

**ORIGINAL RESEARCH**

# Intrauterine Fetal Death in Third Trimester of Pregnancy

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### ABSTRACT

**Introduction:** Intrauterine fetal death (IUFD) is a traumatic event for the pregnant woman, her family and even for the treating obstetrician. IUFD occur either before onset of labour (antepartum death) or during labour (intrapartum death) and this fetus when delivered is called a stillbirth (Safarzadeh et al, 2014). IUFD and stillbirth are used as a synonym nowadays. Stillbirth can be occurred by various causes like intrapartum complications, hypertension, diabetes, infection, congenital and genetic abnormalities, placental dysfunction, and pregnancy continuing beyond fourty weeks, etc. and in few cases there is no identified etiology. **Aims and objectives:** To evaluate the proportion of IUFD in our tertiary care hospital. To identify maternal demographic variables associated with IUFD. To identify risk factors and clinical presentation associated with intrauterine fetal death. To evaluate maternal outcome in cases of IUFD. **Methodology:** This is a retrospective observational study conducted in our tertiary care hospital. During this study period of 3 years (August 2020 to July 2023) there were a total 16,558 deliveries, which include 270 women with IUFD in third trimester of pregnancy. We studied about various factors like demographic variables, risk factors, clinical presentation and maternal outcome in IUFD. **Results:** IUFD proportion in this study was 16.3 per one thousand deliveries. Mean age of women with IUFD was 23.5 years. In this study, 60% women were multipara while 34% women were primigravida. Various risk factors associated with IUFD were identified, still no identifiable causes were found in 20% of cases. PIH was seen in 26% of cases. Spontaneous vaginal delivery occurred in 40% of cases while requirement of induced vaginal delivery and LSCS was found in 38% and 22% cases respectively. PPH (8%) and abnormal coagulation profile (13%) were amongst the complications seen with pregnancy with IUFD. **Conclusion and clinical significance:** IUFD is an unfortunate outcome of any pregnancy for the patient and for treating obstetrician. We can identify the risk factors and assign etiology in many cases of IUFD. PIH is one of the most common cause. Majority of these causes can be diagnosed early and can be managed properly by regular antenatal care, timely investigations and treatment of underlying causes. This can prevent the unfortunate and unwanted outcome in majority of cases.

**Keywords:** IUFD, SB, pregnancy-induced hypertension

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### INTRODUCTION

WHO defines "Intra uterine fetal death (IUFD) as a baby born with absolutely no signs of life at or after 28 weeks gestation, weight  $\geq$  1000 g, crown-heel length (CHL)  $\geq$  35 cm."<sup>1</sup>

The definition of IUFD differs from one country to another according to gestational age. Across the world, depending upon the viability criteria and availability of the neonatal care facility cut off for

gestational age varies. Upper-middle income countries use the cut-off point of lower gestational age of 20-22 weeks, while lower-middle income countries like India, Nepal etc. use the cut-off point of higher gestational age of 28 weeks. Prevalence of IUFD is an important indicator of the quality of antenatal care in that society. Approximately 2.6 million IUFD happens annually worldwide. Prevalence of IUFD varies from country to country. Proportion of IUFD

reported from western countries ranges from 4.7 – 12<sup>2,3</sup> per 1000 births, whereas lowest proportion of 3 per 1000 births reported Finland and Singapore and higher proportion of 47 in Pakistan and 42 in Nigeria. In country like India, proportion of stillbirths also vary from one state to another, which ranges from 24.4 - 41.9 per 1000 births.<sup>4</sup> In South India the incidence of stillbirth is lesser than that reported from rest of the India and this could be due to the higher literacy rates, better antenatal care and increased awareness.

## METHODOLOGY

This is a retrospective observational study conducted in our tertiary care hospital, over 3 years period from August 2020 to July 2023. Total 16558 deliveries occurred during the study period, which included 270 women with IUFD in third trimester of pregnancy. History was taken in detail, which included parity, age, clinical presentation, mode of delivery,

gestational age, etc. All routine and specific investigations were done. The final maternal outcome was noted. With the help of appropriate statistical methods, we got the data, and then analyzed data were compared with different studies and discussed.

## Inclusion criteria

All antenatal women admitted at our institute with:

- Intrauterine fetal death having gestational age more than 28 weeks or birth weights more than 1000 grams and delivered at our institute.

## RESULTS

This was a retrospective study of 270 women with IUFD in 3rd trimester of pregnancy at our tertiary care institute during a period of 3 years from August 2020 to July 2023. We collected, tabulated and analyzed all the data and got the results shown as below.

**Table 1: Proportion of IUFD**

	Present study	Shrestha J et al <sup>5</sup> (2017)	Mandal et al <sup>13</sup> (2021)	Bhatia T et al <sup>9</sup> (2016)
Total No. of delivery	16558	4516	7589	4972
No. of IUFD (per 1000 birth)	270(16.3%)	100(22%)	158(20.8%)	138(27.7%)

Table 1: shows the rate of IUFD was 16.3 per 1000 births in our institute, we compared it with other studies Table 1 shows that during study Period, 16558 deliveries had taken place, Out of which 270 were IUFD babies as per inclusion criteria. This makes the proportion of IUFD 16.3 per 1000 births. On comparing with other studies, Shrestha J et al<sup>5</sup> reported IUFD rate 22% and Mandal A et al<sup>6</sup> reported 20.8%. Therefore, present study and other studies show similar proportion of IUFD.

**Table 2: Demographic profile**

Age	Numbers of pregnancy with IUFD	% of pregnancy with IUFD
<21	22	8
21-25	114	42
26-30	83	31
31-35	40	15
>35	11	4
Total	270	mean age~23.5 years
Parity		
Primi gravida	92	34
Multipara(2-4)	162	60
Grand multipara(≥5)	16	6
Registration Status		
Registered case	154	57
Emergency/referred case	116	43

**Table 2:** as per the data, mean age for women with IUFD was 23.5 years. Most common age group was 21-25 years. 60% of women with IUFD were multipara.

As shown in table 2, in the present study, 162(60%) cases of IUFD were multipara and 92(34%) were primigravida. Mean age of women with IUFD was 23.5 in this study. 154(57%) cases were registered cases (at least one ANC visit at our institute) while others were emergency cases or referred cases 116(43%).

**Table 3: Distribution of IUFD cases according to risk factor in different studies**

Risk factors	Present study(270 cases)	Trivedi K et al <sup>10</sup> (2015)	Mandal A et al <sup>13</sup> (2021)	Shrestha J et al <sup>5</sup> (2017)
Gestational hypertension	26% (70)	24%	11.4%	14%
Anemia	19% (51)	12%	11.4%	2%
Antepartum hemorrhage	16% (43)	15%	2.5%	7%

Fetal growth restriction	17%(46)	-	-	22%
Oligohydramnios	15%(40)	-	1.3%	4%
Jaundice	2%(5)	4%	5.1%	-
Gestational diabetes	6%(16)	5%	2.5%	2%
Febrile condition	5%(14)	3%	3.8%	1%
Post term	7%(19)	5%	-	-
Congenital anomalies	4%(10)	10%	10%	15%
Cord prolapse	1%(3)	3%	2.5%	1%
Rupture of uterus	1%(3)	-	-	5%
Unknown etiology	20%(55)	15%	10%	16%

**Table 3:** shows risk factors associated with IUFD. Most common risk factor in our study was PIH. Oligohydramnios, APH, gestational diabetes are also significant risk factors associated with IUFD according to our study and other similar studies.

Multiple risk factors associated with women with IUFD were identified, out of which PIH reported in 70(26%) women. Other risk factors associated with IUFD were accidental hemorrhage 43(16%), anemia 51(19%), oligohydramnios 40(15%), GDM 16(6%) etc.

In the present study, cord prolapse was found in three (1%) women. Cord prolapse was present in women who came in active phase of labor with malpresentation. Rupture of previous caesarean scar was observed in five (2%) women. They were hemodynamically unstable and managed vigorously. In this study incidence of idiopathic IUFD was 20%.

**Table 4: Clinical presentation associated with pregnancy with IUFD**

Clinical Presentation	Present Study
Abdominal Pain	156
Reduced/Loss of fetal movement	70
Leaking per vagina	42
Bleeding per vagina	34
fever	18

**Table 4:** In this study, abdominal pain was most common clinical feature seen in women with IUFD. Other chief complaints associated with women with IUFD were reduced fetal movement, leaking PV, bleeding PV, fever.

Majority of women, 156(58%) presented with complaint of abdominal pain. Other clinical features observed in women with IUFD were decreased or lack of fetal movement, leaking per vagina, bleeding per vagina and fever.

\*Few women presented with more than one risk factors e.g. in some of the PIH patients, IUGR and oligohydramnios were also present. Similarly some of women presented with more than one complaints simultaneously hence all the risk factors and complaints were included in observation.

**Table 5: Distribution of IUFD cases according to mode of delivery in different studies**

Mode of delivery	Present study(270 cases)	Gehlot H et al <sup>7</sup> (2017)	Jamal S et al <sup>8</sup> (2017)
Spontaneous vaginal delivery	40%(108)	40%	41.1%
Induced vaginal delivery	38%(103)	44.82%	50%
LSCS	22%(59)	15.17%	8.9%

Table 5: In our study 40% of the women delivered spontaneously, 38% required induction for vaginal delivery while in 22% of the women; LSCS was required due to various reasons.

As per table 5, in present study, 108 (40%) women had spontaneous vaginal delivery & 103(38%) women required induction of labor, 59(22%) women underwent LSCS. Various Indications of LSCS were APH, Previous caesarean section, induction failure and rupture uterus. In cases of APH, LSCS was done as a lifesaving procedure to decrease maternal morbidity due to severe bleeding.

**Table 6: Post-partum complications**

	Present study(270 Cases)			Adiba Malik et al <sup>11</sup> (2019)	Deshpande RS et al <sup>12</sup> (2020)
	Macerated	Fresh	Total		
No Complications	34	123	157		
Complications	67	46	113		
1) PPH	13(5%)	8(3%)	21(8%)	12%	10%
2) Abnormal coagulation profile	27(10%)	8(3%)	35(13%)	3%	2.5%
1) Infection	5(1.8%)	3(1%)	8(3%)	8%	7.5%
2) Anemia	22(8%)	27(10%)	49(18%)	28%	-

3) Maternal mortality	-	-	-	1%	2.5%
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Table 6: As shown in table, most of the women with fresh IUFD had no postpartum complication. However, in women with macerated IUFD complications like abnormal coagulation profile, PPH, infection, anemia were observed.

In present study, PPH occurred in 21(8%) women with IUFD. Such cases of PPH were treated with various utero-tonic drugs like oxytocin, misoprostol, prostaglandin f2-alpha and supporting care along with blood transfusion and/or blood product as well as higher antibiotics. Cabergoline was given in all cases of IUFD to suppress lactation.

## DISCUSSION

•Intrauterine fetal death (IUFD) is one of the most traumatic event for the parents as well as for the treating obstetrician. Worldwide, the IUFD rate is decreasing from about 35/1000 live births in 1980 to about 15/1000 live births in 2015, <sup>6</sup> which is similar to present study (16.3). Higher number of the women, 114 (42%) were from the age group of 21-25 years, 83(31%) were from the age group of 26-30 years, still 51(19%) of women were from age above 30 years. Thus, it is evident that no age is immune for IUFD. IUFD was more common in multipara women (60%) than in primigravida (34%). Increasing parity is associated with either increased prevalence of pregnancy complications or may be ignorance of women and family members regarding medical care and regular antenatal visits.

On comparing the data of present study with others like Gehlot H et al and Sharma S et al, it was observed that a higher number of women were booked ( at least 1 or more visit) ranging from 57% to 88.8%. As our institute is a tertiary care referral center, we have also received a good number (43%) of referred cases. Most common risk factor of IUFD was gestational hypertension according to present study and similar studies. Undiagnosed, untreated gestational hypertension can lead to chronic utero-placental insufficiency, which may cause IUGR followed by IUFD. Cases where the accidental hemorrhage is due to the underlying long-standing pathology, even minor degree of placental separation causes IUFD. In GDM, post maturity, fetal hypoxia, acidosis and placental dysfunction can lead to unexpected IUFD. According to present study and similar studies, incidence of idiopathic IUFD varied between 10-20%. The cause of death can be diagnosed properly with fetal autopsy but refusal of fetal autopsy by relatives due to various religious reasons or unavailability of autopsy locally are major limiting factors in diagnosis of IUFD.

Most of women with IUFD delivered by spontaneous vaginal delivery followed by induced vaginal delivery, however some of the cases required LSCS.

On comparing with Gehlot H et al<sup>7</sup>, 44.5% women with IUFD delivered by spontaneous vaginal delivery while 40% of women with IUFD required induction for vaginal delivery and LSCS required in 15.2% of the cases. In Jamal S et al<sup>8</sup>, 41% women delivered spontaneously. Despite having IUFD, failure of Induction of labor and maternal safety due to associate various maternal conditions were considered for cesarean delivery in 8.9%-22% cases of IUFD.

PPH, abnormal coagulation profile, anemia and infections were most common complications seen in women with IUFD. Altered coagulation profile found in 35(13%) women with IUFD and some of them presented with antepartum hemorrhage. Risk of altered coagulation profile increases especially if fetus is retained in utero for longer duration. This is due to absorption of thromboplastin from dead placenta and decidua into maternal circulation. 2.8% cases of IUFD had infections, in the form of either wound infection or UTI or Others. There was no maternal mortality that occurred in the present study.

## CONCLUSION

IUFD is an unfortunate outcome of any pregnancy for the patient, her relatives, caregivers, and treating obstetrician. The incidence of IUFD is still high in developing countries like India. We can identify the risk factors and assign etiology in many cases of IUFD. Gestational hypertension, antepartum hemorrhage, anemia, gestational diabetes, post term pregnancy, congenital anomaly are common causative factors. Majority of these causes can be diagnosed early and can be managed properly through a multidisciplinary approach. This requires Regular antenatal care, timely investigations and treatment of underlying causes. This can prevent the unfortunate and unwanted outcome in the majority of cases. However, not all IUFDs are preventable. Once diagnosed with IUFD, early detection and timely management by induction of labor can reduce the complication rate.

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