

Perinatal Mortality and Related Obstetric Risk Factors at a Tertiary Care Hospital of Hyderabad

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ABSTRACT

OBJECTIVE: To determine perinatal mortality rate and its related obstetric risk factors in our setup.

DESIGN: Observational study.

SETTING: Department of Obstetrics and Gynaecology (Unit-I), Liaquat University Hospital Hyderabad, from January to December 2006.

PATIENTS AND METHODS: All perinatal deaths including stillbirths (SBs) and early neonatal deaths (ENNDs) within 0-7 days of birth after 24 weeks of gestation were studied during the study period, while Pregnancies <24 weeks of gestation were excluded from the study. The relevant information was collected through a pre-designed proforma which contained variables including maternal demographics, obstetric risk factors and other details.

RESULTS: A total number of 2224 deliveries were analysed for perinatal mortality. Out of these, there were 224 perinatal deaths giving a PNMR of 100.7/1000 births. There were 196 SBs and 28 ENNDs. Among these, 88% women were unbooked. Commonest risk factors was antepartum haemorrhage (27.67%), followed by hypertensive disorders of pregnancy (23.21%) and mechanical factors affecting labour (14.28%). Congenital abnormalities were found in 9.8% of PNDs while maternal medical disorders were seen in 6.25% cases. In 3.5% cases, chorioamnionitis/neonatal septicaemia was the underlying cause and multiple pregnancies were seen in only 02 (0.89%) cases. However, in 32 (14.28%) cases, no cause was found.

CONCLUSION: The high perinatal mortality rate in present study is comparable to the figures from other institutions. Main reason being lack of antenatal and pre-pregnancy care where from almost all obstetric risk factors can be picked up and treated / prevented.

KEY WORDS: Perinatal Mortality, Risk Factors, Antepartum Haemorrhage, Safe Motherhood.

INTRODUCTION

Globally 130 million babies are born every year of which 4 million die in first 4 weeks of life and almost similar number of babies are stillborn.¹ Every year, out of 5.3 million births in Pakistan, 270,000 newborn die, a rate of neonatal mortality roughly 10 times higher than in US.² The estimated perinatal mortality ratio (PNMR) of Pakistan is 57-81/1000 births.^{2,3} Achieving Millennium Development Goals (MDGs) probably remains a dream in our setup and to achieve MDG-4 perinatal mortality ratio (PNMR) needs to be reduced.⁴ Two thirds of the neonatal deaths occur in first week of life and of these, two third occur in first 24 hours.⁵ Health of a mother determines the health of her child and maternal health is affected by health over the life cycle starting from girl child through adolescence and pregnancy. Complications during pregnancy and labour therefore remain important factors to determine fetal and neonatal survival and health. Our hospital, being a tertiary level facility receiving complicated cases from urban as well as remote

areas of rural Sindh province. This study was aimed to determine PNMR and related obstetrics risk factors. Vital statistics obtained through this study may serve an important source of information to guide the public health policy makers and health care providers.

PATIENTS AND METHODS

All perinatal deaths including stillbirths (SBs) and early neonatal deaths (ENNDs) within 0-7 days of birth after 24 weeks of gestation were prospectively analysed at the Obstetrics and Gynaecology Department (Unit I) of Liaquat University Hospital Hyderabad, Sindh – Pakistan; from January to December 2006. The data were collected through a pre-designed proforma including variables such as maternal age, parity, gestational age, complications during pregnancy and /or labour, mode of delivery and details of SBs or ENNDs particularly birth weight, sex, Apgar score and possible cause of death.

RESULTS

During the one year study period, total 2224 deliveries

were conducted. Out of these, there were 224 perinatal deaths with PNMR of 100.7 / 1000 births (**Table I**). There were 171 (76.33%) perinatal deaths in mothers between 21 and 30 years of age. Maximum number of SBs and ENNDs were seen in women with para 1-5 (49.10%). Considering gestational age in weeks, most of PNDs occurred in preterm deliveries between 32-36 weeks \pm 6 days (**Table II**). The risk factors for the perinatal loss are summarized in **Table III**. Main risk factors were antepartum haemorrhage (APH) in 27.67% cases followed by hypertensive disorders of pregnancy (23.211%) and mechanical causes affecting labour (08.48%). Congenital abnormalities were found in 9.82% while maternal medical disorders were responsible for 6.25% PNDs. However 14.28% cases had no obvious detectable reason. Fetal weight estimation at birth showed that 103 (45.98%) between 1.5 - 2.5kg, 64 (28.57%) weighed 2.5 - 4kg, while 54 (24.10%) had < 1.5kg weight. There were only 3 babies whose weight was > 4kg (**Table IV**).

**TABLE I:
FREQUENCY OF DELIVERIES AND DEATHS**

| | |
|--------------------------------------|-----------------------|
| Total number of deliveries | 2224 |
| Total number of stillbirths | 196 |
| Total number of early neonatal death | 28 |
| Perinatal motility rate | 100.7/1000 births |
| Still birth rate | 88.12/1000 births |
| Early neonatal death rate | 13.8/1000 live births |

**TABLE II:
MATERNAL DEMOGRAPHIC CHARACTERISTICS**

| Variable | Frequency | Percentage |
|-----------------------------------|-----------|------------|
| Booked | 26 | 11.60 |
| Un-booked | 198 | 88.39 |
| Age in years | | |
| <20 | 07 | 3.12 |
| 21-30 | 171 | 76.33 |
| >30 | 46 | 20.53 |
| Parity | | |
| Primiparae | 46 | 20.53 |
| Para 1-5 | 110 | 49.10 |
| >5 | 68 | 30.35 |
| Gestational age in weeks | | |
| 24-31+6 | 80 | 35.71 |
| 32-36+6 | 94 | 41.96 |
| >37 | 50 | 22.32 |
| History of previous SB/NND | 57 | 57.44 |

**TABLE III:
RISK FACTORS FOR PND (n =224)**

| Risk Factor | No. of Patients | Percentage |
|--------------------------------------|-----------------|--------------|
| Ante partum haemorrhage | 62 | 27.67 |
| Abruptio placentae | 49 | 21.87 |
| Placenta previa | 13 | 5.80 |
| Hypertensive disorders | 52 | 23.21 |
| Eclampsia | 32 | 14.28 |
| Pre-eclampsia | 20 | 8.92 |
| Mechanical causes | 32 | 14.28 |
| Prolonged/ Obstructed Labour | 19 | 8.48 |
| Rupture Uterus | 10 | 4.46 |
| Cord prolapse | 3 | 1.33 |
| Congenital abnormalities | 22 | 9.82 |
| Hydrocephalus | 07 | 3.12 |
| Anencephaly | 07 | 3.12 |
| Spina bifida | 03 | 1.33 |
| Non immune hydrops | 02 | 0.89 |
| Multiple fetal defects | 03 | 1.33 |
| Maternal medical disorders | 14 | 6.25 |
| Diabetes mellitus | 10 | 4.46 |
| Hepatic failure | 04 | 1.78 |
| Chorioamnionitis/ Septicaemia | 08 | 3.57 |
| Multiple pregnancy | 02 | 0.89 |
| Unknown | 32 | 14.28 |

**TABLE IV:
WEIGHT AT BIRTH (n =224)**

| Weight in kg | No. of Patients | Percentage |
|--------------|-----------------|------------|
| 1.5 – 2.5 | 103 | 45.98 |
| 2.5 – 4 | 64 | 28.57 |
| < 1.5 | 54 | 24.10 |
| > 4 | 03 | 1.33 |

DISCUSSION

In this study, PNMR is 100.7/1000 births which is comparable to the figures reported from other studies conducted at national institutes including Jinnah Post-graduate Medical Centre Karachi (97.2/1000 during the year 2000)⁶, Bolan Medical Complex Hospital, Quetta (113/1000 during the year 2002)⁷ and Sheikh Zayed Women Hospital Larkana (299.3/1000 during the year 1995)⁸. However national figures for PNMR obtained from selected community based study are

low 57-81/1000 births^{2,3}, it may be due to the fact that there exists no proper registration system for each perinatal death at community level. PNMR is not only the quantitative measure of maternity care but it also reflects the social, economical and educational standards of the community. A large number of women do not seek antenatal care (ANC) and deliver at home attended by traditional birth attendants (TBAs). Institutional deliveries are only those which are either referrals due to obstetric complications or those women who live in city nearby the hospital. Majority of women in this study were un-booked and belonged to poor social class, same finding is reported from Karachi⁹, while studying the impact of socioeconomic conditions on perinatal mortality in various hospitals of the city. Considering maternal age, most of our women were young between 21-30 years while Ibrahim SA, et al have reported that teenage mothers and mothers >34 years of age have a twice higher risk of PND.¹⁰ Likewise our mothers para1-5 showed a higher PNM compared to primiparae and grand multiparae while others report that the first born and the babies born after 5th child are at greater risk. Preterm deliveries and low birth weight (<2.5kg) definitely carry a high risk of perinatal death as seen in our study and other surveys.¹¹⁻¹⁴ The commonest risk factor in this study was APH, similar to the study conducted at Quetta.⁷ This is followed by hypertensive disorders of pregnancy, however, in others have reported hypertensive disorders as the leading cause of PNM.¹⁵ The higher PNM related to labour difficulties remains an ever known risk factor, we have seen obstructed labour in 19 women (8.48%) whereas it is the most common cause of SBs in the study conducted by Baloch et al⁸ in 1996 more than a decade ago. This may be because of expanding maternity services in our region at secondary health care centers as well as private maternity units where facility for caesarean section is available round the clock. Regarding congenital abnormalities, it was found in 22 (9.82%) cases, higher than the findings from a Karachi based study which showed the figure of 47 (6.2%)⁶. In this study, perinatal deaths were more frequent in male gender, which is also seen in other studies.^{7,9} A large majority of risk factors for perinatal deaths are preventable if detected earlier and treated properly. Simple measures like preconception folic acid supplementation can reduce the risk of neural tube defects, calcium supplement during pregnancy can reduce the risk for pre eclampsia, early recognition of raised blood pressure and its treatment to reduce the worsening situations like intra uterine growth restriction and intrauterine fetal death and pre-term delivery. The social action and health care programs of Government of Pakistan has provided domiciliary maternal and new born care services through

TBAs and community workers since 1997 to improve the primary health care services network. The study conducted by Jokhio AH, et al in 2005 reports that training the birth attendants was effective in reducing PNM.¹⁶ Besides the limitations of the small sample size this study definitely gives an insight about the existing situation of maternal and perinatal health care.

CONCLUSION

The high perinatal mortality rate in present study is comparable to the figures from other institutions. Main reason being lack of antenatal and pre-pregnancy care where from almost all obstetric risk factors can be picked up and treated / prevented earlier. Provision of safe motherhood services including antenatal care, clean and safe delivery, and emergency obstetric and neonatal care services at the door step of women will help in reducing the perinatal death.

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