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Original Research Article

One year observational study of stillbirths in a referral hospital of Saurashtra region

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ABSTRACT

Background: Stillbirths constitute a major part of perinatal death, and India ranks first in absolute number of stillbirths. The causes of stillbirth differ in different parts of the world and are affected by fetomaternal factors and type of antenatal and intrapartum care. The objective of this study was to evaluate the stillbirth rate as well as the aetiology and risk factors for stillbirths in our institute.

Methods: All stillbirths delivered at or above 28 weeks of gestation or weighing more than 1000 gms in P. D. U. Medical College and Hospital, Rajkot during study period of 1 year were enrolled in the study. The stillbirth rate of the institute was studied. Socio-demographic, maternal and fetal factors of stillbirth cases were analysed.

Results: Stillbirth rate of our institute was 41.63 per 1000 births. 70% cases belonged to rural region and 48% cases were referred to our hospital from other institutes. Stillbirth was found more in multigravida women with 67.2% cases. 57.01% stillborn babies were males, 34.71% of stillborns had extremely low birth weight and were pre-term. 54.78% stillborns were macerated. In 24.8% cases, aetiology of stillbirth was unknown. Antepartum haemorrhage contributed 19% cases, asphyxia -16.8% cases and pre-eclampsia-12.1% cases of stillbirth in our study.

Conclusions: Proper screening and antenatal and intrapartum supervision and timely referral to the tertiary care centre can play an important role in decreasing the rate of stillbirths.

Keywords: Asphyxia, Perinatal mortality, Risk factors, Stillbirth, Stillborn

INTRODUCTION

One of the most common adverse pregnancy outcomes is the death of the foetus. World Health Organization (WHO)/International Classification of Diseases (ICD) defines stillbirths as the death of a foetus that has reached a birth weight of 500 g, or if birth weight (BW) is unavailable, gestational age (GA) of 22 weeks or crown-to-heel length (CHL) of 25 cm. Within this category, ICD classifies late fetal deaths (BW greater than 1000 g or GA after 28 weeks) and early fetal deaths (BW 500-1000 g or GA 22-28 weeks). The WHO recommends using the higher limit (BW 1000 g/ GA 28 weeks/ CHL 35 cm) of

third trimester stillbirths for international comparisons and reporting.¹

Stillbirth is a major contributor of perinatal mortality and hence is a useful index to measure the values of antenatal and intrapartum care.

The WHO has reported 2.6 million stillbirths in the year 2015, globally. The reported incidence of stillbirth varies significantly between studies from different countries. . In low/middle-income countries, rates can be however inaccurate due to underreporting and documentation (e.g. home delivery) and as reliable data are often difficult to

obtain.^{2,3} The lowest rates of stillbirth have been reported from Finland and Singapore (2 per 1000 births) and from Norway and Denmark (2.2 per 1000 births). Most of the stillbirth occurs from developing nations, with ten countries (Pakistan, Nigeria, China, Demographic Republic of Congo, Ethiopia, Bangladesh, Indonesia, Tanzania, Afghanistan and India).⁴ India continues to be at the top of this list recording a massive 5, 92,100 stillbirths in the year 2015.

A vast majority of stillbirths are preventable. Many risk factors have been associated with stillbirths. Among the risk factors are: lack of timely and quality antenatal care as well as intrapartum monitoring ; non-communicable diseases, such as hypertension and diabetes; nutritional factors, such as maternal anaemia; biomedical factors, such as congenital abnormalities, infections, and lifestyle; environmental factors such as drinking and smoking; and social determinants, including poverty, transportation and general living conditions. It is a fact that the overall incidence of stillbirth has declined overtime in developed countries by implementing appropriate healthcare policies for handling high-risk pregnant women. Strategies for reducing stillbirths require an analysis of aetiology and risk factors as a first step. The mode of antepartum and intrapartum surveillance for fetal wellbeing has advanced in last few decades. By proper antenatal check-ups, the high-risk cases associated with poor outcomes can be identified.

The aim of this study was to evaluate the stillbirth rate of the institute and to analyze the risk factors associated with stillbirth with special reference to maternal clinical presentations, fetal and maternal complications and to find the preventable causes of fetal deaths.

METHODS

Study was carried out in Department of Obstetrics and Gynecology, at Zanana Hospital and P. D. U. Medical College, Rajkot over a period of 1 year from 1st May 2017 to 30th April 2018.

Inclusion criteria

- All stillbirths delivered at or above 28 weeks of gestation or weighing more than 1000 g in P. D. U. Medical College and Hospital, Rajkot during 1 year study period, giving priority to last menstrual period (LMP) date as compared to ultrasonography for exact gestational age and amongst both criterions, preference to the weeks of gestation as compared to weight of baby.

Exclusion criteria

- Pregnancy with less than 28 weeks of gestation
- Stillborns weighing less than 1 kg
- All live born babies
- Stillbirths occurring outside of our institute.

The Written and informed consent in vernacular language was obtained from the patients, who were enrolled in the study.

All eligible cases fulfilling inclusion criteria were enrolled in the study. All socio demographic, antenatal, intrapartum, medical details regarding case and probable risk factors were studied. Verbal autopsy into cause of stillbirth was done with the help of patient and her relatives and accordingly probable cause of death was given. Stillbirth rate was calculated as total number of stillbirths for every thousand births occurring in the institute; other results were calculated as percentage distribution of total stillbirths over the assessed factor.

RESULTS

Out of 7542 deliveries conducted during the study period in our institute, total number of patients having stillborn babies was 334 from which, 314 cases were included as per inclusion criteria. Hence, stillbirth rate of our institute was 41.63 per 1000 births.

Table 1: Demographic distribution.

Demography	Percentage of cases
Parity	
Primipara	32.8%
Multipara	67.2%
Region	
Rural	70.38%
Urban	29.62%
Antenatal visits	
Antenatal visits taken	84.71%
Antenatal visits not taken	15.29%
Status	
Booked	21.02%
Unbooked	78.98%

Looking at demographic distribution of patients, majority of the patients (70%) were from rural regions. 266 women were taking antenatal care (ANC) visits of 314 cases included in the study. Out of 266 (84.7%), patients who underwent ANC at some health care facility, 63 had acquired ANC only from Anganwadi in nearby places and 39 had taken ANC at PHC/CHC. In this study, total 248 patients were unbooked cases (78.98%), (visiting our hospital for the first time in present pregnancy for treatment), from which 153 patients were referred from another hospital to our institute. Stillbirth rate was found more in multigravida women (67.2%) (Table 1).

In this study, mean age group involved was: 20 - 24 years (35%) (Table 2). Anaemia was separately studied as an independent risk factors associated in most of the Indian women taking vegetarian diet and at a higher risk of complications due to the same during conception or in post-partum period. In our study, 13.05% of patients were suffering from severe anaemia (Table 3).

Table 2: Maternal age wise distribution of stillbirth cases.

Age group (in years)	Percentage of cases in my study (%)	Percentage of cases in Kallur S et al study (%)
Less than or of 20 years (≤ 20)	13.69	0.69
Between 20 to 24 (20-24)	35.03	23.22
Between 25 to 29 (25-29)	26.43	46.67
Between 30 to 34 (30-34)	20.06	21.38
Greater than 34 (≥ 34)	4.78	8.04

Table 3: Maternal anaemia and stillbirth.

Haemoglobin levels (gm/dl)	Percentage of stillbirth cases (%)
Less than 7 (≤ 7)	13.05
Between 7 to 9 ($> 7 - \leq 9$)	30.25
Between 9 to 11 ($> 9 - \leq 11$)	28.66
Greater than 11 (≥ 11)	28.03

Table 4: Distribution based on birth weight of stillborn babies.

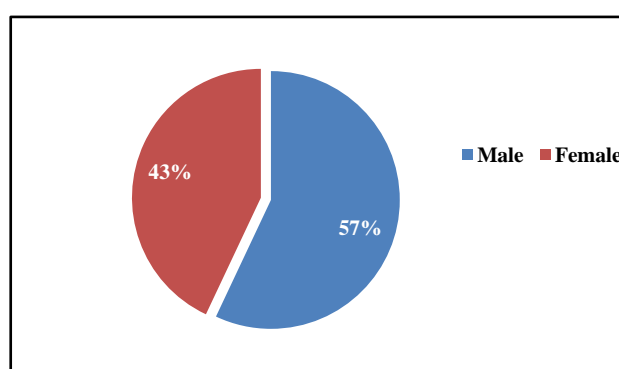
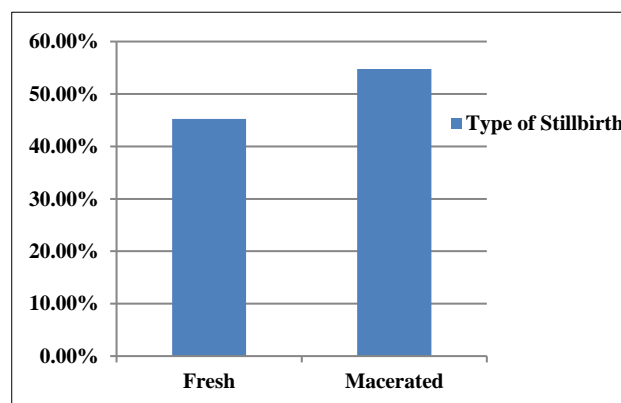
Weight (kg)	Percentage of stillborn cases (%)
Less than 1.5 (≤ 1.5)	34.71
Between 1.5 to 2 (1.5-2)	19.43
Between 2 to 2.5 (2-2.5)	21.02
Between 2.5 to 3 (2.5-3)	16.24
Between 3 to 3.5 (3-3.5)	5.73
Greater than 3.5 (≥ 3.5)	2.87

Table 5: Distribution of stillbirth cases as per presence of risk factors.

Aetiology	Percentage of stillbirth cases (%)
Abruptio placenta	15.92
Placenta previa	3.18
Intra uterine growth restriction	9.55
Pre-eclampsia	12.10
Asphyxia	16.88
Preterm labour	4.14
Rupture uterus	1.27
Eclampsia	1.27
Cord prolapse , hand prolapse	4.46
Anomalous baby	3.82
Unknown	24.84
Maternal medical condition	1.59
Twin to twin transfusion syndrome	0.96

With regard to sex of stillborn, more babies were males (57.01%) as compared to females (Figure 1). In our study 34.71% of babies belonged to extremely low birth weight group (≤ 1.5 kgs) (Table 4). Further categorization was done as macerated type when signs of maceration (skin discoloration, sloughing of skin and overriding of

sutures) were present and fresh still births (intrapartum fetal deaths) when no signs of maceration were present. 54.78% stillborn babies were macerated (Figure 2).


Figure 1: Distribution as per sex of stillborn babies.

Figure 2: Distribution based on types of stillborn babies.

In this study, cause of majority of stillbirths was unknown (24.8%). Other commonest cause found was asphyxia in 16.8% cases. Abruptio placenta accounted for 15.9% of all stillbirths and pre-eclampsia- 12.1% in our study (Table 5).

DISCUSSION

Major load of patients in our institute is from rural area. These results are comparable to the study by VM Rajgopal et al conducted at tertiary care hospital.⁵ In the

study of Lata et al, amongst 821 patients, 707 were unbooked from which 222 were referred as emergency cases from another hospital.⁶ Study by Balu et al reported as 60.8% being multigravida, which is similar to our study.⁷ In Sailaja K et al study, mean age group involved was 25-29 while in our study it was 20-24 years.⁸ In Bharthi et al study stillbirth rate was 26.7% for babies who weighted between 1 to 1.5 kgs while in our study it was 34.71%.⁹ In study by Usha et al, similar causes were identified where most common being asphyxia (53%), unexplained (17%) followed by Pre-term births (15%).¹⁰

Higher stillbirth rate in this study is probably due to non-availability of tertiary care in neighbouring districts including Morbi, Chotila, and Junagadh and Amreli of Saurashtra region. Though there are district level hospitals present in all above places, all high risk cases are referred to Rajkot due to better advanced facilities of expert obstetricians, anaesthetists, physicians, surgeons as well as blood banking facilities. Strengthening of health care providers and health services at these levels could help a lot in bringing stillbirth rate down by identifying high risk factors early in the pregnancy. A tertiary care centre from South India also reported a high stillbirth rate of 57.9 /1000 deliveries in their study 9. In study of Sonal et al stillbirth rate was 87.83 per 1000 live births.¹¹

Though advanced maternal age is considered to be a risk factor for stillbirth, our hospital being situated in between the rural areas had most women from rural background where women get married early, conceive soon and complete the family before 35 years of age. This is probably the reason why hypertension in pregnancy contributes in significant cases of stillbirth in young primigravidas. History of stillbirth in the first pregnancy carries a higher risk of stillbirth recurrence in the second pregnancy.

Majority of stillborns were macerated (54.78%) in our study cases, which reflects unawareness of danger signs among females of child-bearing age. In fresh stillbirths, death occurred less than 12 hours and skin is intact. In macerated stillbirths, where death occurred more than 12 hours before delivery, skin is discoloured and peeled off, skull becomes soft and amniotic fluid and umbilical cord is darkly stained.¹² 34.71% of babies belonged to extremely low birth weight group (≤ 1.5 kgs). This observation denotes insult in very early gestational age resulting in preterm birth.

Second commonest cause of stillbirth found was birth asphyxia, probably as a result of meconium stained liquor, oligohydramnios, abruptio placenta, cord accidents, obstructed labour, feto-placental insufficiency or post-datism. Abruptio placenta was third most common cause identified accounting for 15.9% of all stillbirths in the study, which usually found in conjunction with or as a complication of pre-eclampsia. Thus pre-eclampsia actually accounts for all still-births

related to abruption as well as some cases of intrauterine growth restriction (IUGR).

CONCLUSION

Stillbirths replace joy with bereavement. This study emphasizes the need for screening, identification and appropriate management of high risk pregnancy and improve fetal outcome in terms of healthy full term live baby. Identification of risk factors may reduce stillbirths.

There is an urgent need for the world to focus on these preventable deaths.

This study shows that the stillbirth rate in our population is similar to most of the other Indian studies, but higher than those reported from developed countries. This is associated with anaemia, poor health facilities in rural area, poor socioeconomic status, multiparity, unsupervised deliveries (lack of antenatal care), gestational hypertension and asphyxia. Proper screening and antenatal and intrapartum supervision, empowering the peripheral health facilities with skills and resources and timely referral to tertiary care centre can play an important role in decreasing the rate of stillbirths.

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