INTRODUCTION

Perinatal deaths or perinatal mortality remains a challenge in the care of pregnant women worldwide, particularly in developing countries.

There is no concrete estimate of perinatal mortality for Pakistan. Most of the data is either hospital based or obtained through the reporting mechanism of economic affairs and the planning division of government. The process of birth and death registration may vary considerably among countries and even among the local provinces especially when infants are born prematurely or die soon after birth. Perinatal statistics may be unreliable in birthing centres or where unattended by trained individuals.

Perinatal death is about one hundred times more common than maternal death. A demographic survey of eight squatter settlements in Karachi indicated a perinatal mortality rate (PNMR) of 54.1/1000 births with a still birth to early neonatal mortality rate (NNMR) of 126:1.3 Similarly a large prospective study of 1476 births in a village and peri slum based population around Lahore revealed a perinatal mortality rate of 67/1000 births, with a still birth rate of 44%. Still births ratio is an important indicator of quality of neonatal obstetric care. The Pakistan Demographic and Health (PDH) survey estimated that 62% of all neonatal deaths took place in the first week after birth. The study of the birth cohort in Lahore also confirmed an overall infant mortality rate of 114/1000 with 57% of the recorded deaths occurring during the neonatal period, and 35% of all deaths occurred in the first week of life. Strikingly two thirds of all deaths occurred either due to continuation of an intrauterine insult or due to a lethal congenital anomaly. Asphyxia accounts for the largest single number of deaths (86%) of all deaths in the first 24 hours after birth. The risk of perinatal mortality increases with increasing gestational age before 35 weeks of gestation, but decreases proportionately thereafter. It is estimated that nearly 25% of all births in Pakistan are low birth weight (LBW) with a correspondingly high mortality and morbidity. Not all problems in the newborn period are related to LBW. CESDI (Confidential Enquiry into Still birth and Death in Infancy) was set up in UK in 1992 to improve the understanding of how the risk of death from 20 weeks of pregnancy to one year of birth, might be reduced. CESDI attempts to identify risks that can be attributed to sub-optimal clinical care.

ABSTRACT

Objective: To determine the feto-maternal factors contributing to perinatal mortality (PNM) in singleton gestation.

Study Design: Descriptive study.

Place and Duration of Study: Gynae Unit-III, Civil Hospital, Karachi, from January to December 2002.

Methodology: All obstetric patients with singleton pregnancy and gestation age greater than 24 weeks, regardless of age, parity and gravidity attending the gynae unit III in labor room and ward were recruited. Patients with gestational age less than 24 weeks or multiple pregnancy were excluded. Relevant data regarding history, risk factors in mother and baby were recorded on a pre-designed proforma and later analyzed on SPSS 10 for descriptive statistics and comparison of proportions using chi-square statistics. Neonatal death was defined as live born infant who died before 28 days of age. Still birth encompassed any death of a fetus after 20 weeks of gestation or 500 gms, and perinatal mortality was considered as the sum of the still birth and neonatal death.

Results: In the 1505 studied mothers, the perinatal loss was 187(12.43%) including 140 still births and 47 neonatal deaths (3.12%). Perinatal mortality rate (PNMR) was 124/1000 total live births and neonatal death rate (NNDR) was 34/1000 live births. The commonest cause of still birth was antepartum hemorrhage (33.5%) and the commonest cause of NND was birth asphyxia (64%). PNM in relation to neonatal birth weight was highest in the 2.5 – 3.5 kg range i.e. 70 (50%, p=0.86). The proportion of primi/multi parity was 60 (45%) and 23 (49%) in still birth and neonatal deaths respectively (p=0.308). The leading causes of prematurity were antepartum hemorrhage, hypertensive disorders and chorioamnionitis.

Conclusion: Perinatal mortality is markedly affected by fetal maturity. Parity and fetal weight have an insignificant effect on perinatal mortality.

The objective of this study was to evaluate the causes of perinatal mortality seen in singleton pregnancies delivered at a tertiary care hospital.

**METHODOLOGY**

This is a descriptive study conducted at Obstetrics and Gynaecology Unit-III, Civil Hospital, Karachi, from January to December 2002. Inclusion criteria were singleton pregnancy with gestational age of at least 24 weeks. Exclusion criteria were multiple gestations and gestational age less than 24 weeks.

Variables noted were gestational age in weeks, baby weight in kg on delivery, maternal parity, possible cause of perinatal mortality, presence of malformation etc. Relevant data regarding history, risk factors in mother and baby were recorded on a pre-designed proforma and later analyzed on SPSS 10 for descriptive statistics and comparison of proportions using chi-square statistics. Neonatal death was defined as live born infant who dies before 28 days of age. Still birth encompassed any death of a fetus after 20 weeks of gestation or 500 gms, and perinatal mortality was considered as the sum of the still birth and neonatal death.

**RESULTS**

Among the 1505 studied deliveries, the total perinatal mortality was 187 with 140 still births and 47 neonatal deaths giving a PNMR of 124/1000 and NND of 34/1000 live births.

The major causes of still birth were ante-partum hemorrhage in 47 (33.5%), hypertensive disorder in 18 (12.8%), prematurity in 16 (11.4%), infection in 13 (9.2%) obstructed labour in 10 (7.1%), congenital malformation in 3 (2.1%), ruptured uterus in 3 (2.1%), other causes in 23 (16.4%) and unknown causes in 7 (5%) as given in Table I. Major causes of NNDs were intra-partum asphyxia (30, 64%), prematurity (9, 18.9%), infection (6, 13%) and congenital malformation (n=2, 3.9%) given in Table II. Table III gives details of the associated factors. Maximum still births occurred in the 2nd to 5th gravid status (63, 45%) and neonatal deaths in the 2nd to 5th gravid (G) at 23 (49%).

Perinatal mortality was considered as the sum of the still birth and neonatal death.

**DISCUSSION**

Over 130 million babies are born every year and more than 10 million infants die before their fifth birthday, almost 8 million before their first birthday. The perinatal mortality rate is a key health status indicator. It is multi-factorial in etiology and is significantly influenced by the quality of health care. If measures are adopted to avoid perinatal death due to error or omission on the part of health service personnel, then the impact of the intervention can be rigorously evaluated by simply measuring the PNMR. In the present study, the fetal loss in year 2002 was 187 among 1505 deliveries at the study setting. Still births were greater. PNMR was 124/1000 live births and NND was 34/1000 live births.

A multi-centre survey from hospital based facilities indicated an overall PNMR of 92/1000 births, where the majority of deaths 140 (72%) were still birth. A review of available data on PNMR from a premier tertiary care institution of Karachi indicated hardly any change in the PMR of 109/1000 over the last 40 years. In this study, PNM was observed as the highest in mothers aged 20-35 years. NND in relation to maternal age was also highest in the same age group. The increase in the very pre-term birth and the subsequently lower birth rate observed in nulliparous teen age girls suggest that maternal age is a risk factor for very pre-
term birth and associated with long-term hazards. This is not corroborated by the present study, where PNM in relation to maternal age was not significant in this study.

With regard to the parity of the mothers, it has been observed that PNM has been higher among the first born and after the fifth child, as grand multiparity is an established obstetrical and medical risk factor for both, in contrast to this study. In the present study PNM was highest in ladies having second to fifth pregnancy.

The period of gestation is important for the survival of infants as the largest number of deaths were noted in infants born before 37 weeks of gestation. The same trend was noted in this study though the figures did not reach statistical significance.

In singleton pregnancies, the PNMR was lower in babies born with a birth weight of > 3 kg. A majority (70%) of perinatal deaths occurred in babies weighing < 2.5 kg, while 45% of SB and 57% of NNDs occurred in babies weighing < 1.5 kg. Fetal growth retardation is associated with a four fold increase in PNMR even when congenital abnormalities are excluded. Deaths of heavier babies were due to difficult labour, obstructed labour and ruptured uterus and cord accidents. This mortality is indicative of flag or inadequacy of antenatal and intranatal care. The study centre caters to a large number of referred and complicated cases which untrained birth attendants and some small peripheral maternity homes could not deal with, so the study results may not match with other studies. In the present study, the major cause of still birth are APH (33.5%) found similar to other studies. Others were hypertensive disorders and prematurity. The dominant cause of perinatal mortality in cases of APH, and hypertension was prematurity.

The major causes of NND were intra-partum asphyxia (64%), immaturity (18.9%). Abruption of placenta was the commonest cause of still birth and > 50% of those babies weighed 2.5 kg and above, which is comparable with other studies.

Frequency of congenital malformation is low in Pakistan. In this study it was 2%, comparable to local figure and contrasted with western world where it is more than 20%. Lack of antenatal care should be considered as high risk factors for postneonatal deaths especially if the pregnancy has been complicated by postdating, hypertensive disorders of pregnancy, intrapartum infection or small for gestational age infants. Socioeconomic risk factors related to hygiene conditions are also important.

A verbal autopsy conducted in rural Punjab declared that 62% NNDs were due to tetanus neonatorum, but with regular antenatal immunization program, there was not a single case of this disease in this study.

The main limitation of this study include a tertiary care hospital based data where referral bias may be a factor. Identification of the related factors may help to devise and implement remedial measures.

CONCLUSION

Perinatal mortality is markedly affected by fetal maturity. Parity and fetal weight have an insignificant effect on perinatal mortality.

Appropriate strategies directed towards the control of identified causes can bring down these mortalities rates.

REFERENCES