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CAUSES AND DEMOGRAPHIC FACTORS AFFECTING STILLBIRTH IN A TERTIARY CARE CENTRE IN INDIA

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ABSTRACT **Background:** WHO defines a still born as a baby born with no signs of life at or after 28 weeks of gestation, with birth weight of 1000 gram or more. Almost half of still birth happen when women is in labour. Most stillbirths are seen in unbooked, unsupervised pregnancy, the causes of which may be different from what has been studied in various other developed countries. **Aims and Objective:** To collect data on epidemiological profile of cases experiencing stillbirths, to assess the associated antenatal high risk factors present and to find out the probable cause of stillbirth. **Materials and Method:** This was an observational study with all patients who attended the obstetrics labour room of Rajiv Gandhi Medical College & Chhatrapati Shivaji Maharaj Hospital, Kalwa, Thane and included all stillbirths which occurred in the hospital during the study period April 2025 – March 2026. Antenatal records were reviewed; maternal investigations were done. The fetus was examined after delivery. Pre-structured pro forma was filled for every case. **Result:** During the period of study, a total of 3900 deliveries took place, out of these 100 were stillbirths with gestational age >= 28 weeks with baby weight >=1kg. Maximum women belonged to the age group 20-24 years(40%) and majority of them were multigravida(64%). 52% of patients were in gestational age of 32 to 37 weeks and 32 were preterm, that is less than 37 weeks of gestational age. The most common cause of stillbirth was hypertension seen in 24% cases followed by anaemia seen in 21% cases; 23% cases remained unclassified. **Conclusion and Discussion:** Birth defects were the most important fetal cause of stillbirth; hypertension in pregnancy and fetal growth restriction were important associated factors.

KEYWORDS : Stillbirth, Classification of Stillbirth, Birth Defect Fetal Growth Restriction

INTRODUCTION

There is an expectation that every pregnancy will end with the birth of a healthy baby, yet in a developing country like India 22 in every 1000 births are stillborn[1]. The effect of a stillbirth on parents is devastating and long term. Although improvements in maternal care has resulted in a dramatic reduction in stillbirths in high income countries but women in developing countries continue to experience stillbirths at a higher rate. The reason for this disparity usually is due to maternal behaviours, genetics, the physical and social environments and maternal awareness, education and access to and the quality of healthcare. For international comparison WHO defines a still born as baby born with no signs of life at or after 28 weeks of gestation, with birth weight of 1000 gram or more, or a body length of 35cm or more, when the baby does not breathe or show any sign of life after delivery, before onset of labor(antepartum death) or during labor (intrapartum death).[2] Almost half of stillbirths happen when women are in labour. Most stillbirths are seen in unbooked,unsupervised pregnancy, the causes of which may be different from what has been studied in various other developed countries. [3]

Focussed interventions are needed to reduce this burden of stillbirth. Indeed, one of the first steps towards targeted interventions is the complete reporting of data regarding where (healthcare facility or the community), when (antepartum or intrapartum) and why (causes, risk factors and contributing factors) due to which the stillbirth occurred.

Better regulation of the private healthcare sector, provision of healthcare providers and better equipment in peripheral health centres and a well-chalked out referral system will contribute to reduction in the number of preventable stillbirths. Regular facility-based stillbirth review meetings and healthcare provider accountability would also help to reduce the burden of this silent epidemic as well as reach the goal of a "single-digit" stillbirth rate by the year 2030.

The Government of India has developed an Indian Newborn Action Plan that includes efforts to reduce stillbirths to < 10 per 1000 births by 2030.

AIMS AND OBJECTIVES

To collect data on epidemiological profile of cases experiencing stillbirths, to assess the associated antenatal high risk factors present and to find out the probable cause of stillbirth.

MATERIAL AND METHOD

- An observational study was conducted at the Department of Obstetrics and Gynaecology at RGMC, CSMH, Kalwa after obtaining permission from the Institutional Ethics Committee.
- **Study Population:** All Antenatal patients admitted in the labour room at CSMH, Kalwa.
- **Study Period:** April 2025- March 2026
- **Study Design:** Observational study
- **Sample Size:** 100

Inclusion Criteria

- All diagnosed cases of stillbirths of more than 28 weeks or >=1000 gm of weight.

Exclusion Criteria

- All abortions and stillbirths of less than 28 weeks/ less than 1000 grams.
- Fetus with congenital anomaly.

METHODOLOGY

This study was carried out in RGMC, CSMH, Kalwa in the Department of Obstetrics and Gynecology, from April 2025 to March 2026. All women who were admitted with intrauterine death or had intrapartum death were interviewed after informed consent. Based on the working proforma , detailed history about epidemiological and obstetric details was taken and noted. Working proforma included questions regarding personal information like name, age, Socioeconomic status, religion, height, weight, BMI,history of any previous stillbirths, multiple pregnancy, past previous caesarean section, history of present pregnancy, questions included history of smoking and alcohol intake, history of any medical disorder, associated complicating factors such as hypertensive disorders of pregnancy, diabetes, severe anemia, etc., history of pre conceptional folic acid intake, supplementation in 1st, 2nd , 3rd trimesters, if any events noted in any trimester and total number of all the antenatal visits were noted. Questions to assess the geographical remoteness were also asked like distance of nearest health centre, time taken to reach our hospital from referral centre and time taken between onset of problem and reaching our hospital. History of bleeding, reduced fetal movements, fever, leaking, foul smelling discharge,trauma and convulsions were asked with leading questions. Time of onset of labour, time of delivery, total duration of labour was noted. At the time of admission of , LMP and EDD was noted, vitals were taken. Blood pressure with dipstick urine albumin test, HGT was done for all patients, detailed general physical and obstetric examination was done. Ultrasounds if available were noted in detail. A general and obstetrical examination was done and details regarding fundal height, liquor assessment, presentation and Fetal heart was noted via obstetric

examination. NST/CTG records if available was noted. Mode of delivery vaginal or caesarean and indication of caesarean was noted.Delivery details of fetal sex, gestational age at time of death, birth weight, gross congenital anomaly, true knot/false knot of cord and cord around neck was especially looked for. Basic free investigations (Hemogram and HIV and liver function tests) were done in all patients and if any previous blood reports were available was noted. All the history, examination findings, relevant investigation and ultrasound findings was collected and analysed via working proforma and finally complication which lead to stillbirth in this pregnancy was determined based on above details. If no complication was found,then stillbirth was classified under unknown cause.

OBSERVATION & RESULTS

During the period of study, a total of 3900 deliveries took place, out of these 100 were stillbirth with gestational age >= 28 weeks with baby weight >=1kg.

Table 1: Demographic Characteristics of Patients with Stillbirth (N= 100)

Characteristics	Stillbirth
Age	
<20	7
20-24	40
25-29	32
30-35	20
>35	1
Parity	
Primi	36
P2	16
P3	31
P4	9
>=P5	8
ANC visits	
Unregistered	55
<3 visits	30
>= 3 visits	15
Referral cases	
Yes	45
No	55

Age group-In the age group of 20 to 24 years, there were 40 patients, with stillbirth.

Parity- In this study, (36%) patients were primigravida. 64% were multigravida.

Antenatal visits-In this study, 30% patients had less than 3 ANC visits, 55% were unregistered and 15% had more than 3 ANC visits.

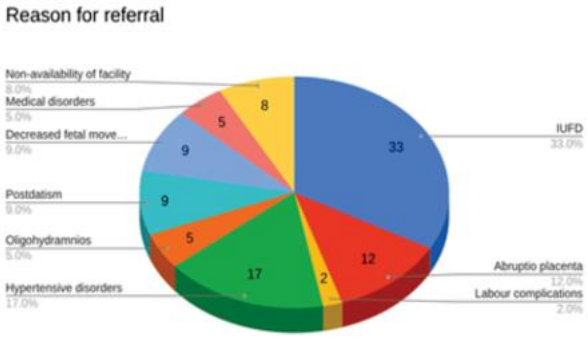

Figure 1:Reason for Referral

In this study, 33% cases were referred to as IUFD. Abruptio placentae (12%), labour complications (2%), hypertensive disorders (17%), oligohydramnios (5%),postdatism (9%), decreased fetal movements (9%), medical disorders (5%), non availability of facility (8%) were other reasons for referral.

Table 2: Gestational Age and Mode of Delivery in Relation to Stillbirth (N= 100)

		Mode of delivery	
		Vaginal delivery	LSCS
Gestational age	Number	Number	Number
28-31	30	20	2
32-37	52	52	3
>37	18	18	5

Gestational age-In this study, 18% were in gestational age of >37 weeks. 52% of patients were in gestational age of 32 to 37 weeks. 30% patients were in gestational age of 28 to 31 weeks.

Mode of delivery- 90% were delivered vaginally and 10% underwent LSCS..

Table 3: Characteristics of Baby (N = 100)

Weight(in kg)	Number
1-1.49	46
1.5-1.99	23
2.1-2.49	13
2.5-2.99	15
3-3.49	2
>=3.5	1
Sex	
Male	60
Female	40
Gross features	
Macerated	17
Non-macerated	83

Birth weight- In this study maximum (13%) babies were weighing between 2001 to 2500gms. 23% were weighing between 1501 to 2000gms, 46% weighed between 1000 to 1500 gm, 15% weighed between 2501 to 3000 gm, 3% above 3000 gm.

In this study, maximum stillbirths (86%) were in antepartum period compared to 14 percent in intrapartum period compared to 78 antepartum and 22 intrapartum in Rayamajhi et al study[4] 61% antepartum and 39% intrapartum stillbirths in Vidyadhar study.[5]

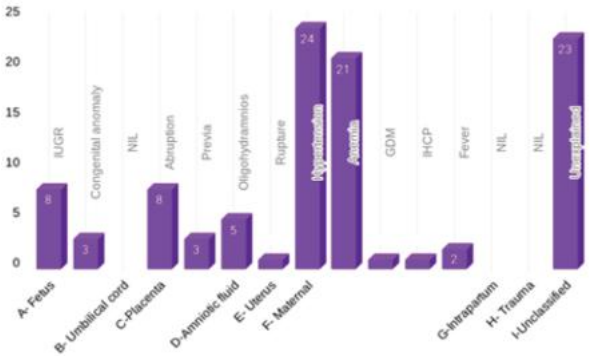

Figure 2- Distribution of Stillbirths According to Relevant Condition at Death

DISCUSSION

During 12 months of study, 3900 deliveries occurred in the hospital out of which 100 were stillbirths after using the inclusion, exclusion criteria. All women with antenatal, intrapartum stillbirths were included in the study. Out of 100 cases 90% cases already had intrauterine fetal death at admission. The present study was aimed at evaluating the rate and causes of stillbirth at RGMC, CSMH.

In the present study, 7 were below 20 years of age, 40 patients were between ages of 20- 24 years, 32 were between ages of 25-29 years and elderly patient (>35 years) was 1. Mustufa MA et al has reported that, stillbirth was common (73.7%) in the age group of 20-35 years.[6] Njoku C.O et al stated that stillbirth is common (33.7%) in the age group of 30-34 years[7]. Showghy et al stated that pregnancy at the age of 20 years and less than 20 years increase the risk of stillbirths by 4 times[8]. Fretts RC et al has concluded that age of 35 and more can increase risk of fetus death by 1.5 times[9]. The parity of the patient influences pregnancy outcome. In the present study, the proportion of stillbirths was higher in multigravida 64. Njoku C.O et al stated that the proportion of stillbirths was higher in multigravida (82.1%) which is similar to our study whereas Mustufa MA et al concluded that proportion of stillbirths was higher in primigravida patients (61%). Lack of adequate antenatal care is the most important problem that needs urgent attention. If a patient has taken adequate ANC then anemia, hypertensive disorders, GDM etc. can be diagnosed at earlier stages and managed. Al Kadri et al 10 found that women who did not receive ANC are at 70% risk of stillbirth[10]. In the present study, the

majority of stillbirth 52 occurred between 32-37 weeks of gestational age and 32 were preterm, that is less than 37 weeks of gestational age. Mustufa MA et al concluded that the proportion of stillbirth was higher (55.47%) between 32-37 weeks of gestational age which is similar to our study. In the present study, the majority of stillborn fetus weighed from 1000-1499gm ie. 46 patients. In the present study, out of all stillborn babies, 60 were male and 40 were female. A meta-analysis by Mondal D et al., 12 which includes data on more than 30 million births, links sex with stillbirth, the risk being about 10% higher in male fetuses. The reason for male preponderance is unclear but may be linked to the difference in male and female development. Male embryos have faster development and higher metabolic rates than female embryos and this potentially leaves male fetuses more vulnerable to distress or death from a range of stressors including endocrine fluctuation, oxidative stress and faster nutritional depletion when they encounter stressful conditions[11]. In present study, hypertensive disorders of pregnancy were the cause of stillbirths in 24 patients. Njoku C.O et al reported 18.9% of stillbirths due to hypertensive disorders. Sharma S et al 13 concluded that PIH accounted for 19.6% of stillbirths[12]. I Stillbirth due to Iron deficiency is the most common cause of anaemia in pregnancy and Iron and folic acid supplements are recommended for prevention. In present study, accidental haemorrhage particularly abruptio placenta and placenta previa as a placental cause for stillbirths in 8 and 3 patients respectively. Njoku C.O et al 7 reported that abruptio placenta and placenta previa accounted for 9.3% and 2.2% cases of stillbirth. Sharma S et al 13 reported antepartum haemorrhage in 12% as a cause of stillbirth. Antepartum haemorrhage leads to maternal blood loss leading to hypovolemic anaemia, hypoxia, hypertonic uterine contraction causes fetal hypoxia and death. In the present study, other maternal conditions like fever, gestational diabetes, IHCP accounted for stillbirth in 2% ,1%, 1% respectively. In present study, normal vaginal delivery occurred in 90, while operative procedure was required in 10 cases. Njoku C.O et al 7 reported that normal vaginal delivery occurred in 74.3% patients of stillbirth while operative procedure was needed in 25.7%. The most common complication associated with stillbirth was DIC that occurred in 2 cases.Availability of multispecialty and intensive care helps in management of these patients. Stillbirth resulted due to uterine rupture in 1 (0.9%) patient .In present study, unexplained stillbirth occurred in 23% which is comparable to Njoku C.O et al 7 (20.8%).

CONCLUSION

Most of the stillbirths in this study were due to maternal medical conditions.

The majority of patients were unregistered and had not taken antenatal care or had inadequate antenatal care. Hypertensive disorders during pregnancy were the leading cause for stillbirth followed by anaemia and unexplained causes. A significant proportion of stillbirths can be prevented by health education regarding the importance of adequate antenatal care, warning signs and institutional deliveries. Adequate antenatal and intra natal care can prevent stillbirths due to modifiable risk factors such as pre-eclampsia, eclampsia, anemia, diabetes etc. Timely reference to higher centers is also necessary. Emotional support and counseling of patients and her relatives are very much essential in patients having stillbirth. In case of unexplained stillbirth, fetal autopsy, placental and membrane examination can be helpful for finding out causes and to plan future pregnancy accordingly.

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