Research Article

Audit into stillbirths: a tertiary hospital experience

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ABSTRACT

Background: The objective of the study was to evaluate the prevalence, risk factors and causes of stillbirth.
Methods: A retrospective cohort study was conducted from January 2014 until December 2014 in a tertiary referral teaching hospital in Punjab. The 2014 birth register from the department of Obstetrics and Gynecology was reviewed and the data was collected. The results were tabulated and data was analyzed as frequencies, percentages and descriptive statistics.
Results: During the one-year study period, there were 1528 registered pregnancies in the hospital and 64 pregnant women were diagnosed to have stillbirth resulting in a stillbirth rate of 40.63 / 1000 live births. More than 75% of the stillbirths were noted in women between 21 to 30 years of age. Pregnant women who were unbooked (72.5%) had higher rates of stillbirths. More than 80% of the stillbirths were preterm. Anaemia (41.93%), pre-eclampsia (25.8%) and antepartum hemorrhage (24.19%) were the most common maternal risk factors noted in these patients. Maternal factors contributed to 37.5% of the causes of stillbirths. The other causes for stillbirths were placental factors (32.8%) and fetal factors (6.2%). In 23.43% of the cases the cause was unknown.
Conclusions: India shares a high burden of stillbirths with priority gaps in reporting and recognizing at the health policy level. Better counting of stillbirths and improved cause-of-death data can advocate child survival strategies.

Keywords: Stillbirths, Fetal death, Preterm

INTRODUCTION

A stillbirth is defined as the birth of a dead fetus that has reached 20 weeks of gestation or more, or has a birth weight of 500 g or more but for international comparisons 28 weeks is more common as the lower limit of gestational age.[1,2] The rates of stillbirth remain highest in developing countries but are likely underestimated due to poor access to obstetric care and limited recordkeeping.[3] Stillbirth rates range from 3.1/1,000 births in developed countries to 28.3 in developing countries.[4] The wide range of stillbirth statistics may act as an indicator of the quality of the country's medical system. It also reflects the quality of antenatal care and obstetric management during labor and childbirth.[5,6]

A stillbirth is emotionally devastating for the patients and the clinicians and many of these are preventable. Most often, the cause of the stillbirth cannot be identified. The known aetiologies are fetal (e.g. congenital malformations, infections); placental (e.g. insufficiency, abruption); or maternal (e.g. infections, diabetes mellitus).[7,8] There is a need for research on stillbirths and its associated risk factors as many countries lack data on this.[7]

METHODS

A retrospective cohort study was conducted from January 2014 until December 2014 in a tertiary referral teaching hospital in Punjab. The 2014 birth register from the department of Obstetrics and Gynecology was reviewed and the data collected. All the maternal details regarding the stillbirths were collected and analysed. All the dead fetuses of 28 weeks of gestation or more were analysed. The maternal determinants considered were age, parity, education status, socioeconomic group, gestational age, induction of labor if any, status of rupture of membranes and mode of delivery. Various associated risk factors were also analysed. The fetal factors assessed were the gender of the baby, birth weight and gross examination.

In our study stillbirth rates were calculated for gestational age >28 weeks.

Definitions of key terms

Fetal death

The International Classification of Diseases, Revision 10 (ICD-10) defines a fetal death as 'death prior to the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy; the death is indicated by the fact that after such separation the fetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles' without specification of the duration of pregnancy.

Early fetal deaths

According to the ICD-10, an early fetal death is death to a fetus weighing at least 500 grams (or, if birth weight is unavailable, after 20 completed weeks gestation, or with a crown-heel length of 25 centimetres or more)

Late fetal deaths (stillbirths)

A late fetal death is defined as a fetal death weighing at least 1000 grams (or a gestational age of 28 completed weeks or a crown-heel length of 35 centimetres or more). The ICD-10 recommends this definition for the purposes of international comparison.

Pre-term

Less than 37 completed weeks (less than 259 days) of gestation.

Term

From 37 completed weeks to less than 42 completed weeks (259 to 293 days) of gestation.

Post-term

42 completed weeks or more (294 days or more) of gestation.

RESULTS

Table 1: Maternal demographic details.

Age (yrs)	n=62	Percentage
<20	03	4.83
21-25	22	35.48
26-30	26	41.93
31-35	08	12.90
36-40	03	4.83
Gravida	**n=62**	**Percentage**
1	20	32.25
2	23	37.09
3	14	22.58
≥4	05	8.06
Booking status	**n=62**	**Percentage**
Booked	17	27.41
Unbooked	45	72.59
Gestational Age	n=62	Percentage
Preterm	52	83.87
Term	09	14.51
Post term	01	1.61
Educational status	**n= 62**	**Percentage**
Illiterate	06	9.67
Primary	30	48.38
Secondary	11	17.74
Higher	15	24.19

In the year 2014, there were a total of 1528 deliveries, resulting in 1575 babies – 1483 were singletons, 43 twins and 2 triplets. Out of these, there were 64 stillbirths from 62 deliveries (60 singletons, 2 twins), resulting in a stillbirth rate of 40.63 / 1000 live births. The maternal demographic factors are detailed in table number 1. More than 75% of the stillbirths were noted in women between 21 to 30 years of age. Pregnant women who were unbooked (No antenatal check-up in our hospital) had higher rates of stillbirths. High rates of stillbirths were seen in poor socioeconomic group. More than 80% of the stillbirths were preterm (<37 weeks of gestation).

Thirty eight out of 64 fetuses (59.3%) were identified as intrauterine death at presentation to the hospital. Nearly 45% of patients went into spontaneous labor and the rest required induction of labor. The details of the induction of labor and the mode of delivery are given in Table 2. Most of them had vaginal deliveries. Two women who came with rupture of uterus required laparotomy to retrieve the fetus.

In our study 53.12% of still born fetuses were males. A large majority of the babies (82.8%) were less than 2.5kg as elaborated in Table 3. The maternal risk factors are

enumerated in Table 4. Anaemia, pre eclamptic status and ante partum haemorrhage are the most common maternal risk factors noted in the stillbirths. Maternal factors amount to 37.5% of the causes for the stillbirths. Maternal factors contributed to 37.5% of the causes of stillbirths (Table 5). The other causes for stillbirths were placental factors (32.8%) and fetal factors (6.2%). In 23.43% of the cases the cause was unknown.

Table 2: Details of the delivery.

Inducing agent	Cases (n = 62)	Percentage
No agent	28	45.16
Oxytocin	24	38.70
Cerviprime	01	1.61
Misoprostol	09	14.51
Duration of Rupture of Membranes	**Cases (n = 62)**	**Percentage**
<8 hrs	56	90.33
8-48 hrs	03	4.83
2d-7d	01	1.61
>7 days	02	3.22
Mode of delivery	**Cases (n = 62)**	**Percentage**
Vaginal	45	72.5
Assisted	6	9.67
LSCS	4	6.45
VBAC	4	6.45
Laparotomy	2	3.22
Forceps delivery	1	1.61

Table 3: Fetal characteristics.

Gender	Cases (n=64)	Percentage
Male	34	53.12
Female	30	46.88
Birth weight (kg)	**Cases (n=64)**	**Percentage**
<2.5	53	82.81
2.5-3.5	10	15.62
>3.5	1	1.56

Table 4: Maternal risk factors.

Risk Factors	Cases (n=62)	Percentage
GDM	02	3.22
DM	03	4.83
Gestational HTN	07	11.29
Pre eclampsia	16	25.80
Eclampsia	02	3.22
Hypothyroidism	09	14.51
Jaundice	03	4.83
Fever	02	3.22
APH	15	24.19
Anemia	26	41.93
Rh incompatibility	03	4.83
MSAF	04	6.45
Infertility	05	8.06
Multiple pregnancy	02	3.22
Malpresentation	04	6.45

Table 5: Causes of stillbirth.

Causes of stillbirth	Cases (n=64)	Percentage
Fetal causes		
Multifactorial genetic cause	01	1.56
Infections	03	4.68
Placental causes		
Abruptio placentae	11	17.18
Placental insufficiency	10	15.62
Maternal causes		
Hypertension	15	23.43
Diabetes	01	1.56
Hypothyroid	01	1.56
Jaundice	03	4.68
Others	04	6.25
Unknown	15	23.43

DISCUSSION

As many as 35 classification systems have been proposed to assign a cause for the fetal death.[9-11] Other than identifying a cause for the fetal death, these systems have also pointed out the trends and preventing strategies of this stillbirths.[11] Lack of uniform definitions and incomplete registration are the main drawbacks to have an accurate stillbirth data.[4,12] Developed countries have registries in place to identify and document these cases, whereas the developing countries still lag behind. Post-mortem examination of the still born, placental histology, karyotyping are important modes of identifying the cause of the stillbirth which are rarely done in the developing countries adding to the inaccuracy.[13]

The global rate of stillbirth is gradually declining due to improved antenatal and perinatal care and by creating awareness regarding this issue.[4] World Health Organization states a stillbirth rate of 12.5/1000 live births in developing countries.[14] The stillbirth rate is higher than that of the developed countries. The difference suggests that improvement in the perinatal care will lead to decrease in the perinatal mortality in the developing countries. In our hospital the stillbirth rate is much higher than what is seen in the developing countries. The probable reason is that nearly 60% (38/64) of the still born were referred from the community with an already diagnosed stillbirth.

More than 75% of pregnant women who had stillbirth were between 21 to 30 years of age group. Other similar studies in the literature also had third decade as the most common maternal age group.[13,15] Nearly 70% of the pregnant women in the group were either primigravida or second gravida. A significant percentage (72.5%) of

women who had stillbirths visited the hospital for the first time and they never had any antenatal check-ups done earlier. This data stresses on the importance of regular antenatal check-ups to identify the risk factors and for a better perinatal care.[16] In their study Ashish et al quoted a 4.5 times higher risk of stillbirths in women who did not have any antenatal care visit compared to those who had attended at least one antenatal care visit.[16]

In our study more than 80% of the stillbirths were delivered at <37 weeks of gestation (preterm). Preterm deliveries due to any cause are generally at high risk and smaller the gestation higher the risk for a stillbirth. Silver et al in their study had 83.4% of stillbirths in <37 weeks of gestation.[13] In a study by Cung et al still born in preterm and term deliveries were of equal numbers.[15]

Maternal risk factors for the stillbirth are many and have been well documented in literature. Young maternal age, low maternal education, previous stillbirths, previous cesarean sections, obesity, chronic hypertension and diabetes are few of the important risk factors.[17-22] anaemia (41.9%) was the most common risk factor seen in our study followed by preeclampsia (25.8%). Antepartum hemorrhage, hypothyroidism and gestational hypertension were also seen in high numbers in our study. Cung et al in their study did not identify any high risk for stillbirths in anaemic patients.[15] In another study by Ashish et al, women with antepartum hemorrhage and/or hypertension had 4.5 times increased risk of delivering a still born baby.[16] In our study 82.8% of still born were weighing <2500 grams at delivery. Ashish et al in their study mentioned that small for gestational age babies had a 50% higher likelihood for a stillbirth than those who were appropriate for gestational age.[16]

Under-reporting of stillbirth is an alarming issue in the developing countries as majority of these events happens at home. Lack of proper information on the cause of the stillbirth has made it difficult to plan a better global intervention programmes. A detailed evaluation including post-mortem examination of the fetus, placental histology and karyotyping are usually required to pinpoint the cause of stillbirth accurately.[13] Such a detailed evaluation is rarely done in developing countries making the data more inaccurate.

Unexplained causes represent a major part of the stillbirths in many studies.[23] Unexplained still born were seen in 23.43% in our study. Majority of the causes were related to maternal factors (37.5%) in our study. Among the maternal causes, hypertension accounted for 23.43% causing stillbirths. Pregnant women with hypertensive disorder are more likely to have placental compromise, and thus a higher risk for stillbirths.[16] Even though there is an increased prevalence of diabetes in pregnancy, there is a good chance of preventing and reducing the diabetes associated stillbirth rate. Identifying the gestational diabetics' early and intensive management and regular multidisciplinary follow up is the reason for the improved

outcome in this patients.[24] Placental causes have been recognized as an important contributor for stillbirths. It is difficult to label placental cause without clinical evidence of placental insufficiency or obvious placental abnormalities.[13] We could identify placental causes in 32.8% of our stillbirths. The fetal causes are few in number (6.2%) in our study as a detailed autopsy of the dead fetus is not routinely followed in our institution.

Limitations of this study were the retrospective nature of the study. A second limitation was the relatively small amount of sample size. Complete evaluation of the dead fetus and the placental histopathology were not done and so the data acquired was inadequate to achieve accuracy in analysis.

CONCLUSION

India shares a high burden of stillbirths with priority gaps in reporting and recognizing at the health policy level. Better counting of stillbirths and improved cause-of-death data can advocate child survival strategies. Women should be encouraged to have regular antenatal check-ups. Institutional deliveries should be promoted through awareness drives. Early identification of the risk factors, providing intensive care and a regular multidisciplinary follow up will reduce the stillbirth rate.

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