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RESEARCH ARTICLE

STILL BIRTHS IN NORTHERN INDIA – AN INSTITUTIONAL BASED PROSPECTIVE STUDY

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ABSTRACT

Background: Global decline in ante partum fetal deaths has been cited in many countries, but the count still remains high in low income and developing countries.
In this scenario, precise knowledge of the cause of death is needed as the basis for counseling, prevention and treatment of the problem. A cross sectional observational prospective study was conducted from April2013- April 14 in the Department of Community medicine in collaboration with Department of Obstetrics and Gynaecology, Govt Medical College and Hospital Sec 32,Chandigarh.
Objectives: To find the incidence of still birth and to compare the difference in incidence of stillbirths in the patients referred from outside GMCH-32 vs those receiving care in the institute. Also to study the medical etiology of the stillbirths in reference to the varied determinants of still births.
Material and Methods: The sample comprised of antenatal mothers who were visiting the hospital for antenatal care/ referred from outside for delivery of child and gave birth to still birth. The ethical approval for the research study was taken from the ethical committee of the institute.
Results: In the study period of 1 year, of the total 5969 deliveries, around 247 women had stillbirth. Majority of women were in age group 19-25 yrs followed by that in 26-35yrs. The most common cause for still birth came out to be hypertension, 58(23.4).
Conclusion: A well established protocol for the investigation of still birth should be there in all tertiary care hospitals and referral.

INTRODUCTION

India contributes to a large proportion of the global, 3.2 million still Births (SBs) annually (Jason Gardosi *et al.,* 2013). Every day more than 7,300 babies are stillborn. The majority, 98% of these deaths occur in low- and middle-income countries and two-thirds of these stillbirths occur in south-east Asia and Africa (Flenady *et al.,* 2011). In high-income countries, disadvantaged women still have very high stillbirth rates. For example, indigenous women in Canada and Australia have stillbirth rates equal to women living in some low and middle-income countries (Haws *et al.,* 2009). Worldwide, the stillbirth rate has declined by 14% from 1995 to 2009, representing an annual decline of 1.1% per year. This is slower than reductions for child and maternal mortality. The improvement in stillbirth rate is less in developing countries (Flenady *et al.,* 2011). And similarly in India, with NMR(Neonatal Mortality Rate) of 34 per 1000 live births which is on decline but still high still birth rate of 27/1000 live births, India is not as yet on target to achieve its MDG-4(Millenium Development Goal) with annual SB and neonatal deaths of over 1 million (www.quandl.c/ health/stillbirth-rate-by-country).

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The major causes of stillbirth include: maternal infections in pregnancy, maternal disorders especially hypertension and diabetes, fetal growth restriction, congenital abnormalities (Pascal Foumane *et al.,* 2014). At least half of all stillbirths occur in the intrapartum period. Of the total stillbirths, 55% occur in rural areas (Fretts, 2010). It correlates with areas of low-skilled health professional attendants at birth and physicians are not always available for essential care during childbirth (Stillbirth Collaborative Research Network Writing Group, 2011). Investigations into stillbirth are crucial as they may provide an explanation for the death to the doctors, parents and families. Autopsy is widely acknowledged as the gold standard to investigation; however, declining autopsy rates because of lack of parental consent through poor communication are restricting researchers from gaining evidence into potential causes. Though a large number of stillbirths occur globally each year, yet they are largely invisible in global data tracking, policy dialogue and programme implementation due to a number of factors that keep stillbirths hidden, notably a lack of data and a lack of consensus on priority interventions, but also to social taboos and the associated family mourning.

MATERIALS AND METHODS

This cross sectional observational prospective study was conducted from April 2013- April 14 in the Department of Community medicine in collaboration with Department of Obstetrics and Gynaecology, Govt Medical College and Hospital Sec 32, Chandigarh. The sample comprised of antenatal mothers who were visiting the hospital for antenatal care/ referred from outside for delivery of child and gave birth to still birth. The International Classification of Diseases, Revision 10 (ICD-10) defines an early fetal death (Bahtiyar *et al.,* 2008) as death is a fetus weighing at least 500 grams (or, if birth weight is unavailable, after 22 completed weeks gestation, or with a crown-heel length of 25 centimeters or more) and late fetal deaths/ still births are defined as fetal death weighing at least 1000 grams (or a gestational age of 28 completed weeks or a crown-heel length of 35 centimeters or more). The ICD-10 recommends this definition for the purposes of international comparison (Getahun *et al.,* 2007) However, women with gestational period of less than 22 weeks and those who gave birth to live babies at full term pregnancy were excluded from the study. Data was captured using a standardised and pretested data capture sheet .Case records of all these pregnant women having fetal loss during intrauterine period and during delivery were thoroughly evaluated regarding their period of gestation, symptoms, antenatal record, complications, previous obstetrical history, labor, mode of delivery and the fetal outcome. Diagnosis of fetal death was made through history. Autopsy of child was done in only few cases, because of ignorance of the parents about the benefits, inspite of counseling. Mothers/relatives giving consent to participate in the study were interviewed to collect the desired information.

Confidentiality of responses was ensured following ethical guidelines of Helsinki. A verbal autopsy was done to evaluate the personal, social and cultural factors that were responsible directly or indirectly towards stillbirth.

The ethical approval for the research study was taken from the ethical committee of the institute. Data was collected, compiled and analysed using SPSS version 18.

RESULTS

Table 1 Most of subjects were not working, (199,80.5%). Labourer as a occupation was in, 18 (7.2%) females. Husbands of most of women were labourer (170,68.8%).

Women who were illiterate were 85(34.4%). Considering the religion, maximum respondents 172(69.6), were Hindu.

Table (1) Women of general category were maximum, 117(47.3). Only 2(0.8) females were from slums whereas 25(10.1) were from periurban area, 63(25.5) from urban area and 157(63.5) from urban area.

Table (2) Of the total 247 women, majority, 114(46.1) of women were married in the age group 18-21 yrs. Maximum females,116(46.9) had their first pregnancy in age group 18-<22yrs. Good percentage of women, 204(82.5), have got their pregnancy registered.

Table (3) On analysing the causes of still birth, the most common cause was hypertension, 58(23.4) followed by bleeding /painful bleeding 20(8).

Table 1. Sociodemographic profile of Mothers

GE	Age	Number	Percentage
	19-25 year	184	74.5
	26-35 years	47	19.1
	36-45 years	16	6.4
	Total	247	100
OCCUPATION	Occupation	Number	Percentage
	House Wife	209	84.6
	Agriculture	2	0.8
	Laborer	18	7.2
	Own Business	5	2
	Service	2	0.8
	Skilled Worker	11	4.4
	Total	247	100
EDUCATION	Education	Number	Percentage
	Illiterate	85	34.4
	Primary School	45	18.2
	Middle School	71	28.7
	Secondary School	29	11.7
	Higher School	0	0
	Graduation/Post-graduation	17	6.8
	Total	247	100
HUSBAND'S OCCUPATION	Occupation	Number	Percentage
	Agriculture	16	6.4
	Laborer	170	68.8
	Own Business	13	5.2
	Service	9	3.6
	Skilled worker	39	15.7
	Total	247	100

Continue……..

HUSBAND'S EDUCATION	Education	Number	Percentage
	Illiterate	35	14.1
	Primary School	53	21.4
	Middle School	51	20.6
	Secondary School	60	24.2
	Higher School	29	11.7
	Graduation/ Post-graduation	19	11.7
	Total	247	100
MONTHLY INCOME	Monthly Income (INR)	Number	Percentage
	>29000	9	3.6
	15,000-29,000	9	3.6
	11,000-15,000	8	3.2
	7,000-11,000	53	21.4
	4,500-7,000	110	44.5
	1,500-4,500	53	21.4
	<1,500	5	2.0
	Total	247	100
RELIGION	Religion	Number	Percentage
	Hindu	172	69.6
	Muslim	81	7.2
	Sikh	42	17
	Christian	7	2.8
	Others	8	3.2
	Total	247	100
CASTE	Caste	Number	Percentage
	Scheduled Caste	70	28.3
	Scheduled tribe	20	8
	Othe Backward Classes	40	16.1
	General	117	47.3
	Total	247	100
AREA OF RESIDENCE	Area Of Residence	Number	Percentage
	Urban	63	25.5
	Rural	157	63.5
	Peri-Urban	25	10.1
	Slums	2	0.8
	Total	247	100
TYPE OF FAMILY	Type Of Family	Number	Percentage
	Joint	179	72.4
	Nuclear	56	22.6
	Extended	7	2.8
	Others	5	2.0
	Total	247	100

Table 2. Antenatal variables

AGE AT MARRIAGE	Age at marriage	Number	Percentage
	<18 years	37	14.9
	18-21 years	114	46.1
	>21 years	96	38.8
	Total	247	100
AGE AT FIRST PREGNANCY	Age at first pregnancy	Number	Percentage
	<18 years	72	29.1
	18-22 years	116	46.9
	22-26 years	33	13.3
	26-30 years	15	6
	30-34 years	11	4.4
	>34 years	0	0
	Total	247	100
PARITY	Parity	Number	Percentage
	Primigravida	108	43.7
	Multigravida	139	56.2
	Total	247	100
REGISTRATION	Registration	Number	Percentage
	Yes	204	82.5
	No	43	17.4
	Total	247	100

Continue…….

PLACE OF REGISTRATION	Place of registration	Number	Percentage
	SC	16	6.4
	PHC	65	26.3
	CHC	60	24.2
	Government Hospital	87	35.2
	Private Hospital	19	7.6
	Total	247	100
TIME OF REGISTRATION	Time of registration	Number	Percentage
	1st Trimester	93	37.6
	2nd Trimester	114	46.1
	3rd Trimester	40	16.1
	Total	247	100
VISITS DURING ANTENATAL PERIOD	Antenatal visits	Number	Percentage
	Once	18	7.2
	Twice	37	14.9
	Thrice	40	16.1
	More than thrice	152	61.5
	Total	247	100
AFFECTED TERM OF PREGNANCY	Affected term of pregnancy	Number	Percentage
	1st Trimester	81	32.7
	2nd Trimester	166	67.2
	Total	247	100
ACCESSED LEVEL OF HEALTHCARE	Accessed level of healthcare	Number	Percentage
	Primary	0	0
	Secondary	27	0.9
	Tertiary	220	89
	Total	247	100

Table 3. Risk factors Of Still birth

Varied risk factors of still birth	Causes	Number	Percentage
	Bleeding/Painful bleeding	20	8
	Hypertension	58	23.4
	Jaundice	9	3.6
	Diabetes Mellitus	3	1.2
	Previous child with defects	0	0
	Bacterial infections	7	2.8
	Physical Trauma	0	0
	Twins/Multiple pregnancies	5	2
	Delivery later than 40weeks	3	1.2
	Smokimg	5	2
	Drug addiction	3	1.2
	Alcohol	8	3.2

DISCUSSION

In our study sample almost 3/4rth of women were in age group 19-25 yrs. In Indian culture, marriage at an early age accounts for the large percentage of women who had still birth in this age group. Even study by Wilson (Wilson *et al.,* 2008) showed teenage mothers with 4 times more risk of still birth. Concordant results were found in another study done in Maharashtra (Sangeeta Desai and Vasudha Sawant, 2014). In our study more than 3/4rth of women had their first pregnancy at age less than 26 yrs and around 60 percent were married at age less than 21 yrs. This gives an idea their low level of awareness. (Reddy *et al.,* 2006) too found that age was related to still birth occurrence. In his study women who were of advanced maternal age were at higher risk of stillbirth throughout gestation; the peak risk period was from 37 to 41 week. Behtiyar *et al.* (2008) too concluded that AMA was an independent predictor of IUFD.

In our study more than 1/3rd women and more than ½ of their husbands were illiterate. Literacy has inverse relationship with occurrence of still birth as validated in many studies (Getahun *et al.,* 2007). Even the low socio economic status has been a contributing factor to the occurrence of still birth (Goya *et al.,* 2008). It may be because of their inability to avail health services when needed. In our study too more than half of females were of low socioeconomic strata. Culturally appropriate preconception care and quality antenatal care that is accessible to all women has the potential to reduce stillbirth rates in high-income countries. Not only Registration of birth is a predictive factor of still birth but the regular visits during antenatal period after registration. In our study too the registered women were more but it was found that women had visited health facility only once or twice and that too in second trimester only. In our study, in around 60% of females the number of antenatal visits were more but in most of these,

cause of still birth was not known. Concordant results were found in study done by Haw *et al.* (2009).

Foetal death was associated with multigravida in our results. Concordant results were found in study done by Sangeeta (2014) in Maharashtra. Study by Tamrakar (2012) showed stiilbirth was not associated with primiparity but it seems that in multiparous women with previous delivery of live birth is a protective feature. Flenady *et al.* (2011) too identified fifteen risk factors in his study and he found that parity was not so related with still birth. Infact his findings stated that either early age of pregnancy or high parity i.e more than 5 or 6 had association with stillbirth. The most prevalent risk factors for stillbirth are obesity, socioeconomic factors, and advanced maternal age (Elizabeth M Mcclure *et al.*, 2011). The most common risk factor in our study was hypertension. These results were in concordance with that of ankhuman (Ankumah Na *et al.*, 2014). In our study only few percentage of women did smoking and maternal blood group was not found associated significantly with still birth. But many studies (McCowan *et al.*, 2009) have confirmed an association between smoking and risk of stillbirth as it increases the risk of low birth weight infants,placental problems (previa and/or abruption), chronic hypertensive disorders, and fetal death. Maternal blood group is also found to be associated with stillbirth, though it is difficult to explain the association of certain blood groups with IUFD. Study by Fedrick (2005) have shown an association with maternal blood group O and stillbirth.

Syed *et al.* (2011) found that Diabetes, especially pre-gestational diabetes is a significant risk factor for stillbirth and perinatal death. Infection is a well acknowledged cause of stillbirths (Yakoob *et al.,* 2009) and may account for about half of all perinatal deaths today, especially in developing countries. Hence interventions targeting towards various important infections during pregnancy on stillbirth or perinatal mortality have to be addressed (Darmstadt *et al.,* 2009; Ishaque *et al.,* 2011). Identification of ways to reduce maternal overweight and obesity is a high priority for high-income countries (Vergani *et al.,* 2008; Gardosi, 2001). Also Placental pathologies and infection associated with preterm birth are linked to a substantial proportion of stillbirths. All parents should be offered a thorough investigation including a high-quality autopsy and placental histopathology. Overweight, obesity, smoking and advanced maternal age are important modifiable risk factors for stillbirth (Flenady *et al.,* 2011), so efforts should be directed towards ameliorating the effects of these factors. Implementation of national perinatal mortality audit programmes aimed at improving the quality of care could substantially reduce stillbirths. For that Better data on numbers and causes of stillbirth are needed, and international consensus on definition and classification related to stillbirth is a priority.

Conclusion

Many studies have been done already on causes and burden of still birth, but still no substantial and concrete steps have been taken at national level to decrease the burden of still birth. A well established protocol for the investigation of still birth should be there in all tertiary care hospitals and referral. An option for autopsy should be given to parents after counseling and facility for autopsy should be there in hospitals. If the grieving parents are not willing for autopsy, other tests like X - rays, MRI, Ultrasonography and tissue sampling should be offered to them to have a safe and healthy pregnancy next time. Still birth registry can be established at national level. To start with initial steps can be taken at state level.

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