Original Article

Factors Associated with Stillbirth in aTertiary Care Hospital

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Abstract

Background: Stillbirth is a disastrous event faced by the obstetrician. Each stillbirth is a tragedy having devastating implications for mothers, their families and the health personnel. Globally it remains a significant public health issue, particularly in developing countries like Bangladesh. An understanding of the risk factors associated with stillbirth will facilitate optimum quality of maternal and child health services; which leads to reduce the burden of death.

Objective: To determine the factors associated with stillbirth in a tertiary care hospital.

Methodology: A descriptive type of cross sectional study was conducted in the department of Obstetrics and Gynecology of Shaheed Suhrawardy Medical College Hospital from 1st January 2019 to 31th December 2019. Total 32 pregnant women who had stillbirth occurred during the study period were included in this study. Non probability purposive sampling technique was followed as per inclusion and exclusion criteria.

Result: Total stillbirth reported were 32 (3.37% of total births). Maximum cases were primigravida (65.62%) with illiterate (71.87%), low socio-echonomic status (68.75%) and lack of Ante natal care(56.25%). Main causes of stillbirth were hypertensive disorders(15.6%), labour abnormalities(6.25%), other medical disorders(9.37%), infections(3.12%), Antepartum haemorrhage (12.5%), prematurity (12.5%), cord accidents(3.12%), IUGR(6.25%),birth asphyxia (6.25%) and post maturity(6.25%).

Conclusion: Hypertension and other medical disorders, Antepartum haemorrhage, labour abnormalities, prematurity, post maturity, IUGR and birth asphyxia were identified as the highest risks for stillbirth which can be reduced by early recognition of the problem with regular antenatal check-up, colour Doppler ultrasound to diagnose fetal growth restriction and cord abnormalities, anomaly scan, intrapartum use of CTG to know fetal distress and use of partograph to prevent prolongation of second stage of labour and timely obstetric intervention will help in reduction of stillbirth.

Introduction:

The World health Organization (WHO) suggests, "still birth means a baby born with no signs of life at or after 28 weeks of gestation". [1] Macerated still birth (Antepartum) means where death of fetus occurs before the onset of labour, whereas fresh stillbirth (Intrapartum) means death of fetus occurs after onset of labour and during delivery. Occurrence of stillbirth poses a difficult situation for the obstetricians and causes great psychological and emotional trauma to the couple and the family. Perinatal mortality rate serves as one of the most important sensitive index of maternal and neonatal care.[2]With marked reduction in maternal and infant mortality rates in the developed countries, attention has been given to the problems of perinatal mortality.[2,3] Stillbirth reflects a failure or lapse in implementation of maternal and child health care programme.It is estimated that approximately 3.2 million stillbirths occur worldwide every year.[4] Majority of them takes place in underdeveloped and developing countries.[4] Stillbirth contribute to more than half of the perinatal deaths.It is estimated that approximately 1.2 million fresh stillbirths (FSB) and 1 million early neonatal death occur in the world every year.[3] Fresh stillbirths contribute to more than half of all stillbirths.[4]

Perinatal mortality rate is very high in Bangladesh, which is 75 per 1000 births where stillbirth and early neonatal

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death rates were 37 and 38 per 1000 total births respectively.[5] Stillbirths during pregnancy are usually due to lack of adequate nutrition, hypertensive disorders, antepartum hemorrhage, genetic abnormalities in fetus, maternal infections and exposure to some toxic agents.[6] Intrapartum deaths are usually related to prolong and neglected labour, malpresentations and cord related complication.[6] Present study was carried out to find out the socio demographic profile of women who had stillbirth after institutional delivery and different medical and obstetric causes related to these stillbirths. Preventive measures are suggested in the end to reduce the perinatal mortality as a result of stillbirths.

Methodology:

The Present study was descriptive type of cross sectional hospital based study. The place of study was in the department of obstetrics and gynecology, Shaheed Shuhrawardy Medical College Hospital, Dhaka.The study period was one year, from 1st January 2019 to 31st December 2019. The aims and objectives of this study were to know the factors associated with the causes of stillbirth at the institute. The inclusion criteria were taken those cases who reported at study site with the reports of stillbirth or stillbirth occurred during the course of delivery. It includes all those cases having gestational age >28 weeks. The exclusion criteria were known gestational age below 28 weeks. Data collection method was by semi structured face to face questionnaire.

Data regarding socio demographic profile and antenatal investigations to find out cause of stillbirths was collected from the indoor case sheet. The information regarding intrapartum events were collected from labour records, CTG and partograph of relevant cases. The data related to total deliveries was collected from medical record section of institute. Relevant data was entered on a structured proforma and then transferred to master chart. The statistical analysis was performed using Z test. Variations of P<0.05 were considered to be statistically significant.

The data were analyzed for their booking status, demographic profile in terms of their age, parity, residential area, literacy status and their economic status. Data was analyzed for their previous or existing medical history, obstetrical history in present stillbirth, history of previous fetal death, and abortions. The causes of stillbirth were classified into maternal, foetal, placental and unexplained. Unidentified cases were labeled as Unexplained when the cause of stillbirth could not be traced. Fetal Heart Rate Monitoring(FHRM) as per protocol was considered adequate when the fetal heart rate was measured at least every half an hour using the auscultation technique and Cardiotochography(CTG) when indicated. Labour was monitored by using partograph. Management was done as per standard protocol for the department where vaginal delivery were 78.12% &caesarean section 15.6% and instrumental delivery were 6.25%.

Result:

Total number of deliveries occurred during the study period were 947. Among them 32 cases were identified as stillbirth as per inclusion criteria out of which 28 cases were antepartum and 4 were intrapartum stillbirths. The rate of stillbirth for the institute was 33.7/ 1000 live birth and it was 3.37% of total birth. Maximum cases were primigravida (65.62%) and were 21 to 25years age group (56.25%). Most of them were illiterate (71.87%) and belong to low socioeconomic status (68.75%). A significant number of 56.25% cases having no ANC. The causes of stillbirth were mainly divided into four groups, maternal, foetal, placental and unexplained causes which were 43.75%, 28.12% ,15.6% and 12.5% respectively.. Among maternal causes hypertensive disorders 15.6%, other medical disorders 9.37%, labour abnormalities like prolonged and obstructed labour 6.25% , post dated pregnancy 6.25%, both infections and malpresentation were3.12%. Among foetal causes prematurity 12.5%,IUGR 6.25%, birth asphyxia 6.25% and congenital anomaly were 3.12%. Among placental causes antepartum haemorrage 12.5%, cord prolapse 3.12% and unexplained were 12.5%. FHRM by CTG and labour monitoring by using partograph were done in 12.5% cases. Management of stillbirth were done as per standard protocol for the department where 78.12% patients delivered by per vaginal route, 15.6% had emergency LSCS and 6.25% by instrumental vaginal delivery.

Table-I

Socio demographic profile of women with stillbirths

Sl. No.	Indicator	No. of cases (n=32)	Percentage (%)
1	**Age distribution (in years)**		
	≤20	3	9.37
	21-25	18	56.25
	26-30	6	18.75
	31-35	4	12.5
	>35	1	3.12
2	**Education of patients**		
	Illiterate	23	71.87
	Literate	9	28.12
3	**Occupation of patients**		
	Housewife	12	37.5
	Service holder	8	25
	Day labour	5	15.6
	Garments worker	4	12.5
	Others	3	9.37
4	**Socioeconomic class of patients**		
	Lower (<BDT 5000/-)	22	68.75
	Middle (BDT 5000-15000/-)	8	25
	High (>BDT 15000/-)	2	6.25
5	**Area of residence**		
	Urban	11	34.37
	Rural	21	65.62

Table-II

Obstetric profile among still birth

Sl. No.	Indicator	No. of cases (n=32)	Percentage (%)
1	**Parity distribution**		
	Primigravida	21	65.62
	Multigravida	11	34.37
2	**Gestational age**		
	<37 weeks	4	12.5
	37-40 weeks	26	81.25
	>40 weeks	2	6.25
3	**Antenatal care (ANC)**		
	Regular	3	9.37
	Irregular	11	34.37
	None	18	56.25
4	**Prolonged second stage of labour**		
	Present	4	12.5
	Absent	28	87.5
5	**Foetal heart rate monitoring as per protocol**		
	Present	4	12.5
	Absent	28	87.5
6	**Use of partograph**		
	Used	4	12.5
	Not used	28	87.5
7	**Condition of liquor**		
	Absent	4	12.5
	Meconium stained	23	71.87
	Blood stained	4	12.5
	Foul smelling	1	3.12
8	**Mode of delivery**		
	Emergency C/S	5	15.6
	Vaginal delivery	25	78.12
	Instrumental	2	6.25
9	**Past obstetric history among multipara (11)**		
	Previous stillbirth		
	- Absent	8	25
	- Present	3	9.37
	History of abortions		
	- Absent	7	21.87
	- Present	4	12.5

Table-III

Distribution of stillbirths as per etiology (n=32)

Sl. No	Etiology of Stillbirth	No. of cases	Percentage (%)
1	**Maternal Causes**	**14**	**43.75**
	- Hypertensive disorders	5	15.6
	- Other medical disorders (Diabetes mellitus,anaemia, thalassemia etc)	3	9.37
	- Infection	1	3.12
	- Labour abnormalities (prolonged, obstructed labour)	2	6.25
	- Post dated pregnancy	2	6.25
	- Malpresentation	1	3.12
2	**Fetal Causes**	**9**	**28.12**
	- Congenital anomaly	1	3.12
	- IUGR	2	6.25
	- Prematurity	4	12.5
	- Birth asphyxis	2	6.25
3	**Placental causes**	**5**	**15.6**
	Antepartum haemorrhage	4	12.5
	Cord accidents(prolapse, true knot,)	1	3.12
4	**Unexplained causes**	**4**	**12.5**

Discussion:

Stillbirths contribute to more than half of perinatal deaths.Sometimes they occur suddenly and unexpectedly and at times they are anticipated by the obstetrician. Irrespective of type ,time of occurrence and causes they bring lots of psychological trauma to the patient and their relatives .The severity of this problem is much more with sudden intrapartum deaths due to birth asphyxia of various reasons. In the present study the rate of stillbirths was 33.7/ 1000 live births, which is comparable to the rates reported by other authors[7-11] and it was much less than reported by few other authors.[12,13].Most of females were primi gravida (65.62%) which indicates that they were ignorant about the danger signs of pregnancy. Among these danger signs hypertensive and other medical disorders, antepartum haemorrhage, obstructed labour, post maturity, infection ,congenital anomaly, prematurity, IUGR, birth asphyxia were identified .

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Among all the socio demographic factors lack of antenatal care, lower socio economic class and illiteracy were found to be significantly associated with higher stillbirth rates.(p value less than 0.05).Kameshwaran and Ravikumar et al and Chitrakumari have reported similar observations in their studies[9,11,13] In present study 68.75% females belong to low socioechonomic status that is similar to the study done at Sweden by Stephansson O. et al. [14]ANC plays a vital role in the management of health of women during pregnancy and many women who lack access to ANC are at an increased risk of stillbirth. Our results are consistent with other studies done in Gambia and Zimbabwe.[15]

According to Cande V. Ananth hypertensive disorders are major group in contribution of stillbirth which is 4.8 to 7.8/1000 live birth among primi to multi gravid females[16]. In our study it is 15.6%. A retrospective analysis for APH done at northern Nigerian teaching hospital indicates the stillbirth rate along with APH is 42.8% that is quite high.[17]In present study infection is associated with 3.12% of stillbirth which is similar with a study done by Goldenberg RL et al showed infection is one of the major cause of stillbirth in developing countries which is preventable.[18] Major congenital anomaly also contributes 3.12% stillbirth which is similar with a study done by P.Shayam shows the congenital anomaly is 1.45% of total stillbirth.[19]

In present study obstetric complications occurring during labour or delivery including malpresentation, prolonged and obstructed labour were 3.12%,12.5%,6.25% respectively which is comparable with the study of few authors.[20] Intrapartum stillbirths can be avoided if better obstetric care, maternal and fetal monitoring are available. In settings where FHRM is sub-optimal and partographs are not used to monitor labour progression, the risk of stillbirth further increases.[21] Prematurity and low birth weight due to various medical or obstetrical causes were associated with more than half percent of all fresh stillbirths. Maternal under nutrition, anaemia, cervico vaginal infections, heavy strenuous work during pregnancy contribute to the onset of preterm labour and low birth weight babies.

Many stillbirths can be avoided by proper diet, adequate rest, regular antenatal checkup.Early detection of high risk factors and their prompt management can save many intrapartum deaths due to placental insufficiency. Modern gadgets like color Doppler ultrasound, non-stress tests, cardiotocography(CTG) can detect the fetal jeopardy before occurrence of stillbirth. Carefully performed obstetric ultrasonography can detect nuchal cord thickness and cord entanglement around the neck of fetus. Sonologist must alert the obstetrician of such occurrence,

so that necessary care can be taken during labour.Use of partograph to see the progress of labour and intrapartum fetal monitoring by CTG can detect fetal distress before major damage takes place. Avoidance of prolongation of labour, especially the second stage, careful selection of cases for instrumental vaginal deliveries and availability of neonatologist for resuscitation of asphyxiated newborn can reduce the rate of fresh stillbirths.

A systematic review was done at University of Queensland, Australia by HE Reinebrant et al they classified 50 countries into High income countries (HIC), Middle Income countries (MIC), and Low Middle Income countries (LIC) and found unexplained stillbirth 32.1%, 43.7%, and 41.0% respectively. [22] Bangladesh was categorized in low income country. Worldwide ,the number of stillbirths has declined by 19.4% between 2000 and 2015, representing an Annual Rate of Reduction(ARR) of 2%. WHO has launched a programme ENAP i.e. "Every newborn an action plan" to end preventable deaths. . It came with the vision of "A world in which there are no preventable deaths of new borns or stillbirths, where every pregnancy is wanted, every birth is celebrated, and women, babies and children survive, thrive and reach their full potential". ENAP has set a goal of "By 2030, all countries will reach the target of 12 or less stillbirths per 1000 total births and continue to close equity gaps".[23]

Conclusion:

Most of the cases in the present study belong to primi gravid women with low socioeconomic status and illiterate. Highest risk of stillbirths were observed in patients with hypertension and other medical disorders, APH, labour abnomalities, prematurity,IUGR ,cord accidents, birth asphyxia and post maturity which can be preventable by early implementation of adequate strategies including : early recognition of the problem with regular antenatal check-up, bio physical profile, colour doppler ultrasound to diagnose fetal growth restriction and cord abnormalities, anomaly scan to diagnose congenital anomaly, intrapartum use of CTG to know fetal distress and use of partograph to prevent prolongation of second stage of labour and timely obstetric intervention will help in reduction of stillbirth. Adequate prevention and management of identified risk factors during antenatal and intranatal period constitute major steps in the reduction of the number of stillbirths.

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