PERINATAL MORTALITY-ONE YEAR ANALYSIS AT TERTIARY CARE HOSPITAL OF PESHAWAR

Farhat Khanum

Department of Obstetrics and Gynecology,
Postgraduate Medical Institute, Hayatabad Medical Complex, Peshawar - Pakistan

ABSTRACT

Objective: *To calculate the perinatal mortality rate in one unit of tertiary care hospital and to find out the various demographic and maternal risk factors leading to it.*

Material and Methods: *This descriptive study was conducted in the Gynae (B) Unit of Post Graduate Medical Institute Lady Reading Hospital Peshawar for a period of one year from 1st June, 1991 to 31st May 1992. A prospective review of all still births from 28 weeks of pregnancy or having birth weight 1000gm (2.2lbs) and early neonatal deaths within the first week of life was done.*

Results: *According to the results of the study, the perinatal mortality rate was 192 / 1000 births (512 perinatal deaths / 2667 total births). Still birth accounted for 84.5 % of perinatal deaths while 15.5% were early neonatal deaths. The leading cause of still births was mechanical disorder of labour (137 (31.6%) still births) forward by antepartum hemorrhage (112 (25.8%) cases of still births.) Hypertension of mother was responsible in 80 (18.4%) cases. Congenital malformation contributed to 8.50% of perinatal deaths. The leading causes of neonatal deaths were birth asphyxia (60%) and prematurity (45%). In 12% of cases no cause could be found out.*

Conclusion: *This study shows a high perinatal mortality rate 19.2% of which still birth was commonest cause (84.5%) followed by congenital malformations (8.5%).*

Key Words: *Perinatal mortality. Still births. Neonatal deaths. Infant mortality.*

INTRODUCTION

Perinatal mortality (PNM) is widely used as an indicator of the health of a population and the effectiveness of health services. It also reflects the economic, social, educational and cultural development of the population as a whole. World Health Organization (WHO) I.C.D. 10 criteria for perinatal mortality rate (PMR) included all still births from twenty two (22) weeks of gestation (or birth weight of ≥500gm) to neonatal deaths within seven days after birth[1]. For the rural populations of developing countries like Pakistan, perinatal deaths are defined as fetal death after 28 weeks gestation or ≥1000gm and early neonatal deaths within the first week of life[2]. Due to better availability of health services and advances in the neonatal intensive care, perinatal death has been reduced in western countries but the picture in developing countries is entirely different. WHO estimated the number of perinatal death worldwide to be greater than 7.6 million, with 98 percent of these deaths occurring in the developing countries[2]. In Africa PMR as high as 75 per 1000 birth have reported, estimates for Asia are in the range of 36-74 per 1000 birth[2].

The PMR for Pakistan is estimated to be 95 per 1000 birth[3]. A multi center survey in Pakistan gave the PMR as 92 per 1000 birth, with majority of deaths (72%) due to still births[4]. In peri urban slum communities around Lahore, PMR is 97 per 1000 births with still births rate of 44% and PDH survey in Lahore confirmed on overall PMR of 114 per 1000[4]. But even more disturbing PMR is one of the premier institution of Karachi is 97.2 per 1000 total birth which has largely remained unchanged over the last 40 years[5].

The high PMR in developing countries

therefore is a great challenge to the obstetricians and paediatrician. An attempt is made to find out the PMR in our hospital admission and to find out the various demographic and maternal risk factors leading to it.

MATERIAL AND METHODS

This study was conducted in the Department of Obstetrics and Gynaecology 'B' unit of the Post graduate Medical Institute Lady Reading Hospital Peshawar for a period of one year from 1st June 1991 to 31st May 1992. It was a prospective analysis of all perinatal deaths during the study period.

Inclusion criteria included all diagnosed cases of still births, both macerated or fresh, neonatal deaths within seven days of births after 28 weeks of gestation or weighing 1000gm or more. Both singleton and multiple births were studied. Exclusion criteria included any early neonatal deaths with loss of follow up from the nursery, or babies with birth weight of less than 1000 gm's or mothers dying undelivered with a dead fetus. All these case were admitted in labour room and antenatal ward through emergency or outpatient clinic. All these deliveries took place in the labour room of the unit. After delivery baby with suspected or diagnosed morbidity was admitted to the neonatal care unit (Nursery) of the hospital. A standardized proforma was printed which included admission status of mother whether booked or emergency, maternal age, parity, period of gestation, complication in pregnancy, labour and mode of delivery. The fetal/neonatal features included the gestational age, weight, sex, the cause of perinatal death, the type of death whether fresh still births, macerated or neonatal deaths. In case of neonatal death, the age at death. Any congenital malformation. Postmortem examination was not performed due to religious and ethical reasons. The causes of perinatal deaths were classified according to the Aberdeen classification and Extended Wiggles Worth classification of perinatal causes.

DEMOGRAPHIC FEATURES OF MOTHERS (TOTAL NO.502)

Nature of Admission	No. of Patients	% age
Emergency	492	98.00
Booked	10	2.00
Age Year		
≤ 20	21	4.10
21-35	343	68.30
Above 35	139	27.30
Gravidity		
Primigravida	108	21.5
Multigravida	211	42.0
Gradmultigravida	183	36.4
Period of Gestation (weeks)		
28-36+6	185	36.8
37-41+6	314	62.5
42 and above	3	0.60

Table 2

PERINATAL MORTALITY RATE

Total No of deliveries	2667
Total Perinatal deaths	512
Total still births	433
Total Neonatal deaths	79
Perinatal mortality rate	192/1000 total birhs

Table 1

RESULTS

Total numbers of deliveries were 2607 and total babies born during this period were 2667, total perinatel deaths were 512 including twins and triplets. Total numbers of patients having perinatal deaths were 502, total numbers of still births were 433 while neonatal deaths were 79. perinatal mortality rate (PMR) was 192/1000 births [Table-I]

Non booked cases contributed to 98% of the sample population while only 10 (2%) were booked cases. 343 (68.3%) and 138 (27.3%) of the deaths occurred in mothers between 21-35 and above 35 years of age respectively. 211 (42%) perinatal deaths occurred in multigravida and 183 (21.5%) in grand multigravida. The duration of pregnancy in 62.5% of cases was from 37-41 weeks while 36.8% cases were preterm. 275 (53.5%) babies weighed between 2.5-4kg and 195 (38.1%) were of low birth weight (<2.5kg). This study showed a higher death rate among male 290 (55.6%) as compared to female 222 (44.4%). In 62.5% cases fresh still birth was seen. While macerated still births were 113 (22%). 63.3 % of neonates died within 24 hours of delivery [Table-III].

The commonest (31.6%) cause of still birth was obstructed or prolonged labour, ruptured uterus, cord accidents and difficult deliveries like breech deliveries, instrumental deliveries where intrauterine anoxia and birth trauma were responsible for the deaths. The next common cause was antepartum hemorrhage responsible for 112 (25.3%) deaths, of these 67 were due to abruptio placentae. Hypertensive disorder of mother was the third most common in 80 (18.4%) cases. This

FETAL/NEONATAL CHARACTERISTICS (TOTAL NO. 512)

Weight in gm	No. of Patients	% age
1000 - 2499	195	38.10
2500 - 4000	275	53.10
Above 4000	42	8.20
Sex		
Male	290	55.60
Female	222	44.40
Type of deaths		
Fresh still births	320	62.50
Macerated still birth	113	22.00
Neonatal deaths	79	15.40
Status on admission		
Dead	404	79.10
Alive	108	20.90
Age of neonatal death (Total No. 79)		
Within 24 hours	50	63.30
24 - 72 hours	21	26.60
After 72 hours	8	10.10

Table 3

includes pregnancy induced hypertension in 41 cases and eclampsia in 21 cases. Among congenital malformation which caused deaths in 37 (8.50%) cases, most frequent congenital malformation was neural tube defect. In 52 (12%) still birth no cause could be found out. It included 32 babies with < 2.5 kg while 20 were above 2.5 kg [Table-IV]. The leading causes of neonatal deaths were asphyxia (48 cases) and low birth weight (36 cases) [Table-V].

DISCUSSION

The high perinatal mortality of 192 per 1000 births in our study reflects the poor socioeconomic condition, poor health and poor educational and cultural development of our population. It also reflects the lack of antenatal care especially to high-risk mother. Majority of our patients were admitted in emergency (98%). These women often come from far flung areas, and handled by un-trained people. As compared to other developed countries, record maintenance and audit are non-existent in our country. Across the world, there are wide differences in perinatal mortality rates. Comparison between countries is often difficult. In developed countries like USA and UK it is reported to be 6.20[6] and 7.9 / 1000[7]

CAUSES OF STILL BIRTHS (TOTAL NO.433)

Causes of Still Births	Total Number	% age
Mechanical	137	31.6
Obstructed labour	27	
Prolonged labour	18	
Ruptured uterus	34	
Difficult delivery	35	
Neglected transverse lie	23	
Cord prolapse	9	
Antepartum haemorrhage	112	25.8
Abruptio placenta	67	
Placenta praevia	26	
Unclassified APH	19	
Hypertensive disorder	80	18.4
Eclampsia	21	
Preeclampsia	41	
Ess. Hypertension	15	
Renal causes of hypertension	3	
Congenital malformation	37	8.50
Medical disorder	10	
Diabetes mellitus	7	
Jaundice	1	
High fever	1	
CCF	1	
Rh. Incompatibility	2	0.46
Postmturity	3	0.69
Unknown	52	12.00
Birth weight <2.5kg	32	
Birth weight >2.5kg	20	

Table 4

births respectively. On the contrary PMR in Asian countries is higher, for example in India PMR is 48.6 per 1000 births, Indonesia has 45 per 1000 births and Thailand has 28.3 per 1000 births[3]. A populous country like Bangladesh has PMR of 54.3 per 1000 in one study[8]. Afghanistan has one of the highest maternal and perinatal mortality rates in the world[9]. In our study the PMR calculated as 192 per 1000 birth is fairly higher than national figure of 95 per 1000. With regard to the age of the mother, the very young[10] and the older mother[11] are at higher risk. In our study major age group was 21-35 years because it was small study and this is the common reproductive age group. Our study also showed that a higher percentage of mothers were multigravida while other studies showed a higher percentage of grand multigravida followed by primigravida.

CAUSES OF NEONATAL DEATHS (TOTAL NO.79)SOME BABIES HAD MORE THAN ONE CAUSE

Causes	Total Number	% age
Asphyxia	48	60.70
Low birth weight	36	45.50
Meconium Aspiration	1	1.70
Jaundice	2	2.50
Congenital heart defect or any other congenital abnormality	4	5.00
Bronchopneumonia	2	2.50
Cord infection	1	1.30
Septicemia	4	5.00
IDM	1	1.30

Table 5

Considering the period of gestation it has been observed that largest number of death were noted in term babies. This is in contrary to other studies where the largest number of death were noted in babies born before 37 weeks of gestation[5,12,13]. The study done in Rawalpindi showed 63% contribution of prematurity to the perinatal mortality[14]. This was because other risk factor when combined together outnumber the prematurity as a major risk factor. The deaths of large number of mature and average sized babies in the study group was due to the fact that majority of cases were admitted in emergency with complications like obstructed and prolonged labour, ruptured uterus, antepartum hemorrhage where the fetuses were already dead. Nothing could have been done to save these babies. These cases did not have any antenatal care and were mishandled by untrained people. Surgeries like C-section and laparotomies had to be performed in these cases. This has increased the frequency of abnormal deliveries in the study group (52%), which is comparable to other studies[5]. However in some cases difficult deliveries like breech vaginal deliveries, instrumental delivery and destructive procedure were directly related to perinatal deaths.

Our study also showed that 21% of fetuses were alive in utero on admission, this showed the poor quality of intrapartum fetal monitoring. In our study majority of the PN deaths were still births (84.5%) while 15.5% were neonatal deaths comparable to a study done in Karachi[5] and Jamshoro[15]. Most of the neonates (63.3%) died within 24 hours of birth when maximum care and observation is needed. This showed the lack of facilities and modern technology in our neonatal intensive care unit. Our study showed perinatal gender ratio of 290:222 with male fetuses dying in higher numbers. The perinatal gender ratio for our country is established to be 120:100[3]. The study done in Quetta also revealed the male gender of fetus to be a significant risk factor for perinatal deaths[13].

Macrosomia (birth weight >4 kg) was seen in 42 (8.20%) cases. Deaths of macrosomic babies were due to difficult delivery, obstructed labour, and rupture uterus. This mortality indicates lack of antenatal and intranatal care. Dickstein et al in a study concluded study that lack of prenatal care is an independent risk factor for perinatal mortality among macrosomic newborns[16].

The major determinants of PNM in Pakistan are mechanical causes in 25%, antepartum hemorrhage in 20% and hypertensive disorders in 12%[4]. The leading causes of still births in our study were mechanical factors (32%) like obstructed labour, difficult deliveries, malpresentation, uterine rupture and cord prolapse; antepartum hemorrhage (26.3%), hypertensive disorders (18.9%) and congenital malformation (8.50%).

Abruptio placenta is an important cause of PNM and morbidity in developing as well as in developed countries. In some studies abruptio placentae was associated with more than 50% of intrauterine fetal demise and most of these babies weighed 2.5kg and above[17,18]. Similarly hypertensive disorder like eclampsia is also a major cause of PNM[19].

Congenital malformations were seen in 37 cases and neural tube defect was the major malformation seen in our study similar to other studies also[5].

Globally the main direct causes of neonatal deaths are estimated to be preterm birth (28%) sever infection (26%) and asphyxia (23%)[20]. In the present study birth asphyxia (48 cases) and prematurity (36 cases) both showed positive association with mortality as seen in other studies[21]. In 12% of deaths no cause could be found out as no autopsy was carried out. This study confirms the high frequency of such serious preventable obstetric problem which is the major determinants of high perinatal mortality.

This study has certain limitation. It was conducted in a tertiary level referral hospital hence it was not a true representation of large community population. Sample size of study was also limited, over a period of one year.

CONCLUSION

This study shows a high perinatal

mortality rate in our hospital admission. Majority of the factors responsible for high perinatal mortality are avoidable. Efforts must be oriented towards primary measures to improve the condition at community level. Therefore, health education, good nutrition and adequate care during antepartum intrapartum and postpartum period are recommended.

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Address for Correspondence:
Dr. Farhat Khanum
Department of Obstetrics and Gynecology
Postgraduate Medical Institute,
Hayatabad Medical Complex, Peshawar – Pakistan.