abruptio Placentae	1	2.43
Placenta Praevia	3	7.32
Prolonged Labour	2	4.87
Malpresentation	3	7.32
Congential anomali	4	9.75
Hydroccphalus	1	2.43
Anenccphaly	2	4.87
Multiple fetal defects	1	2.43
Maternal Medical Disorder (Diabetics Mellitus)	1	2.43
Infection	1	2.43
Prematurity	2	4.87
Unknown	13	31.7

Table IV: Mode of Delivery (n=41)

Mode of Delivery	No. of Patients	Percentage
Induction	20	48.78
Misoprostol alone	14	34.14
Oxytocin alone	02	4.87

Misoprostol + Oxytocin	01	2.43
Cervical Catheter	03	7.31
Spontaneous vaginal delivery	17	41.46
LUCS	04	9.75

Table V: Weight at Birth

Weight in kg	Number	Percentage
<2.5	18	43.90
2.5-3.5	13	31.70
>3.5	3	7.31
<1.5	7	17.07

Discussion :

Mortality rate among under 5 years old children has decreased substantially over the past 20 years in developing countries, but perinatal mortality has not followed the same pattern and continues to present a huge burden.

Present study showed perinatal mortality rate is 21.78 per thousand total births and still birth rate is 19.12 per thousand births and early neonatal death rate (ENNDR) is 2.65 per thousand live births. So still birth is 87.80% and ENND is 12% of total perinatal mortality. No national statistics are available for perinatal mortality rate (PNMR). Begum F et al [9] reported an overall PNMR of 55/1000 total births in Bangladesh. The PNMR at BIRDEM Hospital, Dhaka over a 5 years period was 49.9/1000 total births.[10] A very high PNMR of 151 per 1000 births was found in a Teaching Hospital[11] . Yousfani S et al.[12] reported PNMR of 100.7/1000 total births in the Liquate University Hospital Hyderabad, Pakistan. Singh M et al[13] found PNMR of 41/1000 total birth from all India Institute of medical sciences, India. This difference in the rate of PNMR is because of the difference in the standard of perinatal care and difference in the socioeconomic condition.

Present study showed 56% of perinatal death occurred in mothers between 21-30 years age, which is similar to study done by Yousfani S et al.[12] While Ibrahim et al.[14] have reported that teenage mothers and mother >34 years of age have a twice higher risk of PND. Our study reported mother of para 1-5 showed a higher PNM while other reported that the first born and the babies after 5th child are at greater risk. We showed that in 26.82% cases perinatal death occurred at the gestational age of 28-31+wks and in 34.14%cases at the gestational age 0f 32-36+wks.So most of the perinatal death occurred between the gestational age of 28-36+wks which is similar to other surveys.[15] Majority of women in this study had antenatal check-up and belonged to medium social class which is differ by Billoo A et al.[16]This difference may be due to the fact that most of our mothers came from middle class family who are educated and know about the importance of ANC.

Among the risk factors for perinatal death in this study, unexplained antepartum fetal death was of a high percentage (31.7%) which is similar to other study findings.[17,18] This is followed by hypertensive disorders of pregnancy as the leading cause of PNM. Ngoc NTN et al[19] found similar observation in there study but differ from the study done by Yousfani S et al.[12] According to our findings, antepartum haemorrhage (APH) associated with 9.75% of perinatal mortality which is almost similar to the other finding[11] but in another study showed APH was the commonest risk factor.[12] Regarding congenital abnormalities, it was found in 9.75% cases similar to the finding of Yousfani S et al.[12] but it was slightly higher in another study[16] .The contribution of prematurity to perinatal mortality is well known.[20] In our study it was 4.87% which is similar to other findings10. Azad et al.[21] showed 13.3% cases of perinatal death due to prematurity. Reduction of death due to prematurity in our hospital probably because of antenatal use of Steroid and good neonatal care. Prolonged labour was contribute to 4.87% in this study which is not so common, however labour difficulties remain an ever known risk factor in the study conducted by Baloch R et al.[22] This may be because of expanding maternity services in our center as well as facility to caesarean section is available round the clock. In this study, most of the deliveries occurred by

induction of labour which is similar to others. We found that perinatal deaths were more in males baby than females. Fauveau V et al.[23] and Azad K et al.[21] also showed the same result in their study, Low birth weight (<2.5 kg) definitely carry a high risk of perinatal death as seen in our study and other surveys.[15]

The limitation of this study were not a large scales study and hospital based and we can not do autopsy especially in unknown cause of still births. More research is needed to find the cause of perinatal mortality.

Conclusion :

Low income countries account for 97-98 percent of reported global perinatal death. It is therefore not possible to achieve the stated MDG-4 goal by 2015 without addressing the cause and determinants of perinatal mortality especially in low income countries.

In this study, it was showed that risk factors for perinatal death are preventable if detected earlier and treated properly.Provision of safe motherhood services including antenatal care, clean and safe delivery and emergency obstetric and neonatal care services will help in reducing the perinatal death.

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