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INTRAUTERINE FETAL DEMISE: INCIDENCE, CAUSES AND MODE OF DELIVERY: A RETROSPECTIVE STUDY DONE AT TERTIARY CARE CENTER AND MEDICAL COLLEGE, GUJARAT

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ABSTRACT

Background: Intrauterine fetal demise is important indicator of maternal and perinatal health of given population. This study was undertaken to study the factors associated with IUFD. The study was undertaken with an aim to assess the incidence of IUFD and to find the associated causes and to formulate a management protocol at our center.

Methods: This is a retrospective analytical observational single center study. IUFD was taken as absent FHS beyond 20 weeks gestation. Maternal and fetal records entered in preformed proforma were analyzed for studying demographic profile and detailed obstetric assessment including present and past complications.

Results: A total number of 153 IUFD were reported per 2999 delivered at our center in the period between December 2019 to May 2020. Incidence was 51.01/1000 live births.64% cases were associated with etiological factors. HDP (hypertensive disorders or pregnancy) aces by being the most common etiological factor in maternal causes at 18.94 %, including both preeclampsia (13.72%) and eclampsia (5.22%) followed by anemia., abruption was the placental leading cause found in 16 (10.45%) cases. Congenital anomalies were 7.1% (11cases) fetal leading cause.

Conclusions: Except for the unexplained fetal losses, most of the causes ascertained in present study were preventable or treatable. Understanding the preventable and treatable causes of IUFD and to implement the need of adequate antenatal care so as to timely identify the risk factors and implement intervention. Timely management of associated factors will reduce the incidence of IUFD.

KEYWORDS : IUFD, Antenatal Care & Timely Intervention.

INTRODUCTION:

Intrauterine fetal death and stillbirths are defined as fetal deaths after 20 weeks of gestation. Demise of a fetus causes anguish to the parents, leaving them in query as to what has caused the demise. Managing such a pregnancy and counselling of the patient becomes a difficult task for obstetricians. IUFDs are an obstetric death accounting for approximately half of perinatal death which challenged the obstetricians. The incidence of the IUFD in western countries is extremely low, USA at 5.95/1000 live births and UK at 4/1000; whereas incidence in India is as high as 22/1000 live births, which is highest in the world.

IUFD are related to maternal factors, placental factors and fetal factors. Regardless of the method of classification used, it is established fact that adequate prenatal care is associated with better pregnancy outcomes. The mode, availability and utility of antepartum and intrapartum surveillance for fetal wellbeing has advanced in last few decades. Large number of maternal conditions and diseases are responsible for poor obstetrical outcomes. Implementation of the programmes by the government in rural and urban areas aim mainly at the antenatal identification of high-risk pregnancies which are associated with poor obstetrical outcome. These pregnancies should be the centre of attention where patient and the obstetrician can be sensitized to reduce the IUFD.

The objective of this study was to find incidence of fetal demise, analyse the maternal conditions, fetal and placental conditions associated with fetal death and the analysis of modes of delivery of IUD and to formulate a uniform protocol for management.

MATERIAL & METHOD

This is a retrospective analytical observational single centre study of intrauterine fetal death and associated conditions, done over a period extending from December 2019 to May 2020 done at Department of Obstetrics and Gynaecology, Civil Hospital and BJ Medical college, Ahmedabad.

Cases with IUFD were taken as absence of FHS beyond 20 weeks gestation (second and third trimester IUFDs) and were confirmed by sonography were included in the study. A total of 153 cases of IUFD were identified in this period. Retrospective analysis of all the records were done.

The details of all the IUFD occurring were entered in a preformed proforma. Maternal and foetal records were analysed for studying demographic profile and detailed obstetric history and assessment was done. This was inclusive of the obstetric details of parity, abortions, stillbirth, neonatal death, lower segment caesarean section (LSCS), preterm delivery, antepartum haemorrhage (APH) or PIH in a previous pregnancy and any other associated medical and surgical complications is past or present pregnancy. Along with that, the evaluation of foetal parameters was done with ultrasound. The details of the mode of delivery included vaginal delivery (fullterm, preterm and breech assisted vaginal delivery), LSCS, forceps, and hysterectomy. Fetal outcomes recorded included fresh/macerated stillbirth, sex of the baby, weight and congenital malformations (CMFs). Findings of placenta like infarction, calcification, and retroperitoneal clot and of conditions of the cord like knots, cord around neck, and any other abnormality were also recorded. The records of babies born below 20 weeks of gestation, twin with IUFD and fetus weighing below 500 grams were excluded.

The diagnosis any other medical or obstetrical complication associated were analysed. Blood investigations like hemogram, blood group and Rh factor, urine examination, HIV1 and 2, HBs Ag, RPR, random blood sugar, LFT, RFT, and serum TSH levels were analysed. Special investigations, if done, were also studied according to the relevance of the case. Recorded data was assessed to find out for the probable or associated cause. Results were obtained using the percentage method.

RESULTS:

A total number of 153 intrauterine foetal demise occurred per 2999 delivered at our centre in the period between December 2019 to May 2020. The proportion of IUFD was 5.1%, and incidence was 51.01/1000 live births.

Age group of 23 to 30 years was most affected with 50.98% (78).

Highest incidence was observed at the gestational age of 28 to 32 weeks of period of gestation and least in the 20 to 28 weeks of gestation age group.

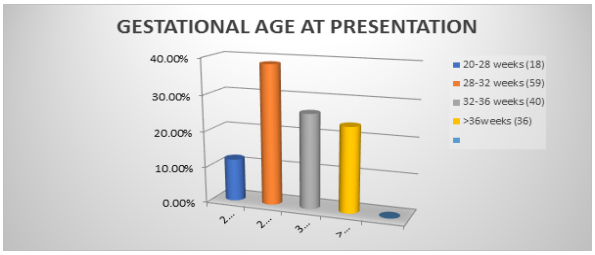

Figure 1: Gestational Age At Presentation

Highest incidence was observed in the gestational age of 28 to 32 weeks of period of gestation (38.56%) and least in the 20 to 28 weeks of gestation age group (11.76%).

Primi gravida patients were most commonly affected with 57 in number (37.25 %), second gravida being 41(33.33 %), 28 were 3rd gravida (18.3%), 10 were 4th gravida (6.53%), 11 were 5th gravida 11 (7.18 %) and 6 were >6th gravida (3.9%). Also, those patients who were > 5th gravida had a higher past history of IUFD.

A higher IUFD rate was observed amongst the male foetuses of 56.86% (87) compared to female foetuses of43.13% (66).

There are associated causes found in as high as 96 patients (64 %) out of total 153 cases under study. The causes can be subdivided into maternal, foetal and placental causes. 42.35%% of cases were associated with maternal factors, 24.63% cases were associated with placental factors and fetal factors were noted in 9.71% of cases. More than one associated causative factor could be found on many patients as well. Amongst the maternal associated factors HDP (hypertensive disorders or pregnancy) aces by being the most common etiological factor in maternal causes at 18.94 %, including both preeclampsia (13.72%) and eclampsia (5.22%). In the placental factors evaluated, abruption was the leading cause found in 16 (10.45%) cases. Congenital anomalies were7.1% (11cases) leading cause amongst fetal factors. More than 1 factors were found in large number of cases, that there was overlapping of the more than one factors in large number cases, thus making them more susceptible to the IUD.in those cases single causative factor could not be pinpointedly identified, but presence of more than one factor increased the risk.

Associated Factors			
	Maternal (42.35%)		
	Pre-eclampsia	21	13.72%
	Anaemia	15	9.80%
	Eclampsia	08	5.22%
	Previous IUD	08	5.22%
	Jaundice	05	3.2%
	Cardiac disease	05	3.2%
	Hypothyroidism	02	1.3%
	Infections	04	2.61%
	Rh negetive status	02	1.3%
	Obesity	02	1.3%
	Placental (24.63%)		
	Abruption	16	10.45%
	Oligohydroamnios	08	5.22%
	Polyhydroamnios	05	3.2%
	Placenta previa	02	1.3%
	Premature rupture of membranes	03	1.96%
	Doppler	02	1.3%
	Cord prolapse	01	0.6%
	Cord around the neck	01	0.6%
	Foetal (9.71%)		
	Congenital anomalies	11	7.1%
	Big baby	04	2.61%

Mode of delivery: Of 153 cases, 99 cases (64.74%) were vaginally (fullterm and preterm) delivered which were both spontaneous and induced, 19 cases (12.40%) had assisted breech vaginal delivery, 3 cases (1.96%) had operative vaginal delivery, 30 cases (19.6%) had LSCS due to obstetrical indications mainly and 2 cases (1.96%) had hysterectomy.

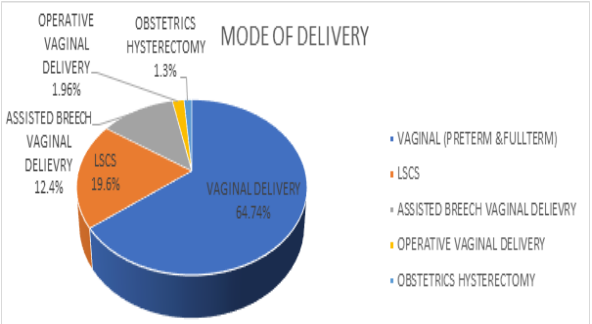

Figure 2: Mode Of Delivery

Though least incidence was observed in the gestational age group of 20-28 weeks, most common foetal weight at delivery was <1.0 kg of 29.4% , which implies most of the foetus were subjected to intrauterine growth restriction antenatally.

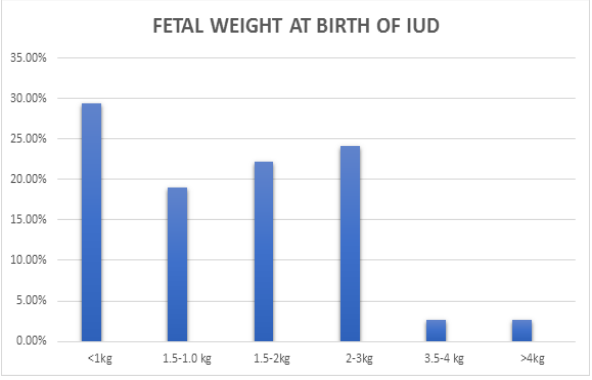

Figure 3 Birth Weight Of Iufd Fetus

Congenital Anomalies Observed:

Various congenital anomalies could be found in IUFD, which was leading fetal cause.

Types of malformation(CONGENITAL ANOMALIES)	Number of observed cases
Microcephaly	1
Hydrocephalus	2
Klippel Feil syndrome	1
Hydrops fetalis	3
Sacrococcygeal teratoma	1
Spina bifida	1
Arnold Chiari Malformation	1
Potters' Syndrome with Bilateral Renal agenesis	1

DISCUSSION:

Intrauterine fetal demise causes anguish and psychological

trauma to the patients and family, leaving the whole family in question as to why did the demise occur. The family also compulses the obstetrician to answer and explain them regarding the same. Lots of attempts have been made in past to identify and reduce the occurrence of intrauterine death. Despite decline in overall perinatal mortality rate, IUFD still occurs at an unacceptably high level in India as compared to the western countries.

Present study observed an incidence of 5.1% of the IUD at our centre, with IUD of 51.02/1000live births. Ours is a tertiary care centre and medical college at Ahmedabad, where patients are generally referred from periphery when IUFD has already been diagnosed. One reason of higher stillbirth at our centre could be due to the selection bias due to it being a tertiary care referral centre and all major obstetric complication identified in the periphery and other private centres would be referred here. Second reason the centre being a government hospital, major antenatal patients would be having lower rate of illiteracy, lower socioeconomic status and lack of antenatal visits.

Associated causes were found in 96 patients (62.74%) out of total 153 cases under study. 37.26% cases were not associated with any causes. More than one maternal, foetal and placental causes were also associated with many cases.

Associated causes can be subdivided into maternal, foetal and placental causes. Present study consisted of diagnosis of fetal death being most at gestation age of 28 weeks to 32 weeks of gestation. Majority of these cases had Hypertensive Disorders of Pregnancies (HDP), as an associated complicating factor.

To reduce the burden on health care facilities and to prevent recurrence, retrospection and introspection becomes mandatory.

In our study hypertensive disorders of pregnancy was associated causative factor in 18.94 % of the total losses. Thus, HDP aces by being the most common etiological factor in maternal causes at 18.94 %, including both preeclampsia (13.72%) and eclampsia (5.22%). A significant proportion of IUFD is preventable by regular ANC visits, patient education, attention to the warning signs, compliance to the advised medication and early referral to the higher centre.

Second leading maternal cause was Anaemia (9.80 % moderate and severe), which is a highly preventable cause. Even though large efforts have been made by the programmes initiated by the government to reduce the prevalence of anaemia by identifying anaemia preconceptionally, at antenatal visits and improving the diet and providing supplementary iron and folic acid medication, the goal still remains at large.

3rd most common maternal factor was history of previous IUFD. Those with high parity was also associated with high parity (more than 4th gravida) and the gestation age between 28 to 32 weeks. Utmost attention and vigilant effort should be given to these mothers during this period of ANC.

Other maternal associated causes in our study were medical disorders like infections 2.61% (including HIV, TORCH, syphilis), jaundice (3.2%), cardiac diseases (3.2%) hypothyroidism (1.3%). RH Incompatibility was associated in 1.3% mothers. Treatment and prevention of all these cases is possible.

In the placental factors evaluated, abruption was found in 16 (10.45%) cases, placenta previa in 02 (1.3%) cases, PROM 03 (1.96%), cord prolapse in 01 (0.60%) and cord around neck was seen in 01 (0.60%) of cases. Changes in liquor accounted for 13 cases with oligohydramnios being in 5.22 % and polyhydramnios in 3.2 % of cases. With the ease of availability of ultrasound scans, liquor changes can be easily identified, monitored and can be timely intervened. Ultrasound findings like doppler changes were associated in 02(1.3 %) of cases. Placental causes, especially placental insufficiency is more likely to recur. Thus, the study of these factors is of paramount importance.

Fetal factors included big baby in (11)2.61% of women and congenital anomalies in (04)7.1% of babies.

Stillbirth risk is higher in a woman with prior still birth and recurrence is also noted with fetal growth restriction, pre-eclampsia and abruption. A significant proportion of IUFD is preventable by patient education, attention to the warning signs, regular visits and early referral. Modifiable risk factors are best dealt with during peri-conceptional care. However, inadequate access to health care facilities and irregular and noncompliant antenatal visits on the part of the patient are the major obstacles to limit the quality of health care delivered.

Present study was limited by not performing of autopsy and tissue biopsy as majority of the Indian population is reluctant due to the associated rituals, if this is changed, further causes can be explored amongst the unexplained causes.

CONCLUSION:

This study shows that the incidence of stillbirths in our population is similar to most of the other Indian studies, but higher than those reported from developed countries. Not all the IUFDs are preventable, neither a cause can be assigned to every case, but there are more than one associated causative factor in many cases. This is associated with hypertensive disorders of pregnancy, anaemia, placental abruption, previous history of pregnancy loss, liquor changes, and CMFs. Proper screening and antenatal supervision and intrapartum surveillance can play an important role in decreasing the rate of stillbirths. Early booking, identification of high-risk cases, timely intervention and referral are the key approaches to reduce the incidence of IUFD and prevent recurrence. And most of these factors are preventable, can be diagnosed and managed early.

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CONFLICTS OF INTERESTS: *none declared.*

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