JK SCIENCE pISSN: 0972-1177

ORIGINAL ARTICLE

A One Year Retrospective Study of the Incidence and Causes of Intrauterine Foetal Deaths in GMC Jammu

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Abstract

Background*:* Intrauterine foetal death or IUFD is defined as fetal demise after 20 weeks of gestation. It is a distressing condition for the mother, the family as well as the obstetrician. ***Purpose:*** The purpose of this study was to evaluate the incidence and the causative factors associated with foetal deaths in our institution. ***Material and Methods:*** This was a retrospective observational study conducted in GMC Jammu for a period of one year from January 2019 to December 2019. The data was analysed to study the incidence and the foetal, maternal and placental factors related to IUFD. ***Results:*** The incidence of intrauterine deaths in our study was found to be 24/1000 births. Among the 540 cases enrolled in the study, the predominant age group was 21-25 years (37.7%), primigravida was the predominant parity (40%), 18.5-24.5 was the most common BMI range to which the patients belonged (40.9%), and 37-40 weeks was the commonest gestational age at which IUD occurred (39.8%). Among the causal factors of intrauterine deaths, majority of the IUDs were unexplained (25.5%), followed by hypertensive disorders of pregnancy as a major cause (14.8%), followed by obstructed labour (7.7%), meconium-stained liquor (7.4%) and congenital malformations (7.4%). Majority of the cases underwent induction and normal vaginal delivery (39.8%). ***Conclusion:*** In our study, the majority of the IUDs were unexplained, followed by hypertensive disorders of pregnancy, obstructed labour, meconium-stained liquor and congenital malformations. Hence these factors must be thoroughly evaluated and prompt action must be taken before any complication occurs.

Key Words

Intrauterine foetal deaths, Etiology, Hypertensive disorders of pregnancy, Obstructed labour

Introduction

Intrauterine foetal death or IUFD is defined as fetal demise after 20 weeks of gestation (1). It is a distressing condition for the mother and her family. Even for the obstetrician it is a nightmare to explain the cause of the foetal demise to the family and manage the patient in such a condition. What makes it worse is the complications it can be associated with along with the psychological impact it has especially on the mother. Statistics suggest an estimate of 2.6 million of intrauterine deaths in a year globally (2).

The causes of intrauterine deaths can be maternal, foetal or placental. Hemtyar *et al*. (3) in their study, showed that congenital anomalies were the most common foetal cause of intrauterine death, the separation of placenta was the most common placental cause and maternal diabetes mellitus was the most common maternal cause of intrauterine death. Other factors include gestational hypertension, obesity, infectious diseases, anti-phospholipid antibodies, liver disease, post-term

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Manuscript Received: 19 February 2021; **Revision Accepted**: 26 April 2021;

Published Online First: 10 October 2021

Open Access at: https://journal.jkscience.org

Cite this article as: Zargari S, Sunil I, Gandotra N. A one year retrospective study of the incidence and causes of intrauterine foetal deaths in GMC Jammu. JK Science 2021;23(4):180-184.

pregnancy, social and economic factors, illiteracy, placenta previa, acidosis, sepsis, maternal and foetal injuries etc. The aim of this study was to evaluate the incidence and the causative factors associated with foetal deaths in our institution.

Material and Methods

This was a retrospective observational study conducted in GMC Jammu for a period of one year from January 2019 to December 2019. Ethical clearance for the study was taken from the Ethics committee of GMC Jammu, registration No. C-100. Records about the intrauterine deaths was collected. Foetal deaths before 28 weeks and less than 1000 gm, multiple pregnancies were excluded. Data regarding the age, parity, BMI, gestational age, complaints at admission, per vaginal findings etc. were collected. History of associated complicating factors like severe anaemia, hypertensive disorders of pregnancy, gestational diabetes mellitus, obstetrics jaundice, oligohydramnios, hypothyroidism and previous history of intrauterine death was studied. Fetal characteristics with respect to sex, birth weight, gross congenital anomalies, Rh incompatibility and the placental findings like infarction, calcification, retroplacental clot, cord around neck were also studied.

Results

There were a total of 540 intrauterine deaths and total births were 22630 in a span of one year. Thus, the incidence of stillbirths was 24/1000 births. *Table 1* shows the maternal characteristics associated with IUD cases. The predominant age group was 21-25 years constituting 37.7% of the total cases. Among other characteristics, primigravida was the predominant parity (40%), 18.5-24.5 was the most common BMI range to which the patients belonged (40.9%), and 37-40 weeks was the commonest gestational age at which IUD occurred (39.8%).

Table 2 shows the foetal characteristics associated with intrauterine deaths. It shows that maximum number of foetal deaths occurred with the foetal weight of 2.5-2.9 kgs (27.4%). Female sex was the predominant sex (51.2%) among the IUDs and majority of the foetuses (55.3%) were macerated. Among the causal factors of intrauterine deaths, majority of the IUDs were unexplained (25.5%), followed by hypertensive disorders of pregnancy as a major cause (14.8%), followed by obstructed labour (7.7%), meconium-stained liquor

Table 1: Maternal Characteristics of the Cases

S No.	Maternal Characteristics		Number of Cases	Percentage
A)	Maternal Age (yrs)	≤20	42	11.8%
		21-25	204	37.7%
		26-30	157	29%
		31-35	73	13.5%
		>35	64	7.7%
B)	Parity	P1	216	40%
		P2	142	26.29%
		P3	112	20.7%
		P4	40	7.4%
		≥P5	30	5.5%
C)	BMI	<18.5	127	23.5%
		18.5-24.5	221	40.9%
		24.6-29.9	161	29.9%
		≥30	31	5.7%
D)	Gestational Age	<34	98	18.1%
		34-37	190	35.1%
		37-40	215	39.8%
		>40	37	6.8%

Table 2: Foetal Characteristics of the Cases

S No.	Foetal Characteristics		Number	Percentage
A)	Foetal Weight	0.5-0.99	52	9.6%
		1.0-1.49	72	13.3%
		1.5-1.99	64	11.8%
		2.0-2.49	91	16.8%
		2.5-2.9	148	27.4%
		≥3	113	20.9%
B)	Foetal Sex	Male Sex	263	48.7%
		Female Sex	277	51.2%
C)	Gross Features	Macerated	299	55.3%
		Non Macerated	241	44.6%

Table 3: Causal Factors Associated with Cases of Intrauterine Deaths

S No.	Causal Factors		Number of Cases	Percentage
I.	**Antepartum (n=306), 56.7%**			
A)	Maternal (n=184), 34.4%	Severe anaemia	16	2.9%
		Hypertensive disorder of pregnancy	80	14.8%
		History of previous IUD	20	3.7%
		Gestational diabetes melitus	25	4.6%
		Obstetric jaundice	6	1.1%
		Oligo/ Anhydromnios	32	5.9%
		Uncontrolled hypothyroidism	5	0.9%
B)	Foetal (n=55), 10.1%	Congenital malformations	40	7.4%
		Rh incompatability	15	2.7%
C)	Placenta (n=67), 12.4%	Abruptio placenta	20	3.7%
		Placenta previa	16	2.9%
		IUGR	18	3.3%
		Post term pregnancy	13	2.4%
II.	**Intrapartum (n=96), 17.7%**			
1	Obstructed labour		42	7.7%
2	Cord prolapse		9	1.6%
3	Cord around neck		5	0.9%
4	Meconium		40	7.4%
III.	**Unexplained (n=138), 25.5%**		138	25.5%

(7.4%) and congenital malformations (7.4%) *(Table 3)*. *Table 4* shows the mode of delivery among the IUD deliveries. Majority of the cases underwent induction and normal vaginal delivery (39.8%) followed by normal vaginal delivery by spontaneous labour (34.2%).

Discussion

There were a total of 540 intrauterine deaths and total births were 22630 in a span of one year. Thus, the incidence of stillbirths was 24/1000 births. Various studies across India have reported the incidence to be 28/1000

Table 4: Mode of Delivery of the Cases

S No.	Mode of Delivery		Number	Percentage
A)	Induction (n=248), 45.9%	Normal vaginal delivery	215	39.8%
		Instrumental deliveries	33	6.1%
B)	Spontaneous labour (n=193), 35.7%	Normal vaginal delivery	185	34.2%
		Instrumental	8	1.48%
C)	LSCS		99	18.3%

to 49/1000 births (4,5,6,7). The lower incidence in our institute could be because it is a tertiary centre and provides better care and prompt treatment to the patients whereas the incidence would be higher in the peripheral areas with lack of facilities in terms of essential medicines, prompt cesarean sections, foetal and maternal monitoring and sometimes even lack of proper staff. The other factors contributing to lower incidence in GMC Jammu could be better literacy and socioeconomic status of the patients visiting the centre in comparison to those visiting the health centers in the rural areas.

The maximum number of patients in our study belonged to the age group of 21-25 years. Study by Sharma *et al*. (8) in their study, also found that the foetal deaths were more in the age group of 21-25 years. The western studies, however, show that increased risk is present in women over 35 years of age (9,10). The reason for this could be that in our country the most common age for child bearing is 21-25 years. Among the parity, primigravida constituted 40% of the cases with intrauterine foetal deaths. Sharma *et al*. (8) and Dave *et al*. (11) have also seen increased risk of IUD in primigravidae. Patel *et al*. (12) and Korde-Nayak *et al*. (13) observed higher incidence of still births in multigravida. The gestational age most susceptible to foetal death was found to be 37-40 weeks (39.8%). Singh *et al*. (5) have also shown same results in their studies. They proposed that it could be due to hostile uterine conditions beyond 37 weeks, so this period requires strict surveillance. However, different studies have shown different gestational ages more predisposed to foetal deaths which may be due to different causes of foetal deaths in different communities (14,15,16).

Among the foetal characteristics, female sex was the predominant one than male sex (51.2% vs 48.7%). However, studies by Singh *et al*. (5) and Zhang *et al*. (17) have shown male sex to be more vulnerable to foetal death. Among the causal factors of intrauterine deaths, our study found that the majority of the IUDs were unexplained (25.5%), followed by hypertensive disorders of pregnancy as a major cause (14.8%), followed by obstructed labour (7.7%), meconium-stained liquor (7.4%) and congenital malformations (7.4%). Singh *et al*. (5) also found that majority of the stillbirths were unexplained (33.44%) followed by very severe anaemia (16.55%) and hypertensive disorders of pregnancy (10.81%). Sharma *et al*. (8) in their study, found APH (18.8%) as the major cause for IUFDs followed by gestational hypertension (14.4%).

Majority of the patients delivered vaginally (81.7%), out of which 45.9% were induced and the rest went into spontaneous labour. Cesarean section was required in 18.3% patients. Patel *et al*. (12), Korde-Nayak *et al*. (13) and Kumari *et al*. (18) had reported vaginal delivery in 91.2%, 73.1%, and 89.4% respectively.

Conclusion

In our study, the majority of the IUDs were unexplained (25.5%), followed by hypertensive disorders of pregnancy as a major cause (14.8%), followed by obstructed labour (7.7%), meconium-stained liquor (7.4%) and congenital malformations (7.4%). The most vulnerable gestational age for foetal death was after 37 weeks. Its therefore proposed that these causes need intensive and prompt management and better surveillance is required after 37 weeks gestation to prevent foetal deaths.

Financial Support and Sponsorship

Nil.

Conflicts of Interest

There are no conflicts of interest.

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