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## Original Research Article

# Analysis of factors responsible for intrauterine fetal death in rural pregnant women at tertiary care centre of Northern India

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### ABSTRACT

**Background:** Intrauterine fetal death (IUFD) is a tragic event for both the parents and obstetrician. Objectives of current study were to study the underlying etiology of Intra Uterine Fetal Death (IUFD) that can be helpful in formulating the preventive measures.

**Methods:** This study was conducted over a period of one year from April 2016 till March 2017 at a tertiary rural care hospital. All patients with diagnosed IUFD at >24 weeks of gestation were included in the study.

**Results:** Total eighty patients were admitted with diagnosis of intrauterine fetal death. Among these majority 58 (72.5%) were multigravida and only 22 (27.5%) were primigravida. Maximum number of patients, 61 (72.5%) were between age group of 20-30 years. Maximum number of IUFD were reported between 36-40 weeks of gestation (36.25%). Most of fetal deaths were due to preventable conditions like hypertensive disorders of pregnancy (28.75%), severe anemia (15%), abruptio placenta (11.25%), and rupture uterus (10%). Out of these patients 68 (85%) delivered vaginally and 7 patients were delivered by LSCS.

**Conclusions:** The present study emphasizes the role of health education, regular antenatal checkups, early detection of complications and hospital delivery to reduce the overall preventable IUFD.

**Keywords:** Intrauterine fetal demise, Placenta, Still birth

### INTRODUCTION

Intrauterine fetal death and still birth is a cause of stress for both parents and the treating doctors. The gestational age at which intrauterine fetal demise is considered as still birth is different in various countries. In some countries, still birth is considered after 16 weeks of gestation while others consider fetal death as late as 28 weeks.<sup>1</sup>

The prevalence of IUFD has been decreased in developed countries but it still remains very high in underdeveloped and developing countries.<sup>1</sup> Rate of incidence varies in different parts of the world. Annually 2.6 million stillbirths occur worldwide in 2015 with

average still birth rate of 18.4 per 1000 births and the developing countries of Asia and sub Saharan Africa together are responsible for two-thirds of the world's stillbirth burden.<sup>2</sup> Rate of still births in India ranges from 20 to 66 per thousand births in different states.<sup>3</sup> It is also found that inadequate healthcare, lack of antenatal checkups, illiteracy and socio-cultural factors contribute to the increase rate of stillbirths in India.

Early neonatal deaths and stillbirths usually have obstetric causes, and can be prevented by timely obstetric care.<sup>3</sup> Anemia, hypertensive disorders of pregnancy, accidental hemorrhage are leading causes of IUFD and whereas prematurity, birth asphyxia, congenital

malformations and cord prolapse leads to intrapartum stillbirths.<sup>4,5</sup>

## METHODS

The present study was carried out in the department of Obstetrics and Gynecology of a rural tertiary care centre of Northern India over a period of one year after taking informed written consent and proper ethical committee approval.

### Inclusion criteria

All antenatal patients who presented in Labour Room with diagnosis of intrauterine fetal demise after 24 weeks of gestation were considered as cases.

### Exclusion criteria

- Patients presenting before 24 weeks of gestation.
- Patients who delivered fetus weighing less than 500grams.
- Patients who delivered outside.

A detailed history was taken including socio-demographic factors, obstetrical history, past and present medical history and any aggravating factor leading to fetal demise. History related to any drug intake and radiation exposure was noted. Blood pressure, weight, height and all basic investigations including ultrasonography were recorded to look for cause of fetal death and confirm the diagnosis of intrauterine fetal demise. Investigations included ABO and Rh grouping, VDRL, fasting and postprandial blood sugar, urea, creatinine estimation, thyroid profile, viral serology. The gestational age, mode of delivery, sex and birth weight of fetuses were noted. Final analysis was done using SPSS – 20 version software.

## RESULTS

During the study period, eighty patients were admitted with diagnosis of intrauterine fetal death. Among these majority 58(72.5%) were multigravida and only 22(27.5%) were primigravida.

**Table 1: Demographic factors.**

Details	Number	%
Unregistered cases	71	88.75
Registered cases	9	11.25
<b>Age</b>		
<20 years	3	3.75
20-30 years	61	76.25
31-40 years	15	18.75
>40 years	1	1.25
<b>Parity</b>		
Primigravida	22	27.5
Multigravida	58	72.5

Maximum number of patients, 61 (72.5%) were between age group of 20 – 30 years and only 3 patients were less than 20 years old, as shown in Table 1.

**Table 2: Gestational age at time of admission.**

Gestational age in weeks	Number	%
24-30	19	23.75
31-35	27	33.75
36-40	29	36.25
>40	5	6.25

Maximum number of IUFD were reported between 36-40 weeks (36.25%) of gestation (Table 2). Only 6.25% patients presented after 40 weeks of gestation.

**Table 3: Causes of intrauterine fetal demise (IUFD).**

Cause of IUFD	Number	%
<b>Hypertensive disorders of pregnancy</b>		
Gestational hypertension	6	7.5
Pre-eclampsia	10	12.5
Eclampsia	7	8.75
Severe anemia	12	15
<b>Antepartum hemorrhage</b>		
Placenta previa	4	5
Abruptio placenta	9	11.25
Postmaturity	1	1.25
Congenital malformations	4	5
Rupture uterus	8	10
Obstructed labor	3	3.75
Hepatorenal failure	2	2.5
Infectious disease	4	5
Unexplained	14	17.5

\*in some cases, there was more than one underlying cause

In current study, in 14 patients cause for intrauterine death was not clear. Most of fetal deaths were due to preventable conditions like hypertensive disorders of pregnancy in 28.75% out of which eclampsia was present in 8.75%, severe anemia in 15%, abruptio placenta in 11.25% and rupture uterus in 10% cases.

**Table 4: Mode of delivery.**

Mode of delivery (n=80)	Preterm births	Term births	%
LSCS	1	7	10
Vaginal delivery	44	22	85
Laparotomy (rupture uterus)	1	3	5

Of these patients 68 (85%) patients delivered by vaginal route and 8 patients required LSCS (3 patients with previous scar, 2 with abruption placentae and 3 with placenta praevia). Laparotomy followed by hysterectomy was done in 3 patients of rupture uterus in whom uterus could not be repaired. Among all these patients, eight

patients required ventilatory support, out of which 4 succumbed to death.

## DISCUSSION

Stillbirths occur mostly due to the causes which are preventable with proper antenatal care but still this is neglected in developing countries like India. Women in India have many difficulties in regular health check-ups due to accessibility, availability, affordability and quality of healthcare facilities available during pregnancy.<sup>3</sup> Our hospital is a rural tertiary care referral centre and most of the women were referred after diagnosis of IUDF for further management. In present study, there were 80 patients who were admitted with diagnosis of IUDF and most of them 71 (88.75%) were emergency admissions of unregistered patients and only 9 (11.25%) were registered patients. Similar findings were reported by Choudhary A et al who found a higher incidence of stillbirths (89.53%) in emergency admissions.<sup>1</sup>

Patel S et al and Korde NV et al had also reported a high incidence of 70% and 84.9% respectively of IUDF in unbooked patients as compared to booked patients.<sup>4,5</sup> In patients who come for regular antenatal checkups, complications can be timely diagnosed and treated leading to better pregnancy outcome.<sup>6</sup> In present study 3 (3.75%) patients were less than 20 years of age, 61 (76.25%) were between age of 21-30 years and 15 (18.75%) were more than 30 years. Similar results were reported by Patel S et al.<sup>4</sup> Frett et al and McClure E et al has also concluded that women of age more than 35 years have increased risk of fetal death.<sup>7,8</sup> In present study incidence of IUDF was higher in multigravida 58 (72.5%) as compared to primigravida. Korde NV et al and S Patel et al had also shown that parity influences the pregnancy outcome and incidence of stillbirths was higher in multigravida.<sup>4,5</sup>

In this study 19 (23.75%) patients presented before 30 weeks of gestation with IUDF. Prematurity has been shown as another risk factor for fetal death by Patel S et al and Al Kadari et al.<sup>4,9</sup> In present study, 50 (62.5%) were between 25-32 weeks of gestational. In this study, the most common cause associated with IUDF was hypertensive disorders of pregnancy seen in 28.75% and among these 10 (12.5%) patients had pre-eclampsia and 8.75% presented in emergency with eclampsia. Abruptio placenta accounted for 9 (11.25%) cases in present study. PIH and eclampsia together contributed or 27 (33.7%) cases and Abruptio placenta accounted for 10 (12.5%) cases of IUDF in study conducted by Patel S et al.<sup>4</sup> Anjali C et al reported PIH causes IUDF in 30% and abruptio placenta in 10.4% cases which is comparable to our study.<sup>1</sup> Korde NV et al reported the most common cause of IUDF as abruptio placenta seen in 21.9% and PIH-eclampsia together in 18.7% cases.<sup>5</sup> According to Kotweg et al the most important cause for IUDF was growth restriction, emphasizing that role of placental is important for optimal fetal growth.<sup>10</sup> Severe anemia was underlying

factor in 12 (15%) cases in our study which is comparable to 16% reported by Chaudhary A et al.<sup>1</sup> Infectious diseases were encountered in 4 (5%) patients out of which 3 cases were of malaria.

Chaudhary A et al reported maternal infections as a complicating factor in 7.62% pregnancies out of which there were five cases of clinically proven malaria and one case of pneumonia.<sup>1</sup> In our study 8 (10%) presented with rupture uterus due to handling by unskilled attendants and inappropriate use of misoprost and oxytocin. 3 (3.75%) patients were referred from rural area due to obstructed labor leading to IUDF. Korde NV et al had reported obstructed labor in 1.1% cases.<sup>5</sup> According to a study conducted by McClure et al in low income countries 51% delivered at home, out of which 16% had no health care provider available at delivery and 34% had an unskilled attendant.<sup>8</sup> Antenatal patients should be educated for regular antenatal checkups and institutional deliveries to decrease these complications.

The incidence of unexplained fetal demise is constant over the years and Chaudhary A et al has reported 19.5% fetal deaths as unexplained.<sup>1</sup> In this study in 14 (17.5%) fetal deaths no cause was detected. In our study, congenital malformation was present in 4 (5%) cases. Chaudhary A et al and Patel S et al had reported fetal deaths due to congenital malformation in 10.5% and 2.5% respectively.<sup>1,4</sup> In current study mode of delivery was vaginal route in 68 (85%) patients which is comparable to studies conducted by others. Patel S et al and Korde NV et al had reported vaginal delivery in 91.2% and 73.1% cases respectively.<sup>4,5</sup> Caesarean section was required in 8 (10%) and hysterectomy was done in 4 (5%) patients. Indication for hysterectomy was rupture uterus in 3 cases and 1 patient of placenta praevia due to uncontrolled bleeding even after taking all medical and surgical conservative measures. Caesarean section was required in 4 (5%) in study conducted by Patel S et al.<sup>4</sup>

## CONCLUSION

Most of women presented in emergency with IUDF and there was history of inadequate antenatal care. Majority of causes leading to IUDF like hypertensive disorders of pregnancy, eclampsia, abruptio placentae and severe anemia can be prevented by regular health checkups by trained doctors. Congenital fetal malformations cannot be avoided but can be detected at an early gestation. We emphasize on health education, regular antenatal checkups, early detection of complications and hospital delivery so as to reduce the overall burden of perinatal mortality in coming future.

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