

ORIGINAL ARTICLE

Perinatal Mortality and Morbidity at Dr. Pirngadi Hospital Medan 1985 - 1986

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Abstract

A retrospective study was conducted on babies born during January 1985 to December 1986 at Dr. Pirngadi Hospital Medan. The aim of this study was to evaluate perinatal mortality and morbidity, and various possible factors related to the subject matter.

The main results can be summarized as follows :

There were 7102 deliveries during the study period consisting of 999 babies weighing less than 2500 gram and 6103 with body weight of 2500 gram or more. Perinatal mortality rate was 563.56 ‰ in the first group and 78.49 ‰ in the second while the overal mortality rate was 146.72 ‰.

Rate of perinatal demise was high in babies born from mothers in the age groups of below 20 and above 35 years, namely 681.82 ‰ and 202.19 ‰. It was also high among primiparae (165.67 ‰) and more so among grandmultiparae (246.46 ‰).

There were 1966 (30.49%) ill newborn babies with asphyxia neonatorum accounting for 44.91%, infection 30.42% and respiratory problems 9.21% of the main causes of illness, while respiratory problems (40.05%) and infection (28.68%) constituted the main causes of death.

We concluded that the rate of perinatal mortality and morbidity is still high at this hospital. Quality of prenatal and neonatal care with extensive public health education is necessary to be enhanced for the reduction of perinatal mortality and morbidity.

Introduction

The rate of perinatal mortality and morbidity in a national scale has not yet been established. This is due to various contributive conditions such as unavailability of the national report on birth and death records of babies and the community's ignorance of its importance. Thus the rates of perinatal mortality derived from various reports such as maternity care monitoring (MCM) in 12 teaching hospitals 76.21 ‰ (BKS Penfin, 1981), National Health System 43 ‰ - 45 ‰ (Dep.Kes., 1981) or other investigators e.g. Alisyahbana (1979) in Ujung Berung village 43.9 ‰, Sudianto and Hariadi (1981) in Dr. Sutomo Hospital 71.65 ‰ and Saragih et al. (1981) in Dr. Pirngadi Hospital 87.3 ‰ did not reflect the real problem prevailing in the community. Although the existing trend of perinatal mortality and morbidity decrease lately, no marked reduction was evident during the years 1970 (140 ‰), 1980 (107 ‰) and 1985 (85 ‰) (Siregar et al., 1987) whereas in developed countries the decrease of perinatal demise was significant, particularly in the last 2

decades in concurrence to the improvement of living standard, nutritional condition and health service.

Markum et al. (1983) estimated that approximately 72% of death among babies occurred during the perinatal period with 85% of them in the early neonatal period, so that efforts for the reduction of rate of babies demise should be attempted at striving to decrease perinatal mortality. For this measures the recognition of closely related or influential factors, either paediatric or obstetrical, in the process of the occurrence of perinatal mortality and morbidity are necessary. Thus the collective objective of modern paediatrics and obstetrics in bringing about maximum quality of the newborns and babies, and chance for optimum physical, mental and emotional development can be attained.

The aim of this study is to assess perinatal morbidity and mortality at Dr. Pirngadi Hospital Medan during the period 1985-1986 and the various possible factors that could possibly influence the subject matter.

Materials and methods

The investigation was carried out retrospectively on babies born during the years 1985-1986 at Dr. Pirngadi Hospital Medan.

Number of live and stillbirth, birthweight, method of delivery, clinically established cause of morbidity and mortality of baby, and age and parity of the mother were all recorded.

Results

During the study period there were 7102 deliveries at Dr. Pirngadi Hospital consisting of 6447 (90.78%) livebirths and 655 (9.22%) stillbirths. From the total number

of birth, 14.07% of them weighed less than 2500 grams and 85.93% had a birthweight of 2500 grams or more (table 1).

Table 1 : *Distribution of birthweight and perinatal death*

Birthweight (gram)	No. of birth	Live-birth	Still-birth	E N D	Perinatal death	P M R (‰)
< 2500	999	701	298	265	563	563.56
≥ 2500	6103	5746	357	122	479	78.49
Total	7102	6447	655	387	1042	146.72

END : early neonatal death
PMR : perinatal mortality rate

Table 1 shows that 563 out of 999 babies with birthweight of less than 2500 grams (563.56 ‰) died before labour and seven days after labour and from 6103 babies with birthweight of 2500 grams or more only 479 (78.49 ‰) died at the same period; hence the overall perinatal mortality rate was 146.72 ‰.

Table 2 : *Distribution of type of illness by birthweight and early neonatal death (END)*

Type of illness	Birth weight			E N D total %
	< 2500 n = 701	≥ 2500 n = 5746	total (%) n = 6447	
Asphyxia	193	690	883 (44.91)	49 (12.66)
Infection	129	469	598 (30.42)	111 (28.68)
Breathing difficulty	128	53	181 (9.21)	155 (40.05)
Congenital anomaly	14	45	59 (3.00)	12 (3.10)
Trauma + hemorrhage	10	38	48 (2.44)	14 (3.62)
Other illness	78	119	197 (10.02)	46 (11.89)
Total	552 (78.74%)	1414 (24.61%)	1966 (30.49%)	387 (6.00)

The total number of ill babies were 1966 (30.49%) with 552 of them (78.74%) from the 701 babies with birthweight of less than 2500 grams and 1414 (24.61%) from the 5746 babies with normal birthweight. There were 1966 ill babies from 6447 livebirths and the morbidity was chiefly due to as-

phyxia (44.91%), infection (30.42%), and breathing difficulty (9.21%) whilst early neonatal death numbered 387 (6.00%) of the total livebirths.

The highest number of demise among the morbid babies was due to breathing difficulty (40.05%) and infection (28.68%).

Table 3 : Relationship between mode of delivery and type of illness

Type of illness	No. of babies	Mode of delivery				
		spontaneous delivery	forcep extr.	vacuum extr.	Caes. section	manual aid
Asphyxia	883	264 (29.89%)	10 (1.13%)	194 (21.97%)	394 (44.62%)	21 (2.38%)
Infection	598	286 (47.83%)	6 (1.00%)	94 (15.72%)	196 (32.76%)	10 (2.68%)
Breathing difficulty	181	99 (54.69%)	1 (0.55%)	18 (9.94%)	59 (32.60%)	4 (2.21%)
Congenital anomaly	59	43 (72.88%)	-	8 (13.56%)	6 (10.17%)	2 (3.39%)
Trauma + hemorrhage	48	19 (39.58%)	-	22 (45.83%)	7 (14.58%)	-
Other illness	197	97 (49.24%)	-	51 (25.89%)	39 (19.80%)	10 (5.08%)
Total	1966	808 (41.10%)	17 (0.86%)	387 (19.68%)	701 (35.66%)	53 (2.70%)

It can be seen from table 3 that asphyxia was mostly encountered in Caesarian section deliveries (44.62%), infection in spontaneous deliveries (47.83%), and trauma and hemorrhage in vacuum extractions (45.83%).

Table 4 : Relationship between delivery method and perinatal mortality rate (PMR)

Method of delivery	No. of babies	live-birth	still-birth	EN D	Perinatal death	PMR %
Spontaneous delivery	5149	4751	398	149	547	106.23
Caesarean section	1011	916	95	151	246	243.32
Vacuum extraction	615	596	19	74	93	151.22
Breech delivery	173	142	31	9	40	231.21
Embriotomy	65	-	65	-	65	1000.00
Version & extraction	20	17	3	3	6	300.00
Forceps extraction	16	15	1	1	2	125.00
Total	7102	6447	655	387	1042	146.72

It is evident from table 4 that spontaneous delivery constituted the majority of delivery method (72.50%) with a low mortality rate (106.23 ‰). Other methods of delivery were breech extraction (2.44%),

Caesarean section (14.24%) and vacuum extraction (8.66%) and others (2.16%).

The highest perinatal mortality rate was found in Caesarean section (243.32 ‰) and breech delivery (231.21 ‰).

Table 5 : Distribution of maternal age and perinatal mortality rate

Maternal age	No. of babies	live-birth	still-birth	EN D	Perinatal death	PMR %
< 20	286	214	72	123	195	681.82
20 - 24	1883	1736	147	72	219	166.30
25 - 29	2337	2132	205	41	246	105.26
30 - 34	1686	1538	148	50	198	117.44
≥ 35	910	827	83	101	184	202.19
Total	7102	6447	655	387	1042	146.72

It can be seen from table 5 that perinatal demise was high among mothers under 20 and over 35 years of age i.e. 681.82 ‰

and 202.19 ‰ respectively and the difference was highly significant ($p < 0.001$) compared to the perinatal death of mothers aged 20-35 years.

Table 6 : Distribution of parity and perinatal mortality rate

Parity	No. of babies	live-birth	still-birth	EN D	Prinatal death	PMR %
1	2004	1771	233	99	332	165.67
2 - 4	3613	3417	196	148	344	95.21
5 -	1485	1259	226	140	366	246.46
Total	7102	6447	655	387	1042	146.72

It is evident from the above table that perinatal mortality was high among grand-multiparae (parity 5 or over) 246.46 ‰

and primiparae 165.67 ‰ and the difference was statistically significant ($p < 0.001$) compared to that of parity 2-4.

Discussion

Perinatal morbidity and mortality rate constitutes one parameter of the quality of obstetrics and pediatrics service in a community. The rate of perinatal demise in Indonesia (table 7) decreased by stages yet still high in comparison to those in ASEAN countries, such as Thailand (68.00 ‰),

Philippines (65 ‰), Malaysia (45 ‰) and Singapore (13 ‰) (Makaliwy, 1986).

The perinatal mortality rate in Dr. Pirngadi Hospital Medan did not change much and inclined to increase compared to the previous years (table 8); this study revealed a PMR of 146.72 ‰.

Table 7 : Perinatal mortality rate in Indonesia

Year	Perinatal mortality rate (‰)
1961 - 1971	137
1971 - 1975	110
1980	98
1983	93
1985	85

Table 8 : Perinatal mortality rate in Dr. Pirngadi Hospital Medan

Year	Number of birth	Perinatal mortality rate (‰)
1975 - 1977	8686	98
1978	3258	128.9
1980	3641	87.3
1984	3663	132.68
1985 - 1986	7102	146.72

Dr. Pirngadi Hospital Medan is a referral hospital which receives referred cases from surrounding areas. The high rate of perinatal mortality demise in this hospital could be possibly due to the great number of pregnancies without adequate antenatal

care, low nutritional status and high rate of prenatal complication as obtained by Chalik (1982) which give high rate of low birth weight babies, intra uterine growth retardation and labour complication.

It is obtained from this study that babies

with a birthweight of less than 2500 grams have a high perinatal morbidity and mortality rate i.e. 78.74% and 563.56 ‰ respectively. Similar results were also found by Siregar et al. (1987) 509.84 ‰, Aliyahbana (1979) 400.16 ‰, MCM in 12 teaching centres (1981) 300.7 ‰, whereas Damodar et al. in India (1983) obtained a lower rate of 124.41 ‰.

The perinatal mortality rate in a national scale is difficult to obtain and so is the perinatal morbidity. According to several studies in various teaching hospitals, perinatal morbidity which is conducive to death is divided into 5 groups of diseases i.e. asphyxia, infection, birth weight disorder, birth injury and congenital abnormality (Hanafiah, 1986).

This study encountered 30.49% morbid babies out of total livebirths with the majority of ailment being asphyxia (44.91%) and infection (30.42%); babies with breathing difficulty (40.65%) and infection (28.68%) accounted for the majority of perinatal demise (table 2).

Method of delivery greatly influenced the baby's condition after birth. Our investigation encountered a high number of fatality in delivery with obstetrical intervention (table 4) which similar result was also obtained by Tjay et al. (1970) where the rate in Caesarian section was 177.2 ‰,

365.5 ‰, 333.3 ‰, 152.7 ‰ and in forceps extraction 254.0 ‰, 225.3 ‰, 238.9 ‰, 109.9 ‰.

Asphyxia arising due to Caesarian section amounted 84.00% as obtained by Suyoso et al. (1981), 54.60% by Isoedibyso et al. (1986) and 44.62% by us (table 3).

Age of the pregnant mother is one causative factor of the high perinatal mortality rate. In our study, a high rate of perinatal demise was found in mothers under 20 and above 35 years of age (table 5); the same result was derived from Damodar et al. in India (1983), Rangkuti et al. (1980) in Medan found a high rate among mothers aged under 19 and over 40 years ($p < 0.01$) and Siregar et al. (1987) with 159.26 ‰ of perinatal demise in mothers less than 20 years of age and 179.49 ‰ in over 35 years.

Perinatal mortality rate was high in primi and grandmultiparae (table 6); similar result was also obtained by Damodar et al. (1983) 105.96 ‰ and 71.06 ‰, Siregar et al. (1987) 137.07 ‰ and 183.91 ‰, and Suryantoro and Ridho (1979) who concluded that the lesser the parity the better compliance for good antenatal care resulting in the decrease of morbidity rate ($X^2 = 21.56066$; $p < 0.01$) and mortality rate ($X^2 = 34.99$; $p < 0.01$).

Summary and conclusion

The perinatal mortality rate of 147.72 ‰ during the 2 years study period (1985 - 1986) in our hospital is still high; in the group of low birthweight babies it was 563.56 ‰ and in Caesarian section 243.32 ‰.

The perinatal mortality rate is also high among mothers under 20 (681.82 ‰) and over 35 (202.19 ‰) years of age and in primiparae (165.67 ‰) and grandmultiparae (246.46 ‰).

The main causes of perinatal morbidity were asphyxia (44.91%), infections (30.42%) and respiratory problems (9.21%); while respiratory problems (40.05%) and infections (28.68%) were the main causes of death in these ill newborns.

Quality of prenatal and neonatal care with extensive public health education is necessary to be enhanced for the reduction of perinatal mortality and morbidity.

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