Original Article: Obstetrics

An Analytical Study on Intrauterine Foetal Death and Still Birth in a Teaching Hospital

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ABSTRACT

Objective: IUFD is an important indicator of maternal and perinatal health of a given population. To know the incidence, etiology and mode of delivery of IUFD and Stillbirths in our institute.

Materials and Methods: This is a retrospective observational study over 3 years, from medical records of IUFD and still births, with gestational age >24 weeks. We focused on gestational age, investigations, medical history, maternal and foetal antenatal and intrapartum complications.

Results: During the study period 40 intrauterine fetal deaths were recorded among 1050 total deliveries, counting to an incidence of 3.8%. Amongst those, unexplained were 12 [30%], fetal abnormalities 7 [17.5%], maternal infection 6 [15%], cord accidents 4 [10%], APH [7.5%], hypertension, rupture uterus, abnormal placenta 2 [5%] each, diabetes and IUGR 1 [2.5%] each. Primigravidae contributed to 62.5% of them, 67.5% were male fetuses and 87.5% were delivered vaginally.

Conclusion: To decrease the occurrence of IUFD and prevent its recurrence, it is crucial to engage in early booking, identifying risk factors and prompt intervention. The majority of the causes can be prevented through a collaborative approach. However, it is imperative to encourage stringent monitoring throughout the labour and delivery to prevent intrapartum stillbirth.

Keywords: Intrauterine foetal death, Still Birth, Incidence, Riskfactors

Introduction:

Foetal demise is defined differently around the world, based on gestational age and foetal weight. According to World Health Organization (WHO), Intra uterine foetal death (IUFD) is defined as death prior to complete expulsion or extraction from mother of products of conception after the age of viability which is 28 weeks for india; but is defined variously after 20th or 28th weeks of gestation between countries.[1]

It is an important indicator of maternal and perinatal health of a given population.[2]

Worldwide over 2.6 million of still births happen annually. Out of these, statistics reveal that 23.2%

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were from India, the highest for any nation, which counts to 22 stillbirths per 1000 live births.[3]

This problem is attributed to inadequate antenatal care and inaccessibility to health care facilities. The prevalence of IUFD has been decreased in developed countries where the cause is usually antenatal and unexplained but it still remains very high in underdeveloped and developing countries where majority of cases are intranatal and avoidable.[2]

While decline in stillbirth and infant death rates have been noted, rates are likely underestimated due to difficulty in capturing these data, including a reluctance to report such outcomes.[4]

These causes of IUFD include foetal (25-40%), placental (20-30), maternal (5-10%) and in 25-35% cases cause remains unknown.[5]

The major problem faced by the obstetrician is the identification of women at risk; as many cases seem to occur in the absence of recognized risk factors.[2]

IUFD is an unhappy event for both obstetrician and parents especially when it is a apparently healthy pregnancy.[6]

Intangible loss of perinatal death includes mental health sequalae and sense of insecurity for further pregnancy fearing recurrence of still birth. The estimated direct financial cost of a stillbirth is 10-70% greater than the cost of a live birth.[7,8]

Service providers are also responsible for investigating the cause of death and intervene in time to decrease stillbirth rate. Research has shown that placental pathology and foetal autopsy are the most valuable examinations to determine the cause of death in stillbirth. A higher autopsy rate could give us more accurate and clear information about the causes of death in stillbirth. Thus, healthcare professionals have a responsibility to inform parents about the importance of foetal autopsy. The quality of care from government, public and private providers during pregnancy and childbirth should be exacerbated by health system constraints and is an important marker of a health system`s quality by global health community. Efforts are needed to raise awareness of stillbirth risk factors at community level to facilitate care seeking to antenatal and childbirth care.[9]

After the diagnosis of IUFD is made, though It is mentally stressful for the patient as well as relatives, it is important to offer both the options of delivery by induction of labour or expectant management. The Type of induction- pharmaceutical or mechanical and mode of delivery - depends on the gestational age, the maternal history of a previous uterine scar and her preference.[6]

We undertook this study to identify the incidence, etiology and mode of delivery of IUFD and stillbirth in our centre.

Materials and Methods

This is a retrospective observational study conducted in the department of obstetrics and gynaecology at Maharaja Institute of Medical Sciences after obtaining ethics committee approval and consent from subjects. The study population was the women who delivered at MIMS, during a period of 3 years from June 2020 to May 2023. Inclusion criteria: All diagnosed IUFD and still births , >24weeks of gestational age which occurred during the study period. Methodology: medical records of IUFD and still births during the study period were extracted. Total number of live births during the same period were noted from the parturition record. Data collection was done on pre structured proforma on details of complaints on admission, obstetric history, past surgical history, past and present history of medical illnesses, P/A & P/V findings, investigation reports and treatment rendered; mode of delivery, intrapartum events and postpartum complication if any was checked and noted. Foetal outcomes were recorded including birth weight and congenital malformations. Abnormal findings of placenta, if any were noted. Data analysis was done by using fractions and percentages.

Results

Total number of deliveries during the study period is 1050, out of which 40 are IUFD; hence the incidence at our center is 38 per 1000 live births.

Discussion

Intrauterine foetal death elicits distress and psychological suffering in both patients and their family members. Efforts have been conducted for a considerable period of time to decrease its frequency. Although there has been a decrease in the overall

perinatal mortality rate, the occurrence of intrauterine foetal demise (IUFD) still remains at an unacceptably high level. The present study showed an incidence rate of 38 per 1000 deliveries at our center. Our facility is a specialized medical center that primarily treats people who have already experienced intrauterine fetal demise (IUFD). Varying regions have documented distinct stillbirth rates. A study conducted in Uttarakhand found that the stillbirth rate was 49 per 1000 live births, while the national average is 38 per 1000 live births.[10]

Table 1 showing Referred cases were 17% (9 IUFD/52), compared to 3.1% (31 IUFD/998) in booked cases. Mufti et al[1] found more in unbooked cases similar to our study.

Table 1: Booking status of cases with IUFD

Type of admission	Live births	IUFD / Still birth	Total
Booked	967	31 [77.5%]	998
Referred	43	9 [22.5%]	52
Total	1010	40	1050

Out of the total 40 IUFD, 31 [77.5%] were booked and 9 [22.5%] were referred to our centre [Table 1]. The rate of IUFD among the booked cases is 3.1% (31 IUFD/998 booked cases) whereas that in referred cases is 17% (9 IUFD/ 52 referred cases).

Distribution of cases according to maternal demographic variables

Table 2 showing Majority of IUFD occurred in the age group of 21 to 25 years i.e. 25 [62.5%] indicating that the group most commonly affected followed by 8 [20%] in 15 to 20 years, 5 [12.5%] in 26 to 30 years and 2 [5%] in greater than 30 years of age group. Pregnancies occurring at a younger age are typically not planned and carry a significant risk for hypertensive disorders of pregnancy, anemia, and problems during childbirth.

Table 2: Maternal age

Maternal age (in years)	Number and percentage of IUFD
15 – 20	8 [20%]
21 – 25	25 [62.5%]
26 – 30	5 [12.5%]
>30	2 [5%]
Total	40

Majority of IUFD occurred in the age group of 21 to 25 years i.e. 25 [62.5%] [Table 2].

Table 3 showing Parity is an important factor that affects pregnancy outcome. This study found 62.5% of instances in primigravida moms. However, Mufti G et al[1] found a greater still birth rate in multigravida females.

Table 3: Parity

Parity	Number and percentage of IUFD
Primigravida	25 [62.5%]
Multigravida	15 [37.5%]
Total	40

Majority of IUFD were seen in primigravida i.e 25 [62.5%] [Table 3].

Distribution of cases according to fetal variables

Table 4 showing Majority of IUFD are male foetuses i.e 67.5% where as 32.5% are female foetuses. In study by Ivana Jovanovic et al,[11] IUFD were seen in male foetuses are 55% and female foetuses are 45% similar to our study.

Table 4: Fetal sex

Fetal sex	Number and percentage of IUFD
Male	25 [67.5%]
Female	15 [32.5%]
Total	40

IUFD were 25 [67.5%] are male fetuses whereas 5 [32.5%] are female fetuses [Table 4].

Table 5 showing Majority of IUFD, 55% cases belong to preterm gestation and 45% are term gestation. The highest in the former includes foetal abnormalities followed by unexplained IUFDs. IUFD in term gestation are most commonly associated with maternal medical disorders and unexplained. Where as in a study by Bhavi S hah et al,[6] they observed 74% IUFD in preterm and 26% in term gestation.

Table 5: Gestational age

Gestational age	Number and percentage of IUFD
<28 weeks	7 [17.5%]
28 to 32.6weeks	10 [25%]
33 to 36.6 weeks	5 [12.5%]
37 to 41 weeks	18 [45%]
Total	40

Majority of IUFD occurred at preterm gestation (22) and at term gestation (18). [Table 5]

Table 6 showing IUFD with birth weight less than <1000grams were 9 [22.5%], between 1000-1499 grms are 4 [10%], between 1500-2499 grams were

11 [27.5%], between 2500-3499 were 16 [40%]. As IUFD were higher in preterm, LBW babies accounted for 60% of cases whereas normal BW were 40% and none were large baby.

Table 6: Birth weight

Birth weight (in grams)	Number and percentage of IUFD
<1000	9 [22.5%]
1000 - 1499	4 [10%]
1500 - 2499	11 [27.5%]
2500 - 3499	16 [40%]

IUFD were higher in preterm, LBW babies accounted for 60% of cases whereas normal BW were 40% and none were large baby. [Table 6].

Table 7 showing The leading reason for IUFD in our study is unexplained 12 [30%] followed by fetal abnormalities 7 [17.5%], maternal infection 6 [15%], cord accidents 4 [10%], APH [7.5%], hypertension, rupture uterus, abnormal placenta 2 [5%] each, diabetes and IUGR 1 [2.5%] each. Similarly in a study by Monasta et al,[12] the percentage of IUFD cases for which no possible cause can be identified is high i.e. 28%.

Table 7: Distribution of cases based on the causes of IUFD

Causes	Number and Percentage of IUFD
Unexplained	12 [30%]
Fetal abnormalities	7 [17.5%]
Maternal infection	6 [15%]
Cord accidents	4 [10%]
APH	3 [7.5%]
Hypertension	2 [5%]
Rupture uterus	2 [5%]
Abnormal placenta	2 [5%]
Diabetes	1 [2.5%]
IUGR	1 [2.5%]

The leading reason for IUFD in our study is unexplained 12 [30%] [Table 7].

Table 8 showing Majority of the IUFD i.e 87.5% underwent vaginal delivery and 7.5% by lscs and 5% by laparotomy. In a study by Mamta bansal et al[5] 78.89% underwent vaginal delivery and 21.11% by LSCS similar to our study. Similarly in a study by swapnil patel et al,[13] 91.2% underwent vaginal delivery, 5% by caeserian section, 3.7% by hysterotomy.

Table 8: Distribution of IUFD among periviable and viable gestational age

Causes	Periviable gestational age	Viable gestational age
Unexplained	2	10
Fetal abnormalities	3	4
Cord accidents	1	5
Maternal infection	-	4
APH	-	3
Hypertensive disorders	-	2
Ruptured uterus	-	2
Abnormal placenta	1	1
Diabetes mellitus	-	1
IUGR	-	1
Total	7	33

Majority of the IUFD were in the viable period 33 [82.5%] where the highest being 10 unexplained. [Table -8]

Table 9: Mode of delivery in IUFD

Mode of delivery	Number and percentage of IUFD
Vaginal delivery	35 [87.5%]
LSCS	3 [7.5%]
Laparotomy	2 [5%]
Total	40

Majority of the cases 35 [87.5%] are delivered by vaginal route.

Conclusion

In our study maximum number IUFD were unexplained, not all instances of Intra Uterine Fetal Demise can be prevented, nor can a specific cause be attributed. The second most prevalent cause in the present study is congenital anomalies. According to other studies maternal hypertensive diseases in pregnancy is the most prevalent cause of IUFD. To decrease the occurrence of IUFD and prevent its recurrence, it is crucial to engage in early booking, identify high risk cases, intervene promptly. The majority of the causes can be prevented through a collaborative approach. However, it is imperative to encourage stringent monitoring throughout the labour and delivery to prevent intrapartum foetal death.

Acknowledgments

There is no funding received for the study. We acknowledge the faculties and postgraduates and the management for their cooperation. We are thankful to the patients for their confidence and consent.

Conflict of interest : None

Fig:1 Maternal fever

Fig:2 Macerated foetus

Fig:3 Congenital anomaly [Thoracoomphalophagus]

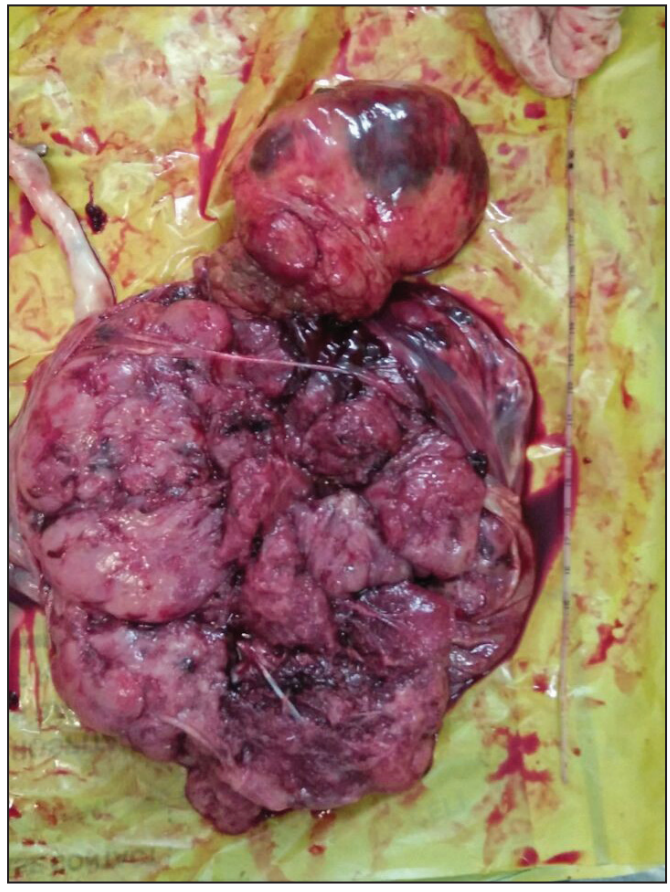

Fig:4 Chorangioma of placenta

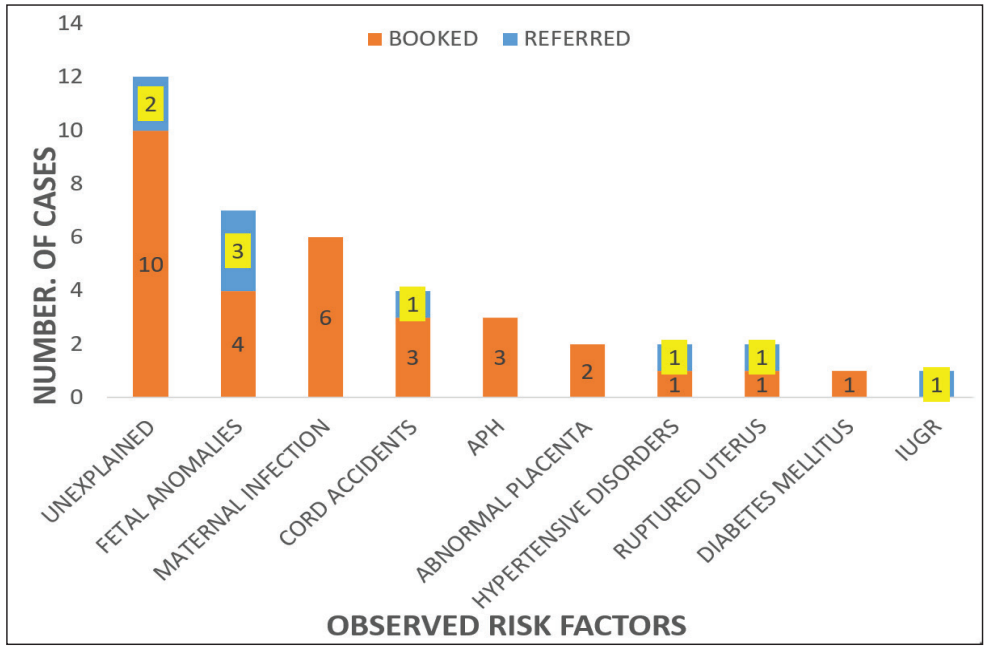

Fig : 5 Distribution of booked and referred cases based on risk factors

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