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Original Research Article

A CLINICAL STUDY OF RISK FACTORS AND MATERNAL OUTCOME IN INTRA-UTERINE FETAL DEATH

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Abstract

Background: The objective of the present study was to examine the etiological factors, both maternal and fetal, that caused IUFD.

Methods: It was a hospital based prospective observational study conducted in the Department of Obstetrics and Gynaecology at Jhalawar Medical College from January 2020 to December 2020. 120 cases of IUFD of ≥24 weeks of gestation or foetuses weighing ≥500 gramswere included in the study.

Results: The incidence of IUFD was 37.8/1000 total birth. IUFD occurredmainly in 25-35yrs age group (55%), unbooked cases (70%),multigravida (59.2%), preterm (<37 weeks of gestation). The risk factors were PIH (49.2%), infections (9.2%), hypothyroidism (5%), Rh negative with hydrops fetalis (5%),GDM (4.2%), chronic hypertension (2.5%), previous H/O LBW (2.5%), H/O prior stillbirth (5%), hyperthyroidism (1.7%), oligohydramnios (46.7%), APH (20.8%) and congenital fetal anomalies (19.2%).

Conclusion: IUFD rate still remains high. Therefore, regular ANC check up and early identification of risk factors like PIH, anaemia, infections, genetic counselling and timely referral to well equipped centre may help prevent IUFD and maternal mortality and morbidity.

Keywords: IUFD, ANC, Preterm

Introduction

Intra-uterine fetal death is defined as death of fetus of >20 weeks gestation or a weight ≥350 grams,(ACOG).[1] Intrauterine fetal death (IUFD) can be ante-partum or intra-partum. According to RCPI,stillbirth is taken as baby delivered without signs of life from 24 weeks gestation and intra-uterine fetal death (IUFD) is taken to refer to death in-utero after 24 weeks of gestation.[2]

Fetal death is classified into following groups:[3]

1) Early fetal death: death occurring before 20 weeks of gestation.

2) Intermediate fetal death: death occurring after 20 weeks but before 27 weeks of gestation.

3) Late fetal death: death occurring at 28 weeks or more.

The estimated number of global stillbirths was 2.6 million in 2009.The stillbirth rate in 2009 was 18.9/1000 births (Lancet 2011).[4]

IUFD causes an enormous psycho-affective trauma to the mother and couple as well. The search for the cause is not only a due act, but is fundamental to improve care by acting on preventive measures. Thus, this study was conduted to determine the incidence, risk factors, method and mode of delivery and maternal complications in IUFD cases attending tertiary care hospital in Jhalawar.

Methods:

It was a prospective observational study done on 120 patients admitted in the Department Of Obstetrics and Gynaecology at Srimati Hira Kunwarba Mahila Chikitsalaya, Jhalawar Medical College, Jhalawar, from January 2020 to December 2020, after being approved by the ethical committee, Jhalawar medical college, Jhalawar.

Inclusion Criteria:

1) All cases with singleton pregnancy diagnosed as IUFD at the time of admission with gestational age ≥24 weeks of pregnancy.

2) All cases with singleton pregnancy whose gestational age was not known but weight of conceptus was found to be ≥500 gm.

3) All patients meeting the above criteria who signed the informed consent.

Exclusion Criteria:

1) All multiple pregnancies were excluded.

2) All cases of intra-partum death were excluded.

3) All cases with period of gestation < 24 weeks of pregnancy were excluded.

Methodology:

On admission, patient's particulars were noted. her complete history was taken including booking status, presenting complaints, history of presenting complaints, menstrual history, present and past obstetrics history, past history, personal history, family history and drug history. Thorough examination was done which included General physical examination, Systemic examinationand Obstetrical examination. The complaints included a period of amenorrhea, duration of labor pains, history of leaking, bleeding per vaginum (PV), pregnancy induced hypertension (PIH) or eclampsia, decreased or loss of fetal movements. The obstetrical history included parity, abortions, stillbirth, neonatal death, lower segment cesarian section (LSCS), preterm delivery, antipartum hemorrhage (APH) or PIH in a previous pregnancy. The records of per vaginal findings included bleeding PV, dilatation of the cervix, effacement of the cervix, presenting part, membrane, pelvis, hand prolapse, or cord prolapse. The findings were noted in a preformed proforma.

All investigations like CBC, blood grouping, viral markers, urine routine and microscopy, serum electrolytes with Liver function test, Renal function test, coagulation profile which included bleeding time, clotting time, prothrombin time and INR were done. Ultrasound (if available) was done.

Soon after the delivery of the baby, sex and condition of the baby was checked to rule out any gross congenital malformations. Similarly, placenta and cord were examined.

Results:

In the study, there were 3,171 total deliveries during January-June 2020, in which 120 were IUFD. Thus, the incidence of IUFD was 37.8/1000 total births.

Table 1: Incidence of IUFD

Total deliveries	Total IUFDs	Incidence
3,171	120	37.8/1000 total births

Table 2: Distribution of Cases according to Maternal age

MATERNAL AGE (years)	No. of cases (n =120)	Percentage
<25	39	32.5%
25-35	66	55.0%
>35	15	12.5%

In the study, 55% cases were in the age group of 25-35 years, 32.5% cases were <25 years of age and 12.5% cases were in the age group of >35 years of age.

Table 3: Distribution of Cases according to Maternal Gravidity: -

Maternal gravidity	No. of cases (n=120)	Percentage
Primigravida	49	40.8%
Multigravida	71	59.2%

In the present study, 40.8% cases were primigravida and 59.2% cases were multigravida.

Table 4: Distribution of Cases according to booking status

Booking status	No. of cases (n=120)	Percentage
Booked	36	30%
Unbooked	84	70%

In the study, 30% cases were booked and 70% cases were unbooked

Table 5: Distribution of Cases according to Period of Gestation: -

Period of Gestation	No. of cases (n=120)	Percentage
<37 weeks (preterm)	68	56.7%
37-40^{+6} weeks (term)	41	34.2%
>40 weeks (postdated)	11	9.1%

In our study, 56.7% cases were <37weeks of gestation, 34.2% cases were between 37-40 weeks of gestation and 9.1% cases were beyond 40 weeks of gestation.

Table 6: Distribution of Cases according to H/O prior stillbirth:

H/O Prior stillbirth	No. of cases (n=120)	Percentage
Yes	6	5.00%
No	114	95.00%

In our study, 5% cases had history of previous stillbirth.

Table 7: Distribution of Cases according to Maternal Anemia

Maternal Hemoglobin (mg/dl)	No. of cases (n=120)	Percentage
Normal (>11)	14	11.67%
Mild Anemia (9-10.9)	56	46.67%
Moderate Anemia(7-8.9)	36	30.00%
Severe Anemia(<7)	14	11.67%

In our study, 88.3% cases were anemic. 46.6% cases had mild anemia, 30% cases had moderate anemia and 11.7% cases had severe anemia.

Table 8: Distribution of Cases according to Maternal Risk Factors:-

Maternal Risk Factors	No. of cases (n=120)	Percentage
Chronic Hypertension	3	2.5%
Gestational Hypertension	10	8.4%
Pre eclampsia	30	25%
Severe pre eclampsia	13	10.8%
Eclampsia	6	5%
Gestational diabetes mellitus	5	4.2%
Hyperthyroidism	2	1.7%
Hypothyroidism	6	5%
Infections	11	9.2%
Previous h/o low birth weight	3	2.5%
Rh negative with hydrops fetalis	6	5%
None	25	20.7%

In this study, 79.3% cases had identifiable maternal risk factors. 25% cases had mild pre eclampsia which was the most common risk factor followed by severe pre eclampsia (10.8%), infections (9.2%), gestational hypertension (8.4%), hypothyroidism (5%), Rh negative with hydrops fetalis (5%), eclampsia (5%), GDM (4.2%), chronic hypertension (2.5%), hyperthyroidism (1.7%) and previous h/o LBW (2.5%). Gestational hypertension, mild pre eclampsia, severe pre eclampsia and eclampsia together constitute pregnancy induced hypertension (49.2%).

Table 9: Distribution of Cases according to Liquor Abnormalities:

Liquor Abnormalities	No. of cases (n=120)	Percentage
Amniotic band	1	0.8%
Anhydramnios	2	1.7%
Oligohydramnios	56	46.7%
Polyhydramnios	2	1.7%
Liquor adequate	16	13.3%
Status not known	43	35.8%

In our study, 50.9% cases had liquor abnormalities as detected by USG. Among them, 46.7% cases had oligohydramnios, 1.7% cases had anhydramnios, 0.8% cases had amniotic band, 1.7% cases had polyhydramnios, 13.3% cases had adequate liqour and in 35.8% cases liquor status was not known as USG report was not available.

Table 10: Distribution of Cases according to Placental or Cord complications-

Placental or cord complications	No. of cases (n=120)	Percentage
Abruption	21	17.5%
Placenta previa	4	3.3%
Placental calcification	4	3.3%
Cord prolapse	5	4.2%
Cord around neck	7	5.8%
Velamentous cord	1	0.8%
None	78	65%

In our study, 35% cases had placental or cord complications. 17.5% cases had abruption, 3.3% cases had placenta previa, 3.3% cases had placental calcification, 4.3% cases had cord prolapse, 5.8% cases had cord around neck, 0.8% cases had velamentous cord and 65% cases had no identifiable placental or cord complications.

Table 11: Distribution of Cases according to Fetal Factors: -

Fetal Anomalies	No. of cases (n=120)	Percentage
Anencephaly	3	2.5%
Anomalous breech	3	2.5%
Hydrocephalus	2	1.7%
Non immune hydrops	2	1.7%
Intra uterine growth retardation (IUGR)	10	8.3%
Multicystic dysplastic kidney (MCDK)	2	1.7%
Polycystic kidney disease (PCKD)	1	0.8%
None	97	80.8%

In our study, 19.2% cases had fetal factors associated with IUFD. 2.5% cases had anencephaly, 2.5% cases were anomalous breech, 1.7% cases had hydrocephalus, 1.7% cases had non immune hydrops, 8.3% cases were IUGR, 1.7% cases had MCDK and 0.8% cases had PCKD.

Discussion:

The incidence of IUFD in the study was 37.8/1000 total births, whereas, the reported incidence in other studies were 56.3/1000 total births,[5]43.2/1000 total births.[6] and 33.2/1000 total births.[7] The reason for higher incidence of IUFD is that our centre being a tertiary care, all the high risk cases are referred here. The delay in identification and seeking medical attention could also be a cause. Majority of IUFDs took place among women aged 25-35 years as supported by other studies as well.[8,9]With increasing education, most of the women try to conceive at a later age n avoid pregnancy during teenage. There is increased risk of IUFD among multigravida[5] and also among those who had minimal or no antenatal care,[10] which was found in our study also. Most of the IUFDs were preterm. Anemia and poor nutrition, though not a direct cause but contributes greatly in poor pregnancy outcome. Among the identifiable maternal risk factors, 49.2% cases belonged to hypertensive disorders of pregnancy which included chronic hypertension, gestational hypertension, pre eclampsia and eclampsia. It was similar to other studies also.[5]Other risk factors were thyroid disorder, Rh negative pregnancy, infections, prior H/O LWB and stillbirth and GDM. These medical conditions in one or the other way hamper placental perfusion and leads to IUGR and thus IUFD.Thus, each antenatal visit demands thorough checkup to rule out any of these factors. APH contributes around 20.8% cases of IUFD as also supported by other studies.[10] Oligohydramnious is also an important risk factors causing IUFD. Congenital fetal anomalies are yet another very important, but preventable risk factors as evidenced by present and other studies.[11]

Conclusion:

IUFD rate still remains high. As seen in this study, most of the women did not have antenatal care regularly. Better antenatal care and evaluation of the cases can help in reducing this tragic event.

Hypertensive disorders of pregnancy, maternal infections, antepartum hemorrhage, oligohydramnios and maternal anemia were common factors causing fetal demise. Among fetal factors, IUGR and congenital malformations were the common factors causing IUFD. IUGR cases should be identified and managed timely for favorable outcomes. Congenital malformations are mostly unavoidable, but

IUFD due to these causes may be prevented by proper antenatal screening and genetic counselling.

Identification of high risk cases and timely referral to well equipped centre may go a long way in reducing the chances of IUFD.

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