

One year audit of perinatal mortality at Kathmandu Medical College Hospital

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Abstract

Introduction: Perinatal mortality is a sensitive indicator of the quality of service provided to pregnant women and their new borns. Regular audit of perinatal mortality will help in finding out preventive factors and thus helps in reducing perinatal mortality rate in an institution.

Objective: This study was carried out to determine perinatal mortality rate (PMR) and the factors associated with it at KMCTH in the one year period (Bhadra 2059 – Shrawan 2060)

Materials and Methods: This is a retrospective study of entire still births and early neonatal deaths that occurred at KMCTH during the one year period (Bhadra 2059 – Shrawan 2060). The study was done by collecting the data of all stillbirths and early neonatal deaths from record books of the Special Care Baby Unit, Labour Room and operation theatre.

Results: Out of 563 total births in the one year study period, 17 were still births (SB) and 10 were early neonatal death (ENND). Out of 17 SB, 7 were of < 1 kg and out of 10 ENND, 3 were of < 1 kg. Thus, perinatal mortality rate during the study period was **30.7** and extended perinatal mortality rate was **47.9** per 1000 births. Perinatal deaths were mostly due to extreme prematurity, birth asphyxia, septicemia and congenital anomalies. According to Wigglesworth's classification, 18.5% of perinatal deaths were in Group I, 14.8 % in Group II, 22.3 % in Group III, 40.7 % in Group IV and 3.7 % in Group V. Intrapartum asphyxia was the commonest cause of perinatal deaths, but majority of these babies were of low birth weight. Prevention of preterm births, better care during intrapartum period, more intensive care of very low birth weight and preterm babies would help in reducing the present high perinatal mortality.

Key words: Perinatal Death Audit, Perinatal Mortality

Perinatal mortality is a sensitive indicator of the quality of service provided to pregnant women and their newborns. Perinatal mortality audit in an institution helps to find out not only the status of quality of services provided but also helps to determine the important causes of perinatal deaths and take measures to reduce it. PMR is very high in developing countries especially in South Asia region countries. In Nepal, PMR was reported to be 47 / 1000 births (NDHS 2001*)

Materials and Methods

This is a retrospective study of the entire stillbirths and early neonatal deaths that occurred at KMCTH during one year period (Bhadra 2059 – Shrawan 2060). The study was done by collecting the data of all stillbirths and early neonatal deaths from record books of the Special Care Baby Unit, Labour Room and operation theatre. The maternal characteristics like age, parity, antenatal care, maternal diseases during pregnancy and mode of delivery were analyzed.

Perinatal death analysis was also done according to birth weight, sex, gestational age, time of death. The main causes of perinatal deaths were ascertained and classified according to Wigglesworth's classification.

Results

Out of 563 total births in the one year study period, 17 were stillbirths and 10 were early neonatal death (ENND). Out of 17 still births, 7 were of < 1 kg and out of 10 ENND, 3 were of < 1 kg. Thus, perinatal mortality rate during the study period was **30.7** and extended perinatal mortality rate was **47.9**. Majority of births occurred normally (70.1%), 26.4% babies were delivered by caesarean section, 0.5% were vacuum delivery, 0.9% were forceps delivery, 0.4% were breech delivery, 0.5% were multiple pregnancy and premature delivery 1.2%.

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Most of the perinatal deaths (PND) occurred among primi mothers, most of them were in between 20 –35 years and had ANC > 4 visits. Among the PNDs, majorities were delivered normally (51.8%), 22.2% were premature deliveries and 7.4% were delivered by caesarean section. While majority of stillbirths were male (68.7%) but majority of ENND were female (60%). Most of the PND were <1kg which constituted 37%, 18.5 % of PNDs were in the weight group of 1- 1.5 kg, 15% of PND were in between 1.5 – 2.5 kg and 29.5 % PND were > 2.5 kg. Over 76.8% PND were pre term (<36weeks of gestation), out of which 22.2% were 28 weeks and 55.6% were in between 28 to 36 wks. Most of stillbirths were fresh

(70.5%) where as 29.5% were macerated. Causes of most stillbirths were unknown (47%) where as 29.2% were due to intra partum asphyxia (APH, obstructed labour, tight cord around neck etc). Commonest cause of ENND was extreme prematurity (60%),the rest were due to birth asphyxia(20%),Septicemia(10%) and Congenital anomalies(10%). 40% of ENND occurred within 24hrs of birth while 30% occurred in between 24– 72hrs and most of them were asphyxiated. According to Wiggleworths classification, 18.5 % PND were in Group I, 14.8% in Group II, 22.3% were in Group III, 40.7 % were in Group IV and 3.7 % were in Group V as shown in Tables 1-15.

Table 1: Deliveries and Perinatal mortality in one year (Bhadra 2058 – Shrawan 2059)

Total no. of births:	563
Total no. of still births:	17
Total no. of still births (excluding < 1 kg = 7)	10
Total no. of ENND :	10
Total no. of ENND : (excluding < 1 kg = 3)	7
Total Perinatal Death:	17
PMR	30.7
Extended PMR:	47.9
Total Still birth rate	30.2
Still birth rate (excluding < 1 kg)	18.1
ENND rate	18.3
ENND rate (excluding < 1 kg)	12.9

Table 2 Types of deliveries at KMCTH:

Type of deliveries	No.	%
Normal delivery	395	70.1
Caesarian section	149	26.4
Forceps delivery	5	0.9
Vacuum delivery	3	0.5
Premature delivery	6	1.2
Breech delivery	2	0.4
Multiple pregnancy	3	0.5
Total no. of deliveries	563	100.0

Analysis of Perinatal Death:

Maternal Characteristics:

Table 3 Perinatal deaths according to maternal age.

Age	SB		ENND		Total PND	
	No.	%	No.	%	No.	%
<20 yrs	-	-	-	-	-	-
20- 35 yrs	12	70.6	10	100.0	22	81.5
>35 yrs	5	29.4	-	-	5	18.5
Total	17	100.0	10	100.0	27	100.0

Table 4 Perinatal deaths according to Parity

Parity	SB		ENND		Total PND	
	No.	%	No.	%	No.	%
Primi	7	41.2	8	80.0	15	55.5
Multi	6	35.3	1	10.0	7	26.0
Grand multi	4	23.5	1	10.0	5	18.5
Total	17	100.0	10	100.0	27	100.0

Table 5 ANC received by mother

ANC	SB		ENND		Total PND	
	No.	%	No.	%	No.	%
< 4 times	7	41.1	2	20.0	9	33.3
> 4 times	10	58.9	8	80.0	18	66.7
No	-	-	-	-	-	-
Total	17	100.0	10	100.0	27	100.0

Table 6 Types of delivery of perinatal deaths

Types delivery	SB		ENND		Total PND	
	No.	%	No.	%	No.	%
Normal delivery	10	58.8	4	40.0	14	51.8
Caesarian section	1	5.8	1	10.0	2	7.4
Breech delivery	2	11.8	-	-	2	7.4
Twin delivery	-	-	3	30.0	3	11.2
Premature delivery	4	23.6	2	20.0	6	22.2
Total	17	100.0	10	100.0	27	100.0

Table 7 Perinatal deaths according to Sex

Sex	SB		ENND		Total PND	
	No.	%	No.	%	No.	%
Male	11	68.7	4	40.0	15	57.6
Female	5	31.3	6	60.0	11	42.4
Total	16	100.0	10	100.0	26	100.0

- Sex of 1 perinatal death (SB) was not known due to extreme prematurity.

Table 8 Perinatal deaths according to weight

Weight	SB		ENND		Total PND	
	No.	%	No.	%	No.	%
< 1 kg	7	41.2	3	30.0	10	37.0
1 - < 1.5 kg	3	17.6	2	20.0	5	18.5
1.5- < 2.5kg	3	17.6	1	10.0	4	15.0
> 2.5 kg	4	23.6	4	40.0	8	29.5
Total	17	100.0	10	100.0	27	100.0

Table 9 According to gestational age

Gestational Age	SB		ENND		Total PND	
	No.	%	No.	%	No.	%
< 28 wks	6	35.3	-	-	6	22.2
28 - 36 wks	9	53.0	6	60.0	15	55.6
37 - 41 wks	2	11.7	1	10.0	3	11.1
42 wks & above	-	-	3	30.0	3	11.1
Total	17	100.0	10	100.0	27	100.0

Table 10 Types of stillbirth:

Still birth	No.	%
Fresh	12	70.5
Macerated	5	29.5
Total	17	100.0

Table 11 Causes of stillbirth

Causes	SB	%
Maternal factors: Intra partum Asphyxia	5	29.2 %
a) Antepartum haemorrhage	2	11.8
b) Obstructed labour	1	5.8
c) Intra uterine asphyxia	1	5.8
d) Maternal disease (RHD +MS)	1	5.8
Foetal factors:	4	23.8 %
a) Congenital anomalies	3	18.0
b) Tight cord around neck	1	5.8
Unknown	8	47.0 %
Total	17	100.0

Table 12 Causes of ENND

Causes	ENND	%
Extreme Pre maturity	6	60.0
Birth Asphyxia	2	20.0
Septicemia	1	10.0
Congenital Anomalies	1	10.0
Total	10	100.0

Table 13 ENND by time of death:

Time of death	ENND	%
< 1 hr of birth	2	20.0
1 -- 24 hrs of birth	4	40.0
24-- 72 hrs of birth	3	30.0
> 72 hrs of birth	1	10.0
Total	10	100.0

Table 14 ENND by Appgar score:

APGAR At 1'	ENND		APGAR At 5'	ENND	
	No.	%		No.	%
1 – 3	5	50.0	1 -- 3	4	40.0
4 – 7	4	40.0	4 -- 7	2	20.0
8 – 10	1	10.0	8 -- 10	4	40.0
Total	10	100.0	Total	10	100.0

Table 15 Perinatal Death Analysis by Wigglesworth's Classification:

Wigglesworth's Classification	SB		ENND		Total PND	
	No.	%	No.	%	No.	%
Group I	5	29.4	-	-	5	18.5
Group II	3	17.6	1	10.0	4	14.8
Group III	-	-	6	60.0	6	22.3
Group IV	9	53.0	2	20.0	11	40.7
Group V	-	-	1	10.0	1	3.7
Total	17	100.0	10	100.0	27	100.0

Discussion

PMR and EPMR in this hospital during the study period were found to be still high compared to PMR and EPMR reported by other hospitals (Patan hospital – PMR: 19.5, NMR: 7.8 / Prashuti Griha – PMR: 29.5, EPMR: 34.8). (Ref. 3). At Prashuti Griha main cause of PND was birth asphyxia where as infection was the main cause of PND at Patan hospital and TUTH at Kathmandu. In this study, 60% PND were due to extreme prematurity, 20% were due to birth asphyxia and 10% of each was due to infection and Congenital anomalies. Death due to birth asphyxia among term babies was not seen. Probably this was due to use of partographs, good intrapartum monitoring and timely interventions. Caesarean section rate was fairly high (26.4%) in comparison to other hospital (Prashuti Griha-7%)

Conclusion

In this retrospective study, most of perinatal deaths were occurred in Group III and Group IV of Wigglesworth's classification, which showed that there were two common causes of perinatal deaths-

extreme prematurity with VLBW and intra partum asphyxia. Preventing premature delivery, better monitoring, care during intra partum period and intensive care of very low birth weight would help in reducing the PMR in this hospital.

References

1. Annual report of Department of Health Service, 2000 / 2001 (NDHS 2001)
2. Manandhar D. S. - An overview of perinatal death audit in Nepal Souvenir 1st National Conference of PESON 1997: 17 – 18
3. Malla K. -Perinatal Mortality at Maternity Hospital (Souvenir 4th Conference of Perinatal Society of Nepal, PESON 2004)
4. D.P.Pradhan, Usha Shah – Perinatal mortality in Bheri Zonal Hospital - JNMA 1997:35. 146 – 149
5. Morgan C., Rongong R. – Perinatal mortality at United Misson Hospital - JNMA 1997:39.342 - 347
6. S.R. Shrestha – Perinatal mortality at Kathmandu Model Hospital - JNMA 2000:39.342 - 347