

A Prospective Observational Study and Risk Factors of Intra Uterine Fetal Demise at JLN MCH, Bhagalpur, Bihar

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Abstract

Background: A significant obstetrical complication that can be upsetting for parents and obstetricians alike is intrauterine foetal death. Finding the causes of IUFD will enable the development of a successful prevention strategy, preventing maternal problems in the process. The purpose of this study is to determine the prevalence, sociodemographics, maternal risk factors, and foetal features of cases of intrauterine foetal death.

Methods: From March 2022 to August 2022, the current prospective study was carried out in the Obstetrics and Gynaecology Department of the Jawaharlal Nehru Medical College and Hospital in Bhagalpur, Bihar. The antepartum circumstances that resulted in foetal death were reported, and sociodemographic and clinical characteristics were observed and examined.

Results: During this time, there were 1450 deliveries and 45 foetal deaths. In our study, the incidence of IUFD was 31.03/1000 live births.

Conclusion: The main causes of foetal death are pregnancy-induced hypertension, severe anaemia, placental abruption, and congenital malformations of the foetus. All of the major causes of foetal death that were found here can be avoided. To lower the still birth rate, proper preconceptional advice and prenatal care are essential.

Keywords: Intrauterine fetal demise, perinatal mortality.

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Introduction

Both the family and the obstetrician are distressed by the death of a viable foetus. Despite improvements in medical research, diagnostic techniques, and therapeutic approaches, pregnancy loss continues to occur at an unacceptable rate. IUFD is a

significant factor in pregnancy loss. Intrauterine foetal deaths and IUFD Together, they make up a sizable share of perinatal mortality. The frequency of perinatal deaths in a community is a reliable barometer of the standard of antenatal care

provided there.[1] In the last 50 years, antenatal care has transformed. In wealthy nations, the occurrence of IUFD has decreased to a minimally avoidable rate, but it is still relatively high in poor and developing nations. The number of foetal deaths per 1,000 live births is used to describe the prevalence of IUFD and stillbirth.[2] Incidence rates vary by nation, ranging from 5 per 1000 births in high-income nations to 36 per 1000 births in underdeveloped nations.[3] In the last few decades, antepartum and intrapartum monitoring for foetal welfare has evolved. Poor obstetrical outcomes are caused by a variety of maternal disorders and illnesses. The high-risk patients can be recognised with appropriate prenatal examinations.

Material and Methods

From March 2022 to August 2022, the Department of Obstetrics and Gynaecology at Jawaharlal Nehru Medical College and Hospital in Bhagalpur, Bihar, conducted this prospective observational study. During this time, a total of 45 cases of intrauterine foetal death were examined. After 28 weeks of gestation, cases of foetal death were included. The study excluded multiple pregnancies with a dead foetus, stillbirths after feticide, and papyraceous foetus deliveries. The study did not include cases of foetal death during delivery.

The absence of foetal heart sound and movement was used to identify IUFD, and ultrasonography was used to confirm the diagnosis. As per the hospital protocol, each mother was looked into. HbA1c and fasting blood glucose were used to test mothers for

diabetes. For all the moms with IUFD, tests for antiphospholipid syndrome, VDRL, TSH, FT4, CBC with platelet count, and urine toxicology screening were conducted. All mothers who underwent a prenatal examination in this institution were regarded as booked cases. Data were gathered, and a detailed analysis of prior events involving abortion, congenital malformations, consanguinity, genetic diseases, etc. was performed. Although foetal autopsy was recommended, none of the patients opted to have one.

Results

During this time, there were 1450 deliveries and 45 foetal deaths. In our study, the incidence of IUFD was 31.03/1000 live births. In our study, there were 24 male foetuses (53.33%) and 21 female foetuses (46.67%). In our analysis, 46.67% of cases were primigravida and fell under the under-30-year age range. The majority of IUFD instances (26, 57.77%) were identified before the term of 37 finished weeks. In our study, 38 instances, or 84.45% of the total, were sent cases from the periphery since there aren't enough obstetricians there to provide an adequate antenatal checkup.

In the preceding obstetric history, 2 (4.44%) individuals had a history of IUFD, compared to 5 (11.11%) cases with a history of previous abortion. As a maternal risk factor for IUFD, pregnancy-induced hypertension and eclampsia 11(24.44%) top the list. Severe anaemia is second most frequently as a risk factor 5(11.11%). The most frequent factor leading to foetal death in terms of aetiology is congenital abnormality.

Table 1: Demographic Data of fetal deaths in study period

Variables	Total number of cases (n=45)	Percentage (%)
Age in years		
<30	29	64.45%
30-35	10	22.22%
>35	6	13.33%

Parity		
Primigravida	21	46.67%
Second gravida	14	31.11%
Multigravida	10	22.22%
Gestational Age		
Preterm	27	60.00%
Term	14	31.11%
Post term	4	8.9%
Past obstetric history		
Abortion	5	11.11%
IUFD	2	4.44%
Gender of fetus		
Male	24	53.33%
Female	21	46.67%
Antenatal check up		
Booked	7	15.55%
Referral cases	38	84.45%

Table 2: (Fetal Risk factors)

Risk factors	Number of cases(n=45)	Percentage(%)
Congenital anomalies	5	11.11%
Rh isoimmunisation	2	4.44%
Non immune hydrops	1	2.22%
Cord problem	1	2.22%
PROM	3	6.67%

Table 3: (Maternal risk factors)

Risk factor	Number of cases (n=90)	Percentage (%)
Gestational diabetes	3	6.67%
Previous uterine scar dehiscence	1	2.22%
Jaundice	1	2.22%
Infection	3	6.67%
Systemic lupus erythematosus	1	2.22%
Haemoglobinopathies	1	2.22%
Severe Anaemia	6	13.33%

Table 4: (Placental causes)

Risk factor	No of cases(n=90)	Percentage (%)
Placenta praevia	2	4.44%
Abruption placenta	2	4.44%
Severe PIH+eclampsia	11	24.44%
IUGR	4	8.88%
Antiphospholipid Syndrome	2	4.44%
Postdatism	4	8.88%

Unexplained-15 cases (33.33%)

*Many cases had multiple risk factors each risk factor was taken into account.

Discussion

The issue of intrauterine foetal death is typically ignored by society. We are not particularly focused on the IUID. Worldwide, there are more over 7.6 million perinatal fatalities per year, of which 57% are attributable to foetal demise.[4] The monitoring mechanism for IUID in underdeveloped nations is insufficient to provide an accurate picture of the disease.

There are 31.03 IUID per 1000 live births in the current study. The predicted number of stillbirths worldwide in 2009 was 2.64 million, with a range of 2.14 to 3.82 million.[5] From 22.1 stillbirths per 1000 live births in 1995 to 18.9 stillbirths per 1000 live births in 2009, the global stillbirth rate has decreased by 14.5%.[7] Patel S, *et al* stated that 22.2 stillbirths for every 1000 live births (GA>28 weeks) occurred.[8]

The majority of patients who visited our facility were recommended by local rural primary health centres, where there is a shortage of competent obstetricians and inadequate prenatal care. According to Al Kadri *et al.*, women without adequate ANC had a 70% chance of developing IUID[9]. 84.45% of the instances in our analysis are unbooked cases. According to Patel S. *et al.*, there was a higher incidence of IUID (70%) in instances involving emergency admission.[8] Additionally, a greater stillbirth rate in emergency admission cases has been documented by Korde NV *et al* [10].

29 patients and 6 instances with ages over 35 were included in this investigation. Two of the patients were more than 40 years old. According to Frett *et al.*, the risk of foetal death increases by 1.5 times after the age of 35.[11] In the study by Anue D *et al.*, advanced maternal age (>35) was also

significant.[12] In their study, Patel S. *et al.* reported 60%[8] cases to be multigravida, while Korde-NV *et al*[10] reported 51.6%. Multigravida makes up 54.4% of the cases in our study, which is nearly comparable to the other studies.

In the current investigation, 2 patients (4.44%) and 5 cases (11.11%), respectively, each had a prior history of IUID. Abortion accounts for 16.2% and IUID accounts for 11.2% of the 27.5% of patients with a history of reproductive loss, according to Patel S, *et al.* In this study, which is comparable to one by Chita K *et al.*, 58.8% of patients are preterm.[13]

Congenital abnormalities and chromosomal malformations are two unavoidable causes of stillbirth. 11.11% of the cases in our study exhibited congenital anomalies, primarily anencephaly. Similar to our study, Anjali C. *et al.* [14] and Kumar *et al.*[15] observed IUID due to congenital abnormality in 10.5% and 10%, respectively. Only 2.5% of instances, according to Patel S *et al.*, result in IUID.[8]

Prenatal folic acid and vitamin B12 supplementation can lower the prevalence of neural tube defects. Without causing a foetal death, routine imaging for foetal anomalies and pregnancy termination are both possible. Today, we can do medical termination, which will lower the IUID rate, and check for chromosomal anomalies as a standard operation in high-risk situations. Anti-D medication can easily stop other causes, such as Rh isoimmunization. Although the reasons of cord accidents in foetuses are often unexpected, the nuchal cord can be identified by colour. Obstetrician and Doppler can keep an eye on this.

Pregnancy with diabetes, anaemia, and pregnancy-induced hypertension are easily avoidable maternal causes. The antenatal check-up routine should mandate regular GDM screening. Many expectant moms in rural areas of the country are not checked for this in this region. In GDM, effective glycemic management is essential.

Diabetes caused IUFD in our study at a rate of 6.67%. The Government of India provides free iron and folic acid tablets to expectant mothers, however 13.33% of pregnant women in our study had anaemia that led to IUFD. In a research, Anjali C *et al.* estimated that 16% of IUFD was caused by anaemia.[14] To avoid iron deficiency anaemia, the pregnant woman should be dewormed.

To treat and prevent the same, injectable irons may also be administered safely. It is possible to prevent pregnancy-related hypertension and accompanying consequences, such as placenta abruption and IUGR, as well as stillbirths.

According to the current study, 25.5% of IUFD cases are caused by PIH and its consequences. According to Patel *s et al.*, IUFD is accounted for by PIH and eclampsia combined.[8] and Anjali C *et al.*[14] reported that 30% of instances of IUFD are caused by PIH.

Due to postpartum, which occurs when a patient waits for regular labour pain to begin without being watched, four foetal fatalities were caused by oligohydramnios. We are currently able to research people with IUFD in this area thanks to our current understanding of antiphospholipid syndrome. Antiphospholipid antibodies in patients can lead to severe pre-eclampsia and severe placental insufficiency, which can lead to IUFD.

injection of a small-molecule substance Heparin has completely changed how lupus

anticoagulants are treated for IUFD. At the moment, intra Hepatic Cholestasis is a major cause of IUFD. In our investigation, one case of IUFD was brought on by the rupture of a prior uterine scar. In our study, PIH, placental abruption, severe anaemia, and congenital deformity were the main causes of IUFD. In our analysis, unexplained stillbirths made up 33.33% of the total. In a study of 296 cases of IUFD, Neetusingh *et al.* found that 33% of foetal deaths were unexplained.[16] In a research by Lamia Shaban *et al.*, 28% of 157 instances of IUFD lacked a clear explanation.[17] Ruth Fret's meta analysis of the causes of IUFD reveals at least fifteen possible explanations, with unexplained stillbirth and severe IUGR being the two major culprits.[18]

Investigating these puzzling phenomena could aid in our efforts to lower the rate of IUFD and consequently, stillbirths.

Conclusion

The main causes of foetal death include pregnancy-induced hypertension, severe anaemia, placental abruption, and congenital abnormality of the foetus. The stillbirth rate reported here does not represent the stillbirth rate of this region because many other hospitals and home deliveries are also present and have not been taken into account.

This study is a tertiary level hospital-based study. Once more, a post-mortem could not be performed due to a lack of consent, which would have allowed for the explanation of many more undetermined causes.

However, every one of the major causes of foetal death identified here can be avoided. To lower the still birth rate by 2030, adequate preconceptional counselling, prenatal care, and referral systems are required.

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