PERINATAL MORTALITY AT KATHMANDU MODEL HOSPITAL

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ABSTRACT:

Total number of 410 deliveries were performed at Kathmandu Model Hospital (KMH) during 33 months (April 96 -Dec 98). Among 410 deliveries 107 (26.09%) cases were done by Lower Segment Caesarean Section (LSCS), 54 cases (13.37%) by forceps delivery, 188 (45.85%) cases normal vaginal delivery with epigiotomy and 61 (14.87%) normal vaginal delivery with or without tear.

During this period, 6 twin delivery cases were observed. There were 14 cases of perinatal deaths (still birth -10 and neonatal-death - 4). Hence, perinatal mortality rate during this period in this hospital was 34.15.

Perinatal mortality was mostly due to severe prematurity, birth asphyxia, ante-partum haemorrhage (APH), intrauterine growth retardation (IUGR), congenital abnormalities and sepsis.

KEY WORDS: Neonatal death, Still birth, Perinatal mortality, Antepartum haemorrhage (APH), Sepsis.

INTRODUCTION :

Perinatal mortality is a big problem in developing countries. Every year about 140 million live babies born worldwide. Out of 10 babies, 9 born in developing countries. Eight million babies, mostly

in developing countries die within first year of life and 50 % of them die within first month life.¹

In Asia PNMR is 53/1000 births.¹ In nation wide, PNMR of Sri-Lanka is 25/1000 births, Pakistan is 70/1000 births, Thailand is 20/1000 births, Bang

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ladesh is 80/1000 births, India is 65/1000 births, Japan is 5/1000 births and Nepal is 75/1000 births.² In Africa this rate is 75/1000 births in comparison to 39/1000 in Latin America. This rate is very low in Europe (13/1000) and America (9/1000).¹

In Nepal, out of every 1000 babies born, seven die in the first day of life, 16 die by the end of first week and about 30 die within first month of life.³

Perinatal period extends from 28th week of gestation to the first week of life.

Perinatal death includes still birth plus death of early neonate. The perinatal mortality rate (PNMR) is defined as the ratio of still birth plus early neonatal death divided by the total births per thousand births in a year.^{4,5}

$$\text{PNMR} = \frac{\text{Still births plus yearly neonatal deaths} \times 1000}{\text{Total births}}$$

PNMR is also calculated as:

$$\frac{\text{Still births} + \text{Early Neonatal deaths weighing} > 1000 \text{ gms at birth} \times 1000}{\text{Total birth weighing more than 1000 gms}}$$

More than 90% of neonatal death occur in first seven days and 40% of deaths of under five years of age occur in first 24 hours of life.^{6,7} Perinatal deaths are influenced by perinatal conditions and circumstances surroundings labour and delivery.

There is no record on still birth in Nepal. But the problem is very high. According to our study, still birth is high (60%) in comparison to post-natal death (40%).

METHODS AND MATERIALS:

This study was done at Kathmandu Model Hospital (KMH), which is running under a non governmental organization known as Public Health Concern Trust (pfect-Nepal), established in 1991.

KMH is a 55 bedded hospital with 10 maternity beds, 2 delivery tables, a neonate unit with 1 incubator. Most women, who are on regular Ante Natal Check up (ANC) in this hospital get admission through out patient department or emergency department for delivery. However, we do admit women, who have had ANC out side or without any ANC.

During admission, detail history regarding age, parity, obstetric history and other health status are taken. Regular check up are done by obstetrician. Partograph is strictly maintained during labour. Deliveries are conducted by doctors (obstetricians) with the help of nurses on duty. All deliveries are attended by paediatrician and all new born babies are examined thoroughly during delivery and regular ward visit. New born babies are checked for maturity, congenital abnormalities etc. Weight of all new new born babies are taken and analyzed in relation to WHO weight standard for neonates of developing countries. With this we provide level II perinatal care in this hospital.

RESULTS:

Table 1

Total birth	410
Total live births	407
Total still birth	9
Total neonatal death	5
Total perinatal death	14

Table 1 shows total no. of birth, live birth during 33 months. Besides, this table also shows cases of still birth, neonatal death and perinatal death during the same period.

Table 2

Obstetric History of pregnant Women.

		Parity		
Year	primi	2-4	> 5	
1996	48	45	1	
1997	96	72	4	
1998	61	80	3	
Total	205 (50%)	197 (48%)	8 (2%)	

This table shows, most of the deliveries occurred in primigravida (50%). Deliveries among multigravida is 48% and deliveries among grand multigravida is only 2%.

Table 3
Age of Mother

Year	Age group			
	15 - 19	20 - 24	25 - 29	> 30
1996	13	49	27	5
1997	37	80	41	14
1998	10	62	51	21
Total	60 (14.63%)	191(46.58%)	119(29.02%)	40(9.75%)

This table shows maximum number of deliveries occurred among 20 - 24 years age group i. e. 119 (46.58%). Average age of expectant mother during 33 months showed 23 yrs. Average age of primigravida mother is 21 yrs.

Table 4
Average delivery per month

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1996	-	-	-	4	6	11	10	14	9	10	13	11
1997	17	9	13	12	10	5	16	12	20	24	13	14
1998	13	12	14	3	12	13	12	11	14	10	11	19

This table shows that maternity and neonatal unit was started in April 1996 and maximum no of deliveries occurred in the month of October 1997.

Table 5
Weight of the baby

1000-1449 gms	7 (1.70%)
1500-2499	51 (12.25%)
2500 and above	358 (86.05%)
Total	416 (100%)

The above table shows that most of the babies born in this hospital has weight >2.5 kg, but average weight for male and female babies during this period corresponds to 2.85 kg .

Table 6
Sex of the child.

Sex	1996	1997	1998	Total
Male	50	83	82	215 (51.7%)
Female	44	94	63	201 (48.3%)
Total	94	177	145	416 (100%)

The above table shows that number of deliveries of male child is slight more than that of female child.

Table 7
Gestational age of the baby.

Maturity	Number	%
Preterm <37 weeks	31	7.4%
Term	361	86.8 %
Post term	24	5.8%
Total	416	100%

This table shows that 86.77% of the babies delivered in KMH were term babies. Birth of pre-term and post-term babies are very low in comparison to term babies.

Table 8
Causes of Still birth.

Severe prematurity and congenital abnormality	2 (N.D.with Episiotomy)
Obstructed labour and hand prolapse	1 (Cesarean Section)
Injury (Fall from height 2 weeks prior to delivery)	1 (N.D)
Fetal distress	2 (N.D)
APH (P.V.bleeding 3 times in toilet before birth)	1 (N.D)
Unknown causes (Loss of fetal movement 20 days before birth	2 (N.D)

Two of the major causes of still birth are severe prematurity and birth asphyxia.

Table 9
Causes of early neonatal death

No Causes	No. of cases
Severe birth asphyxia	2
Severe prematurity	1
Severe prematurity with congenital abnormalities	1
Sepsis	1

Severe birth asphyxia is the major cause leading to early neonatal death.

DISCUSSION:

The current status of maternal and child health are dismal in most developing countries including Nepal. Most deliveries are non institutional and only 6% of total births are attended by the trained man power. Over 90% of deliveries take place in rural areas, with problems of accessibility and acceptability of available health services.⁸

The Nepal Family Health Survey (NFHS) of 1996 indicates that 92% of all deliveries are conducted at home with 23% of the total deliveries attended by a traditional birth attendant (TBA), 9% by doctor or nurse, and 58% by a relative or neighbour or friend.

The inadequacy of perinatal service is reflected in the form of high incidence of low birth weight (25-30%) and prevailing neonatal mortality rate of over 50 per thousand live births.⁸

In our study, PNMR of KMH is 34.15/1000 births. The PNMR of Indra Rajya Laxmi Prasutigriha, Kathmandu is in the range of 40/1000 births.⁹ The PNMR of Patan Hospital is 20.4/1000 births,¹⁰ Tansen Mission Hospital is 91.2/1000 births.¹¹ Bheri Zonal Hospital is 138.8/1000 births¹² and Tribhuvan University Teaching Hospital (TUTH), Maharajung is 30.58/1000 births.¹³

Our study shows that intranatal problems resulting still birth is 64.3% and post-natal problems causing early neonatal deaths is 35.7%. Early neonatal death in our study is due to birth asphyxia (40%), congenital abnormalities (20%), sepsis (20%), and severe prematurity (20%).

Mostly, early neonatal deaths occurred in low birth weight babies (75%). The baby who died due to septicemia was born full term, normally with vaginal delivery without any complications, but soon after delivery the baby developed septicemia, and died despite of treatment. Neonatal death due to severe prematurity with or without any complications could not be prevented. Effective and timely resuscitation of the asphyxiated babies would contribute in reducing early neonatal death. Neonatal death due to septicemia could be prevented by promoting exclusive breast-feeding and strict aseptic precaution while handling babies, and regular cleansing of the labour and neonate room. Good socioeconomic condition, education and nutritional condition of mother play a great role in reducing PNMR.

Fresh still birth due to intrapartum asphyxia could be easily reduced by better monitoring intrapartum and timely intervention for it. Still birth due to injury also can be prevented, if the mother came to hospital on time after the incidence. Due to late admission, stillbirth due to trauma could not be prevented. Still birth due to obstructed labour also can be reduced by better assessing the progress of labour and timely intervention. Still birth due to unknown causes could also be prevented, if the expecting mother came to hospital on time, soon after the feeling of loss of fetal movement.

CONCLUSION :

Although in our country, PNMR given by different sources are different, but data available from

various hospitals confirm the high rate of PNMR.

The PNMR of Nepal as shown by division of Reproductive Health WHO 1997 AD is very high 75/1000 births and besides this, data available from various hospitals also confirm the high rate of PNMR. Perinatal Mortality is a big problem in our country in comparison to other developed countries.

In our study the causes of perinatal death is due to complications of labour. As shown above, the main causes of perinatal death are as follows: Severe prematurity with congenital abnormalities, trauma during pregnancy, fetal distress, obstructed labour, prolapsed fetal parts and low birth weight etc.

Perinatal mortality is a good parameter of the available health services of the country. Without reducing perinatal mortality it is not possible to reduce infant mortality as well as under five mortality rate. It also shows the socioeconomic and educational status of the people of our country.

In order to reduce PNMR and Under five mortality rate, it is very important to give attention on following points.

1. **Health Education:** As far as possible, health education should be given to all expectant mothers on following topics;
 - i) Importance of nutrition during pregnancy.
 - ii) Hazards of too early and too late pregnancy.
 - iii) Hazards of smoking and drinking during pregnancy.
 - iv) Hazards of heavy manual work during pregnancy.

Besides this health education should be given about the importance of regular ANC visits.

2. **Training:** Training of different level of health

worker. As most of deliveries are conducted by untrained birth attendants, priority should be given to them. All health workers involve in delivery conduction of the babies must be trained in the resuscitation of the new born baby.

3. Establishment of the referral centers for labour and delivery (Primary, secondary, tertiary level referral centers) according to the severity of risk factors. For those complications (of pregnancy and labour) which occur outside of hospital, improvement are desperately needed in the areas of community education, ANC, access to health care facilities.
4. Equipping the referral centers with appropriate equipment. The referral center should be posted with the health personnel trained in safe delivery procedure and resuscitation of new born baby.
5. Besides above recommendations, it is necessary to have good cooperation between paediatrician and obstetrician to provide quality services to the mothers and neonates. And the government should develop and implement such kind of national policy, which will help to reduce perinatal mortality. Besides these, health worker of all levels should work in such a style that help to reduce the present PNMR.

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