

Intrauterine fetal death and associated maternal conditions

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ABSTRACT

Background: Intrauterine fetal death (IUFD) is a cataclysmic event for the parents. It is an important indicator of maternal and perinatal health of a given population. This study was undertaken to study the maternal and fetal factors associated with IUFD.

Methods: This was a retrospective study carried out in Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM) General Hospital, Dhaka, from November 2019 to October 2020. The details of history, examination findings, investigation reports, mode of delivery and fetal outcome were obtained from records.

Results: A total number of 57 intrauterine fetal death were reported amongst 1534 deliveries conducted during the study period. The occurrence of intrauterine fetal death was 37.1/1,000 live births; Among all these intrauterine fetal death cases, 87.7% deliveries were preterm and 89.4% deliveries were singleton delivery. The other associated maternal conditions were uncontrolled blood glucose in 64.9% cases, hypertensive disorders in 36.8% cases, other medical causes in 10.5% cases. Associated fetal conditions included intrauterine growth retardation of fetus in 28.0% cases, oligohydramnios in 21.0% cases, congenital malformation in 14.0% cases. Placental condition included antepartum hemorrhage in 3.5% cases.

Conclusions: In this study, the occurrence of intrauterine fetal death was associated with high incidence of uncontrolled blood glucose, oligohydramnios and congenital malformations. This emphasizes the importance of proper antenatal care and identification of risk factors and its proper treatment.

Keywords: Intrauterine fetal death, Uncontrolled blood glucose, Congenital malformation.

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INTRODUCTION

One of the important predictor about country's development is the mortality proportion among children, where most of these deaths occur during the period between 22th week of pregnancy and the first month of life. One of this situation is intrauterine fetal death (IUFD) which is the clinical term for stillbirth used to describe the death of a baby in the uterus. For statistical purpose fetal deaths are classified according to gestational age.¹ It is defined differently around the world. In developing country it is usually applied to losses at or after the 28 weeks of gestation. Intrauterine fetal death are the principle subjects of concern among obstetricians and pediatricians.² Intrauterine fetal death accounts for approximately half of perinatal death. Stillbirth is a useful index to measure the values of

antenatal and intranatal care. There are so many maternal conditions and diseases such as pregnancy hypertension, diabetes, high parity, advanced maternal age, abruption placenta, congenital anomalies, intrauterine growth retardation, severe fetal growth restriction, oligohydramnios, cord accident that are responsible for poor obstetrical outcomes. The aetiology of fetal demise is unknown in 25%-60% of all cases. In cases where a cause is clearly identified, the cause of fetal death can be attributable to fetal, maternal or placental pathology². The mode of antepartum and intrapartum surveillance for fetal wellbeing has advanced in last few decades. By proper antenatal check-up, the high-risk cases associated with poor outcomes can be identified. We can analyze the maternal conditions associated with specific reference to clinical presentations, fetal and maternal complications to find the preventable causes of fetal death.³

METHODS

This was a retrospective observational study. The details were entered in a preformed proforma from November 2019 to October 2020 including all cases of intrauterine fetal death which was conducted in Department of Obstetrics & Gynaecology, Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorder (BIRDEM) General Hospital, Dhaka, Bangladesh. Data were collected from the hospital records. Frequency was calculated. Factors that may have contributed to the occurrence of intrauterine fetal death were explored focusing on maternal age, gestational age, parity, mode of delivery. The records of babies born below 28 weeks of gestation, fetus weighting below 100 gm were excluded.

RESULTS

The present study consisted of 57 cases of intrauterine fetal death or stillbirths. A total of 1534 deliveries occurred in our institute during the study period. The occurrence of IUFD was 37.1 per 1000 live birth.

Table I shows that most of the fetal deaths (36.9%) occurred in women between 26 to 30 years of age and minority of the fetal deaths (3.5%) occurred in women above 40 year of age.

Table II reveals that majority of IUFD fetuses were preterm i.e. 50 (87%)

Table I. Distribution of cases according to maternal age (N=57)

Age (years)	Number	Percentage
<20	5	8.7
20–25	14	24.6
26–30	21	36.9
31–35	12	21.0
36–40	3	5.2
>40	2	3.5

Table II. Gestational age distributions of IUFD (N=57)

Gestational age of IUFD Fetus in weeks	No. of cases	% of cases
28 ⁰ –31 ⁺⁶	17	29.8
32 ⁰ –37 ⁺⁶	33	57.9
38 ⁰ –39 ⁺⁶	5	8.7
postdated	2	3.5

According to Table III, amongst all maternal factors responsible for IUFD, uncontrolled blood glucose was present in majority of patients 37 (64.9%). This was found to be the most common responsible factor for IUFD and followed by hypertensive disorders of pregnancy which was present in 21 (36.8%) cases, intrauterine growth retardation in 16 (28.0%) cases, oligohydramnios in 12 (21.0%) cases, congenital malformations in 8 (14%) cases, other medical causes in 10.5% cases and antepartum haemorrhage in 3.5% cases. Other medical causes included hypothyroidism, chronic liver disease (CLD).

Table III. Clinical causes of intrauterine fetal death (N=57)

	Causes	No.	Percentage
Maternal causes	Uncontrolled blood glucose	37	64.9
	Hypertensive disorders in Pregnancy	21	36.8
	Other medical causes	6	10.5
Fetal causes	Intrauterine fetal growth retardation	16	28.0
	Oligohydramnios	12	21.0
	Congenital malformations	8	14.0
Placental causes	Antepartum hemorrhage	2	3.5

As per Table IV, out of 57 IUFDs 10 (17.5%) patients had spontaneous onset of labour, 26 patients (45.6%) needed induction of labour and 21 patients (36.9%) underwent lower segment caesarean section for failure of induction of labour, history of previous caesarean section, placenta previa, severe abruption placenta, macrosomia and ruptured uterus.

Table IV. Distribution of cases according to mode of delivery (N=57)

Mode of delivery	No. of cases	% of cases
Induction of labour followed by vaginal delivery	26	45.6
Spontaneous vaginal delivery	10	17.5
LSCS	21	36.9

Table V shows the birth weight of fetuses. Among 57 IUFDs 24 (42.2%) fetuses weight were between 1000 to 1500 grams. In 12 (21.0%) fetuses weight were between 1501 to 2000 grams.

Table V. Birth weight of IUFD fetus (N=57)

Birth weight (grams)	Number of still birth	Percentage
1000-1500	24	42.2
1501-2000	12	21.0
2001-2500	8	14.0
2501-3000	6	10.6
3001-3500	4	7.0
3501-4000	3	5.2

DISCUSSION

This study consists of 57 stillbirths amongst 1534 total births. According to this study the occurrence of stillbirth was 37.1/1000 births. The incidence of stillbirth reported from western countries ranges from 4.7% to 12.0%.^{3-5,7} This is lower than that observed in our study. However, the incidence rate reported from various centers in this subcontinent is higher 24.4-41.9%.^{6,8} The occurrence of prenatal loss was 26 per 1000 livebirths in a study in Bangladesh.¹⁵ In present study the occurrence of fetal demise was high. The reason may be our institute is a tertiary care referral centre. Major obstetric complications identified in the periphery and other centers are referred to our centre. The other reason could be a high number of pregnancy with diabetes in our center. The increased risk of fetal death is present amongst the teenage group and older women. The western studies show that increased risk is present in women over 35 years of age.¹⁰⁻¹² In our study, however, the fetal deaths were more in the age group of 26-30 years. This is because most of the women in our country complete the family before 35 years of age. The occurrence of IUFDs in pregnancy with uncontrolled blood sugar in this study was 64.9% which is similar to that reported in other studies.² The occurrence of gestational hypertension in this study was 36.8% which is higher to that reported in other studies.² The occurrence of intrauterine growth retardation in our study was 28.0%. The other studies have reported this occurrence from 2.2% to 18.4%.¹³⁻¹⁴ The occurrence of oligohydramnios was in this study 21.0% which is higher than other studies. The occurrence of congenital malformations was 14.0% which is also similar to that reported from other studies.² The occurrence of APH in our study was 3.5%, which was lower than that reported

in other studies. In this study, the majority of IUFDs fetuses were preterm (87.7%) which is also similar to other studies.⁵⁻⁷

Conclusion and recommendation

Stillbirth is one of the most common adverse consequences of pregnancy in developing countries. In this study, uncontrolled blood glucose was the commonest comorbidity of IUFD. Hypertensive disorders in pregnancy, intrauterine fetal growth retardation, oligohydramnios were also the leading causes of IUFD. To reduce the occurrence of stillbirth, we should pay attention to health education with emphasis on antenatal care and its benefit, improved periconceptional environment, nutrition, micronutrient status especially folic acid intake and proper blood sugar control. Proper screening and antenatal supervision plays an important role in decreasing the rate of stillbirths.

Authors' contribution: FF planned the study, collected data, drafted manuscript. SS was the overall supervisor. SS collected data. SA did literature review. All authors approved the final version for publication.

Conflicts of interest: Nothing to declare.

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