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ORIGINAL ARTICLE

Prevalence and causes of Stillbirths at a Tertiary Care Hospital

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ABSTRACT

Stillbirth is a major obstetrical complication and devastating experience for parents as well as obstetricians. Identification of causes of stillbirth will be helpful in counseling of parents as wellas formulating preventive measures. The Purpose of the current study was to identify the prevalence, causes ofstillbirth and associated complications to suggest preventive measures. This study was carried out from July 2019 to June 2020 at ateaching tertiary care hospital. The Total number of birth during the study period was 6587 and total number of stillbirth was 109,hence prevalence of stillbirth was 16.5 per 1000 total births. Majority of patients 41(37.6%) belongedto maternal age group of 20-24 years of age. Majority of patients 73(67%) were multigravida.Majority72(66.0%) were emergency admissions. Majority of stillbirth 88(80.7%) were preterm, less than 37weeksof gestational age. Majority of stillbirth 49(44.9%) were weighted from 1000-1499gram. Majority ofstillbirth 65(59.6%) were male. Vaginal delivery occurred in 93(85.3%) and 16(14.7%) required surgical intervention. In 21(19.2%) no identifiable cause of stillbirth was found whereas causes identified in88(80.8%). Stillbirth occurred in 27(24.8%) cases of hypertensive disorder of pregnancy and 24(22%)patients of anaemia. Other causes of stillbirth were Abruption 9(8.2%), IUGR 9(8.2%), oligohydramnios 5(4.6%) congenital malformation 3(2.8%), fever 3(2.7%), placenta previa 3(2.8%), gestational diabetes2(1.9%), hypothyroidism 2(1.9%) and uterine rupture in 1(0.9%). DIC occurred in 4(3.6%).TheMajority of patients were unregistered and had not taken antenatal care or had inadequateantenatal care. Hypertensive disorders during pregnancy were the leading cause for stillbirth followed byanemia and unexplained causes. A significant proportion of stillbirths can be prevented by health educationregarding importance of adequate antenatal care, warning signs and institutional deliveries. Emotionalsupport and counseling of patients and her relatives are very much essential in patients having stillbirth.

INTRODUCTION

The definition of a stillbirth varies across countries. The American College of Obstetricians and Gynaecologists define fetal demise as the death of a fetus past 20 weeks of gestation and or weight of 500 gms and above. A stillbirth is the death or loss of a baby before or during delivery. Both miscarriage and stillbirth describe pregnancy loss, but they differ according to when the loss occurs. In the United States, a miscarriage is usually defined as loss of a baby before the 20th week of pregnancy, and a stillbirth is loss of a baby at or after 20 weeks of pregnancy[1] Stillbirth affects about 1 in 160 births, and each year about 24,000 babies are stillborn in the United States. That is about the same number of babies that die during the first year of life and it is more than 10 times as many deaths as the number that occur from Sudden Infant Death Syndrome[2] In United Kingdom, stillbirth is defined as delivery of a baby with no signs of life after 24 weeks of Pregnancy.[3] However for the purpose of statistics for international comparison.as per World Health Organization (WHO), stillbirth (SB) is the birth of a newborn after 28th completed week and weighing 1000gms or more when the baby does notbreathe or show any sign of life after delivery, before onset of labor (antepartum death) or during labor (intra partum death).[4]Stillbirth is a significant contributor to perinatal mortality in developing countries and it is a devastating experience for parents as well as obstetricians [5].Because of advances in medical technology over the last 30 years, prenatal care (medical care during pregnancy) has improved, which has dramatically reduced the number of late and term stillbirth [6]. Stillbirth with an unknown cause is called “unexplained stillbirth.” Having an unexplained stillbirth is more likely to occur the further along a woman is in her pregnancy. Having an autopsy on the baby and other laboratory tests is important in trying to understand why the baby died before birth [7]. Stillbirth occurs in families of all races, ethnicities, and income levels, and to women of all ages. However, stillbirth occurs more commonly among certain groups of people including women who are 35 years of age or older,are of low socioeconomic status,smoke cigarettes during pregnancy,have certain medical conditions, such as high blood pressure, diabetes and obesity, have multiple pregnancies such as triplets or quadruplets, have had a previous pregnancy loss This does not mean that every individual of black race or older age is at higher risk for having a stillbirth. It simply means that overall as a group, more stillbirths occur among all mothers of black race or older age when compared to white mothers and mothers under 35 years of age. Differences in factors such as maternal health, income, access to quality health care, stress, social and emotional support resources and cultural factors may explain how these factors are related to having a stillbirth [8].The objectives of this study were to know the prevalence and to identify the causes of stillbirths so that possible preventive measures can be suggested to decrease the rateof stillbirths.

MATERIAL AND METHODS

This retrospective observational study was carried out from July 2019 to June 2020 at a tertiary care teaching hospital. Case Records were thoroughly analyzed with respect to age, parity, history of stillbirth in previous pregnancy, gestational age, associated complicating factors like the hypertensive disorders of pregnancy, diabetes, severe anemia, etc. in addition to details of investigations that were carried out. Fetal characteristics were studied with respect to sex, birth weight and gross congenital anomalies. We have evaluated all cases of stillbirths using Relevant Condition at Death (ReCoDe) classificationsystem to find out the causes of fetal loss which is a clinically based system appropriate for developing countries where only minimal investigations are possible. Mode of delivery and associated complications were also studied.

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

Exclusion criteria: All abortions and stillbirth of less than 28 weeks/ less than 1000 grams.

RESULTS

During the study period, out of 6587 total births, there were 109 stillbirths. Hence prevalence of stillbirths in present study was 16.5 per 1000 total birth.As shown in Table 1, majority of patients having stillbirths were in age group of 20-24 years (37.7%). The majority of patients having stillbirths were Parathree or more 57(52.2%).Illiterate patients were 17(15.6%) whereas 57(52.2%)

patients had primary education. Majority of patients were residing in urban area, 92(84.4%) and majority were unregistered patients 72(66%)

Table 1: Demographic characteristics of patients with stillbirth (N= 109)

Characteristics	Stillbirth (Number)	Percentage (%)
Age		
< 20	9	8.2
20-24	41	37.7
25-29	36	33
30-35	22	20.2
> 35	1	0.9
Parity		
Primi	36	33
P2	16	14.7
P3	32	29.3
P4	12	11
>= P5	13	11.9
Level of Education		
Illiterate	17	15.6
Primary	57	52.2
Secondary	11	10.1
Higher Secondary	16	14.7
Under Graduate	7	6.4
Post Graduate	1	0.9
Area of Residence		
Urban	92	84.4
Rural	17	15.6
Type of Admissions		
Emergency	72	66
Registered	37	34

As shown, in Table 2, majority of SB 56 (51.4%)occurred between 32-37 weeks of gestational age and88 (80.7%) were preterm, that is less than 37 weeks ofgestational age .The majority of patients 93(85.3%) delivered vaginallywhereas 16(14.7%) required caesarean section

Table 2: Gestational age and mode of delivery in relation to stillbirth (N= 109)

Gastational Age	ND		LSCS			
Gestational Age in weeks	Number	Percentage	Number	Percentage	Number	Percentage
28-31	32	29.3	22	20.2	10	9.2
32-37	56	51.4	52	47.7	04	3.7
>=38	21	19.3	19	17.4	02	1.8
Total	109	100	93	85.3	16	14.7

As shown in Table 3, majority 49(45%) of stillborn fetus weighed from 1000-1499gm. Majority 65(59.6%)were male and 44(40.4%) were female. Only 17(15.6%) were macerated, compared to 92(84.4%) who were non macerated

Table 3: Characteristics of baby (N = 109)

Fetal Characteristics Weight	Number	Percentage (%)
1000-1499	49	45
1500-1999	23	21.1
2000-2499	16	14.7
2500-2999	16	14.7
3000-3499	3	2.7
>=3500	2	1.8
Sex		
Male	65	59.6
Female	44	40.4
Gross Features		
Macerated	17	15.6
Non-Macerated	92	84.4

DISCUSSION

The definition of stillbirth recommended by WHO for international comparison a baby is born with no signs of life at or after 28 weeks gestation. [9]. In 2015 there were 2.6 million stillbirths globally, with more than 7178 deaths a day. The majority of these deaths occurred in developing countries. Ninety-eight percent occurred in low- and middle-income countries. The stillbirth rate in sub-Saharan Africa is approximately 10 times that of developed countries (29 vs. 3 per 1000 births) [10]. Worldwide, the number of stillbirths has declined by 19.4% between 2000 and 2015, representing an annual rate of reduction (ARR) of 2%. This reduction noted for stillbirths is lower than that noted for maternal mortality ratio (AAR=3.0%) and under 5 mortality rate (ARR= 3.9%), for the same period[11]. Worldwide in 2015, 18.4 stillbirths per 1000 total births occurred, compared with 24.7 stillbirths in 2000. During the study period, out of 6587 total births, there were 109 stillbirths. Hence, proportion of stillbirths in our study was 16.5 per 1000 total birth. But it was still way above theWorld Health Assembly (WHA) endorsed target of 12 or fewer in all countries by 2030. Global ARR needs to morethan double the present ARR of 2%v to accomplish the target for reduction in stillbirth. The Government of Indiahas developed an Indian Newborn Action Plan that includes efforts to reduce stillbirths to < 10 per 1000 births by 2030 [12]. In present study, 9 (8.2%) patients were of below 20 years of age, 41 (37.7%) patients were between ages of 20- 24 years, 36 (33%) were between ages of 25-29 years and elderly patient (>35 years) was 1 (0.9%). Previous study reported that, stillbirth were common (73.7%) in age group of 20-35 years. Njoku C.O et al stated that SB iscommon (33.7%) in age group of 30-34 years. Showghy et al stated that pregnancy at the age of 16 years and less than 16 years increase the risk of stillbirths by 4 times. Fretts RC et al has concluded that age of 35 and more can increase risk of fetus death by 1.5 times.[13,14,15].The parity of the patient influences pregnancy outcome. In present study, proportion of stillbirths was higherin multigravida 73(67%). Njoku C.O et al7 stated that 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 patient (61%)[16].In present study, illiterate patients were 17 (15.5%) whereas 57(52.2%) patients had primary education. These findings surely point relation of education and health seeking behavior.In present study, other maternal conditions like fever, gestational diabetes, hypothyroidism accounted for stillbirth in 03 (2.7%), 02 (1.8%), 02 (1.8%) respectively. In present study, normal vaginal delivery occurred in 93 (85.3%), while operative procedure was required in 16 (14.7%) cases. Njoku C.O et al reported that normal vaginal delivery occurred in 74.3% patients of stillbirth while operative procedure was needed in 25.7% [18]. Most common complication associated with stillbirth was DIC that occurred in 4(3.6%). Thromboplastin released from blood clots damages placenta and dead fetus activates coagulation cascade that leads to DIC. These patients were by treatment of underlying condition, maintaining perfusion to vital organs, transfusion of blood and blood components. Availability of multispecialty and intensive care helps in management of these patients. Stillbirth resulted due to uterine rupture in 01 (0.9%) patient who had history of previous two caesarean section.In present study, unexplained stillbirth occurred in 21 (19.2%). Which is comparable to Njoku C.O et al7 (20.8%).[19].

CONCLUSION

Majority of patients were unregistered and had not taken antenatal care or had inadequate antenatal care. The new ReCoDe primary classification system helped us in assigning the probable cause of stillbirth in majority of patients. 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 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 center 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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