ORIGINAL ARTICLE

CAUSES AND RECURRENCE RISK OF PERINATAL LOSS

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ABSTRACT

Background: Perinatal death refers to death of fetus or newborn around the time of delivery and includes both fetal deaths (at least 20 weeks of gestation) and early neonatal deaths. The purpose of this study was to determine the risk of perinatal loss when previous pregnancy ended up in stillbirth or early neonatal death.

Material & Methods: This record based descriptive cross sectional study was conducted in Departments of Obstetrics and Gynecology, Liaquat University Hospital, Jamshoro and Hyderabad, Pakistan from September 1, 2016 to September 30, 2016. All women who had singleton pregnancies of 24 weeks or above and suffered a perinatal death were included in the study. Age, residence and parity were the demographic variables. Research variables were; gestational age, mode of delivery, obstetric outcome, risk factors of perinatal deaths in preceding pregnancy, risk factor of perinatal deaths in present pregnancy and recurrence risk.

Results: During the study period there were 5834 obstetric admissions out of which 4752 were cases of deliveries and from these 660 cases were of perinatal deaths (perinatal mortality rate 140/1000 deliveries). In total there were 557 stillbirths and 103 early neonatal deaths cases. There were 170 women who had history of perinatal loss in preceding pregnancies, giving a recurrence risk of 25.76%. Sample size was 170 women who had a perinatal loss and who had history of perinatal death in preceding pregnancy either stillbirths or early neonatal death. The mean age of women was 31.5$\pm$ 6.0 years with age range of 20 to 34 years. In the study sample caesarean section deliveries were 64.12% while vaginal route deliveries were 35.88%.

Conclusion: Women with previous perinatal loss are at significant risk of recurrent fetal or neonatal death. Prospective studies should be carried out to find out interventions that can significantly reduce the recurrence risk.

KEYWORDS: Surveillance; Stillbirth; Gestation; Mortality; Malnutrition; Intrapartum.

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INTRODUCTION

Perinatal death refers to death of fetus or newborn around the time of delivery and includes both fetal deaths (at least 20 weeks of gestation) and early neonatal deaths.[1] It is a key indicator of quality of antenatal and intrapartum care. Pregnancy complications are among the major health problems in the developing countries. Perinatal mortality is considered an important indicator of mother and child health care.[2] According to WHO, every year throughout the world 2.64 million are stillbirths and 3.0 million are cases of early neonatal deaths while 90% of these births take place in developing countries.[3] In low income countries like Pakistan, the rates of perinatal death are often 10 fold greater than that of high income countries.[3] According to Pakistan demographic and health survey 2012-13, the perinatal mortality rate of Pakistan was 75/1000 pregnancies where as it was 73/1000 pregnancies in 2006-7, indicating only marginal difference.[4] The reason behind may be poverty, illiteracy, malnutrition and lack of awareness or less access to health care facilities. This perinatal mortality rate is almost 12 fold higher than the perinatal mortality rate in United States of America in 2011. To reduce the perinatal mortality, risk factors should be identified and screened in perinatal period. Pregnancies at high risk of perinatal death should be vigilantly monitored for obstetric mishap. One of the significant risk factor for perinatal death is history of perinatal loss in previous pregnancies.[5]

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Perinatal mortality, comprising of stillbirths and early neonatal deaths is one of the sensitive indices of the quality of prenatal, obstetric and early neonatal care available to women and newborns.[17] Perinatal health is a good indicator of both maternal health status and the level of socioeconomic status attained in any community. In addition infant mortality remains a challenge in the care of pregnant women worldwide, but particularly for developing countries and the need to understand contributory factors is crucial for addressing appropriate perinatal health interventions. Hence, further reductions in infant mortality will largely depend on decreasing deaths due to perinatal causes. Improvements in the coverage and particularly in the quality of antenatal and delivery care are urgently needed.[18] Parent's socio-economic and cultural factors such as education, work status, wealth and religion as well as mother's habitat and environment are likely to influence perinatal mortality through maternal health status as depicted by nutritional status of the mother.[18] Further maternal demographic characteristics such as age, uniformity, birth order and pregnancy interval may directly influence perinatal mortality.[6]

Data on recurrence risk of perinatal loss after a previous perinatal loss is scarce in our setup, hence this study was planned. The objective of this study was to determine the risk of perinatal loss when previous pregnancy ended in stillbirth or early neonatal death. This study will serve to determine the recurrence risk, so that these high risk pregnancies should be monitored frequently and vigilantly in order to reduce risk of recurrent obstetric tragedy.

MATERIAL AND METHODS

This record based descriptive cross sectional study was conducted in Department of Obstetrics and Gynecology, Liaquat University Hospital, Hyderabad, Pakistan from September 1, 2016 to September 30, 2016. Sample size was 170. All women who had singleton pregnancies of 24 weeks or above and who delivered during this period in the department and suffered a perinatal death were included in the study. To control confounding factors, smokers, alcoholics and fetuses that were born with lethal congenital malformations were excluded from the study. Age, residence and parity were the demographic variables. Research variables were; gestational age at delivery, mode of delivery, risk factors of perinatal deaths in preceding pregnancy, and risk factor of perinatal deaths in present pregnancy. Data was entered on a pre-designed performa.

Data was analyzed on computer software SPSS version 19. Mean and standard deviation were calculated for numeric variables such as age. Frequencies and percentages were computed for categorical variables such as gestational age, mode of delivery, risk factors of perinatal deaths in preceding pregnancy, risk factor of perinatal deaths in present pregnancy and recurrence risk.

RESULTS

During the study period there were 5834 obstetric admissions out of which 4752 were cases of deliveries. Out of them 660 cases were of perinatal deaths (557 stillbirths and 103 early neonatal deaths) giving a perinatal mortality rate 140/1000 deliveries. While out of these 660 women, 170 were those who had history of perinatal loss in preceding pregnancies, giving a recurrence risk of 25.76%. Sample size was 170 women who had a perinatal loss and who had history of perinatal death in preceding pregnancy either stillbirths or early neonatal death. The mean age of women was 31.5$\pm$6.0 years with age range of 20 to 34 years. Mostly women were from rural areas of Sindh (58.33%) and had a parity of

Table 1: Gestational age of women with perinatal loss. (n=170)

Gestational age (in weeks)	Frequency	Percentage (%)
24-31	27	15.88
32-36	86	50.59
37-41	56	32.94
>41	01	00.59
Total	170	100

Table 2: Risk factors of perinatal death in preceding pregnancy. (n=170)

Risk factors	Frequency in preceding pregnancy	Frequency in present pregnancy
Low birth weight/ fetal growth retardation	85	30
Pre-eclampsia / pregnancy induced hypertension	56	31
Preterm delivery	42	42
Antepartum hemorrhage	52	44
Labour complications	22	25
Diabetes	05	15
Unknown/not mentioned in records	09	05

Multiple risk factors were counted so don't add up to 170

1-4(92.36%), while 7.63% were grand multiparas. In the study sample caesarean section deliveries were 64.12% while vaginal route deliveries were 35.88%. Gestational age groups are shown in (table 1).

Risk factors found in preceding pregnancies were mainly fetal growth restriction/ low birth weight neonates (50%), pregnancy induced hypertension or pre-eclampsia (32.94%), preterm delivery (24.71%) and antepartum hemorrhage (30.59%). (Table 2)

DISCUSSION

Prospective studies in western countries have reported two to five fold risk of perinatal death in subsequent pregnancy after a perinatal loss.[6] In a cross-sectional study conducted in Tanzania, recurrence risk of perinatal death after a women has lost her previous baby was 9.1%.[7] The associated factors found were pre-eclampsia, placental abruption, placenta previa, induced labour, preterm delivery and low birth weight in previous delivery. Similar findings were observed in studies conducted in various parts of the region as for example India and Nepal.[7] High risk of recurrence of perinatal death among women with previous term or normal birth weight babies also suggests problems in delivery management. Health care providers should consider deliveries of all mothers with a previous perinatal loss as high-risk delivery. Prenatal and neonatal surveillance should be considered in future births and clinical counseling regarding future risk should be provided. Further community or population-based studies are needed to confirm the estimated risks and to identify contributing factors. Intervention studies are needed to study effects of measures taken to reduce the risk of recurrence of perinatal death.[8,9]

In most studies of the perinatal death conducted in developed countries, there is strong association between risk of perinatal death and poor past obstetric history of mother.[10] The recurrence risk for stillbirth is twofold to tenfold increase in the next pregnancy. In a study conducted in Australia, the absolute risk of stillbirths are approximately doubled in a subsequent pregnancy when stillbirth occurred in preceding pregnancy whereas it is elevated fivefold in a large meta-analysis conducted by researchers in United Kingdom.[11] The findings of our study are also consistent with these results. The recurrence risk of perinatal loss in our study is about 25%, which is quiet high which suggests that every one in four women who had history of previous perinatal death is going to lose her baby once again. Every effort should be made from the time of admission of these high risk women in labour ward to pick up any alarming sign suggesting fetal risk and timely interventions should be carried out to prevent recurrent catastrophe and one to one care should be provided.[12]

Preterm birth is a major cause of morbidity and mortality among newborns and is estimated to account for 28% of neonatal mortality in the world each year.[13] Majority of women had preterm delivery in current pregnancy; also their previous pregnancies were complicated by prematurity. This suggests prematurity as strong risk factor for recurrent perinatal losses. The findings are similar to study conducted by Surkan,[14] the most important risk factor in current pregnancy which resulted or contributed in perinatal death is fetal growth restriction or low birth weight, followed by hypertensive disorders and antepartum hemorrhage while if risk factors are checked in subsequent pregnancy, antepartum hemorrhage is the most common risk factor present and this is comparable to results of various other studies. This finding might suggest underlying impaired placental function and development that might have existed in first pregnancy, contributing to stillbirth.[15] Women who have had one stillbirth have a four times higher risk of having another stillbirth compared to women who have had a live birth.[16]

CONCLUSION

Women with previous perinatal loss are at significant risk of recurrent fetal or neonatal death. Prospective studies should be carried out to find out interventions that can significantly reduce the recurrence risk.

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CONFLICT OF INTEREST
Authors declare no conflict of interest.
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None declared.

AUTHORS' CONTRIBUTION

Conception and Design:	FS, SA, TM
Data collection, analysis & interpretation:	FS, SA, TM
Manuscript writing:	FS, SA, TM, SY