

Intrauterine Fetal Demise in a Tertiary Healthcare Centre - A Retrospective Observational Study

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Abstract:

Background: Intrauterine foetal demise (IUID) is a cause of psychological and physical distress to the mother, her family and her doctor. Identification of the prevalence and its risk factors can help improve maternal care.

Objectives: To study the prevalence and risk factors of Intrauterine foetal deaths in KIMS hospital - a tertiary centre.

Materials and Methods: This retrospective study of 5-year duration was conducted in KIMS Hospital and it included impersonal records of patients. Hence anonymity and confidentiality were maintained. It included patients with IUID ≥ 24 weeks gestational age and ≥ 500 g birth weight. Probable risk factors were noted.

Results: It was noted that prevalence of IUID was 17/1000 live births. 60 patients had IUID out of 3521 deliveries. 80% patients were first visit to KIMS Hospital. It was noted that cause was not known for 38.33% patients. Most common cause of IUID was Hypertensive disorder of pregnancy (HDP) – gestational hypertension (13.33%), preeclampsia (10%), followed by both abruption (8.3%) and cord factor (8.3%).

Conclusion: In this study, prevalence of IUID was 17/1000 live births. To prevent IUIDs, mothers should have better antenatal care from booking visit and follow up.

Keywords: Intrauterine Foetal Demise, HDP, Abruption.

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Introduction

Intrauterine fetal demise (IUID) is defined according to ACOG as the delivery of a fetus showing no signs of life at 20 or more weeks period of gestation or more than or equal to 350g, as indicated by absence of breathing, heartbeats, pulsation of umbilical cord or definite movements of voluntary muscles.[1]

It is defined according to RCOG as fetus with no signs of life in utero.[2]

The risk of IUID is noted at extremes of reproductive age, increased parity, women with comorbidities, smokers and socially disadvantaged.[3]

It is important to identify the cause of IUID as there can be answers as to the possibility of its recurrence that can be discussed with the family

and counselling to seek appropriate medical measures to prevent the recurrence if possible.[4]

The aim of this study was to study the prevalence of intrauterine fetal demise in a tertiary centre - KIMS Hospital and to identify the probable risk factors.

Materials and Methods

This observational retrospective study was conducted in the department of Obstetrics and Gynaecology, at KIMS Hospital. Data was collected from records over the past 5 years.

Inclusion Criteria

All the patients with intrauterine death at admission at 24 weeks or more period of gestation and birth weight of 500g or more.

Exclusion Criteria

Babies born below 24 weeks period of gestation / less than 500g weight.

Methodology

- After obtaining approval from the institutional ethics committee, data of pregnant women with intrauterine deaths were obtained from past hospital records and entered in MS Excel spreadsheet.
- Basic data like age, gravidity, gestational age, comorbidities if any was recorded.
- Data entered was analysed. Outcomes measured were:
- Prevalence of IUFD
- Risk factors if any.

Data was entered in MS Excel and results were noted.

Results

In the present study, among 3521 deliveries, 60 patients had intrauterine foetal demise (IUFD). Among these, 6 patients (10%) were less than or equal to 20 years of age, 22 patients (36.67%) between 21-25 years of age, 20 patients (33.33%) between 26-30 years of age, 10

patients (16.67%) between 31-35 years age group and 2 patients (3.33%) above 35 years of age. Among the study group 12 patients (20%) were booked with our tertiary care centre and 48 patients (80%) were first visit patients who were referred. These patients were booked elsewhere or first visit for antenatal care and the details of these were not available.

Primigravida patients were 21 (35%) and 39 patients (65%) were multigravida. With respect to the gestational age, 5 patients (8.33%) belonged to the 24-27+6 weeks, 28 patients (46.67%) were among 28-33+6 weeks, 16 patients (26.67%) were between 34-36+6 weeks and 11 patients (18.33%) were more than or equal to 37 weeks. Among the IUFD, 32 fetuses (53.33%) were male and 28 (46.67%) were female fetuses. Distribution based on birth weight – 15 (25%) fetuses were between 500-999g, 8 fetuses (13.33%) were between 1000-1499g, 14 fetuses (23.33%) were between 1500-1999g, 12 fetuses (20%) were between 2000-2499g, and 11 fetuses (18.33%) were more than or equal to 2500g. Among the 60 patients with IUFD, 37 (61.67%) delivered vaginally and 23 (38.33%) underwent caesarean section for termination of pregnancy.

Table 1: Distribution of maternal parameters

Parameters	N	%
Age group (years)		
<= 20	6	10
21-25	22	36.67
26-30	20	33.33
31-35	10	16.67
>35	2	3.33
Booking status		
Booked	12	20
Unbooked	48	80
Parity		
Primigravida	21	35
Multigravida	39	65
Gestational age (weeks)		
24 - 27+6	5	8.33
28 - 33+6	28	46.67
34 - 36+6	16	26.67
>= 37	11	18.33
Gender of Dead Fetus		
Male	32	53.33
Female	28	46.67
Birth weight (in grams)		
500-999	15	25
1000-1499	8	13.33
1500-1999	14	23.33
2000-2499	12	20
>=2500	11	18.33
Mode of delivery		
Vaginal	37	61.67
Caesarean section	23	38.33

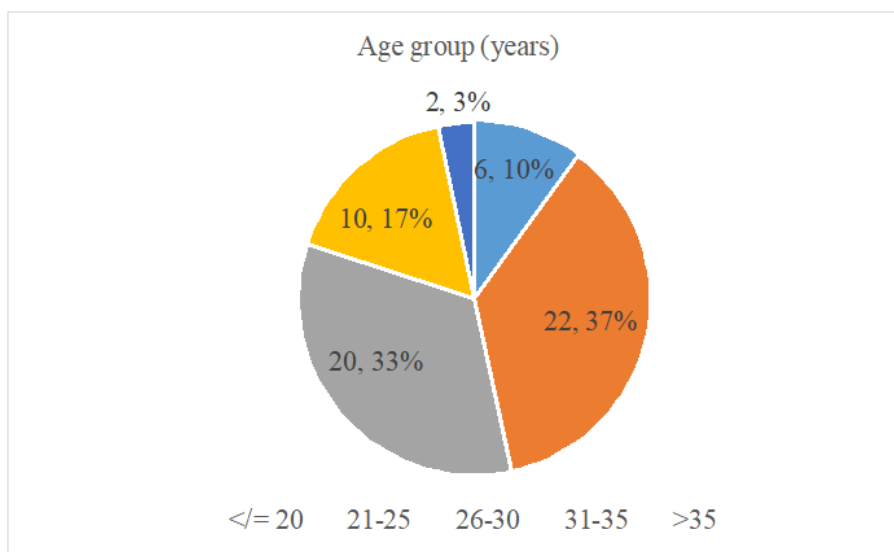


Figure 1: Distribution of study subjects based on age

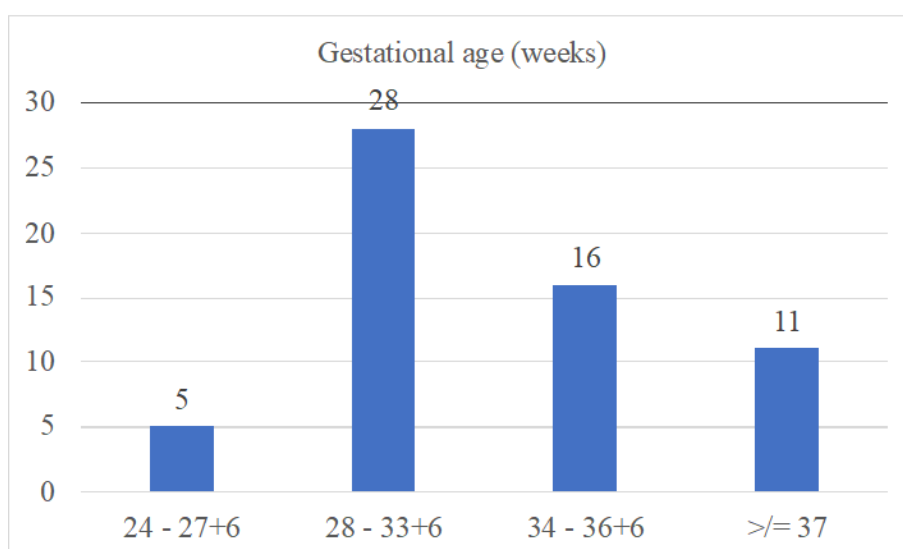


Figure 2: Gestational age-based distribution of study subjects

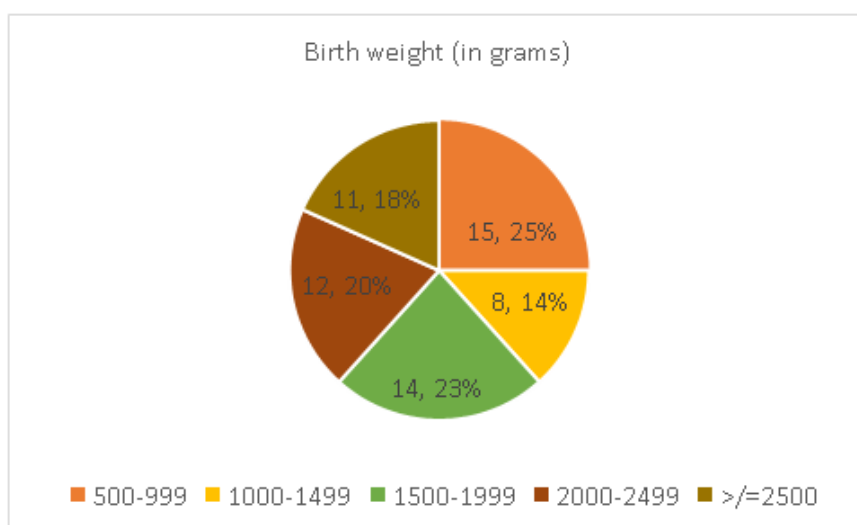


Figure 3: Distribution based on birth weight

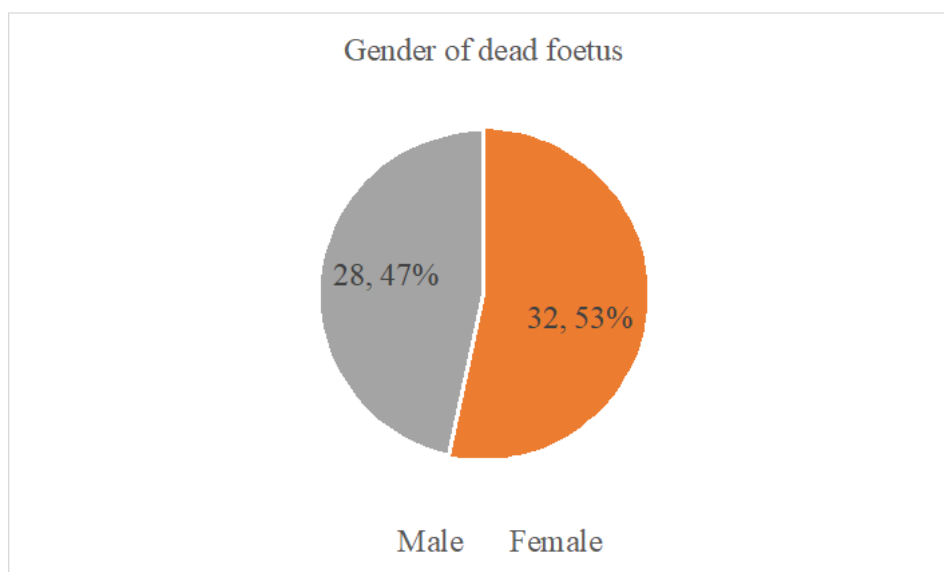


Figure 4: Gender based distribution of dead foetus

The distribution of risk factors for IUFD were noted. It was seen that hypertensive disorders of pregnancy (HDP) were probable risk factor in 19 patients (31.67%) – 8 patients (13.33%) had gestational hypertension (GHTN), 6 (10%) had preeclampsia, 3 (5%) had eclampsia and 2 (3.333%) had chronic hypertension. Abruption was noted in 5 patients (8.3%). Tight nuchal

cord was seen in 4 fetuses and true knot was seen in 1 case. Three patient (5%) had gestational diabetes mellitus (GDM), 2 (3.33%) had both GDM and GHTN. One fetus (1.67%) had anencephaly. One fetus (1.67%) had IUFD secondary to TTTS in a twin gestation. A cause could not be identified in 23patients (38.3%).

Table 2: Distribution of probable causes of IUFD among study subjects

Aetiology	N	%
HDP	19	31.67
-GHTN	8	13.33
-Preeclampsia	6	10
-Eclampsia	3	5
-Chronic HTN	2	3.33
Abruption	5	8.3
Cord factor	5	8.3
GDM	3	5
Anencephaly	1	1.67
TTTS	1	1.67
Unknown	23	38.3
Severe oligohydramnios	1	1.67
GDM, GHTN	2	3.33

Discussion

This retrospective study of 5 years from October 2018 – September 2023 included 3521 deliveries in KIMS hospital – tertiary healthcare centre. Among these 60 patients had IUFD. The incidence of still birth rate in India is 30/1000 live births. The incidence in this study was noted to be 17/1000 live births. This was lower in comparison to similar studies by Divya B et.al. which was 29.2/1000 live births and Jayashree VK et.al. which was 39/1000 live births.[4]

Most of these patients belonged to the age group of 21-25 years of age. Majority of them were

first visit to our hospital, and this could be because of lack of facilities in smaller centres from where they were referred. IUFD was noted more commonly among multigravida patients and in 28-33+6 weeks gestational age – early pre-term category. 11 subjects who were term gestation had IUFD. Among these, cause was not known in 3 cases, 1 had one tight nuchal cord and 2 had 2 tight nuchal cord, 2 cases had abruption, 1 had both GDM and GHTN, one had severe oligohydramnios, and one was a case of GHTN. 32 of the total fetuses were males. Most patients underwent vaginal delivery - 37 patients.

The probable causes were noted among the 60 patients. A probable cause could not be identified in 23 study subjects. Next common cause of death was attributed to HDP – GHTN followed by preeclampsia. 5 cases of abruption were noted and had retroplacental clots of 400-800g with blood-stained liquor intrapartum. In 19 cases, fetus was noted to be macerated after delivery. In a study done by Jaya shree VK et.al. 40 out of 80 fetus were macerated. [4] 14 cases had meconium-stained amniotic fluid intrapartum. One patient had monochorionic, diamniotic twin gestation with TTTS causing IUD of one twin. Three patients had 2 factors causing IUFD - both GDM and GHTN comorbidities. Details of placenta and umbilical cord were Obstetric care in our hospital is divided into high-risk group and low risk group. Low risk group require antenatal visits every 4 weeks up to 28 weeks, once in 2 weeks from 28 – 37 weeks, weekly thereafter. High risk group require more intensive care and monitoring as per the severity. Screening for anemia, GDM, HDP with clinical examination and relevant investigations will be done. USG evaluation, non-stress test when applicable. Increased frequency of visits in high-risk pregnancies for early detection and management of complications as this seemed to be the major component lacking in the referral centres. Identification of risk factors help in preventing recurrence.

Health education of antenatal mother and hospital personnel at lower centre regarding antenatal care and risk factors will help identify high risk pregnancies and timely referral for adequate care and management of complications.

The limitations of the study were that this being a retrospective study, potential confounders cannot be controlled. A larger sample size can help give statistically significant data. It is difficult to determine a study and control groups in retrospective studies. Placental causes could not be evaluated due to unavailability of data in available records.

Conclusion

In this study, incidence of IUFD was 17/1000 live births, and 80% of the cases were un-booked. Identification of the probable risk factors will help in counselling parents regarding the cause of death as well as preventive measure for next pregnancy.

Education of the mother for adequate counselling and follow up, and pre-conceptual folate supplementation in future pregnancies should be done for a better foetal and maternal outcome. Health education of personnel in lower centres and awareness regarding available healthcare facilities can help stratify risk and reduce complications by early detection and timely referral.

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