“Evaluation of Cases of Intrauterine Fetal Death that Rural Medical College A Tertiary Centres”

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ABSTRACT
AIM: To study causes of intrauterine death that will aid in counselling of the family regarding the cause of baby's death, the recurrence risk, and the plan of management in future pregnancies.
OBJECTIVES: To study the causes of intrauterine death before labour in our tertiary care center. To identify the risk factors associated with intrauterine death MATERIALS AND METHODS: The study is prospective type. This study was carried out from august 2013 to september 2014 in obstetrics and gynaecology department Jawaharlal Nehru Medical College, Sawangi (Meghe), Wardha, Maharashtra.60 cases of intrauterine fetal death were selected by simple random method.
INCLUSION CRITERIA:
- All the women with gestational period between 28 weeks to full term pregnancy coming with intrauterine death
- Normal / malformed fetuses died in utero
- Still born babies.
- Post dated pregnancy coming with IUD
EXCLUSION CRITERIA:
- Women with gestational period of less than 28 weeks
- Those who gave birth to live babies at full term pregnancy
- Babies died due to birth asphyxia

METHOD: All these pregnant women having fetal loss during intrauterine period were explained regarding the purpose of the study, and assured of confidentiality. consent was obtained from them.Records of all these pregnant women having fetal loss during intrauterine period was thoroughly evaluated regarding their period of gestation, symptoms, antenatal record, complications, previous obstetrical history, labor, mode of delivery and the fetal outcome.Diagnosis of fetal death was made through history and examination; by listening fetal heart sounds with Doppler followed by confirmation with ultrasonography. Fetuses was examined regarding their gross features; either old or fresh dead, normal or congenitally malformed and their weight. Following investigations were done like CBC, LFT, KFT, RBS, BLOOD GROUPING, RH TYPING, COAGULATION PROFILE, USG
RESULT: In our study perinatal mortality is 3.33% in the age group <20 years and 66.66% in the age group 20-25 years, 25% in the age group 26-30 years and 5% in age group >30 years.IUD rate was highest in primigravida (70%) followed by second gravid(21.66%).IUD use was highest in unbooked cases which was 80%.In our study, 85% were from lower socio economic status and 15% from middle socio economic status.80% cases were belong to <37 weeks of gestation.15% cases belong to 37-40 weeks of gestational age and 5% were postdated pregnancies. Cause of intrauterine fetal death was identifiable in 90% fetuses which included both antepartum as well as intrapartum deaths. In 10% cases, no cause for IUD could be identified. Among the maternal factors, severe anemia i.e. Hb< 4 gm/dl and hypertensive disorders of pregnancy were associated with significant number of fetal deaths at our centre. Among the fetal causes, major congenital anomalies accounted for 25%(15) cases, out of which 4 had hydrocephalous, 6 had neural tube defects, 1 had anencephaly, 1 cases of bilateral renal agenesis and 3 had congenital cardiac disease. Among the placental causes, 5% were due to abruption 5% was due toplacenta previa. Cord around neck was seen in 3% of patients in our study. In our study history ofprevious IUD was seen in 10% cases
CONCLUSION: The purpose of counting IUD is to understand the contributory factors and to seek ways of avoiding recurrence by proper antenatal care and early diagnosis of complications and its adequate management.

I. Introduction
Birth of a live baby is God’s gift. The birth of a dead baby is a bitter calamity. The occurrence of fetal death is one of the tragedies that confront the attending obstetrician, challenging his/her medical and personal skills. Families who experience loss, struggle with the cause of their baby’s death. Questions such as “Why did this happen to our baby?” and “Will this happen again?” are common, and families in such a situation often present these questions to their obstetrician.
To address these issues, a careful and complete medical evaluation of etiology and pathogenesis of fetal death is necessary. The principle goal of such an evaluation is to establish an identifiable diagnosis that will aid in counselling of the family regarding the cause of baby’s death, the recurrence risk, and the plan of management in future pregnancy. Parents now expect, demand and deserve accurate information on which to base future child bearing decisions. These expectations can only be met when a cause or diagnosis is established. Newer techniques of diagnosis and a better understanding of pathophysiology have led to the determination of the cause of death in a greater proportion of fetal deaths than in the past.
The loss of a fetus at any stage of pregnancy is a fetal demise. According to the 2003 revision of the Procedures for Coding Cause of Fetal Death Under ICD-10, the National Center for Health Statistics defines fetal death as "death prior to the complete expulsion or extraction from its mother of a product of human conception, irrespective of the duration of pregnancy and which is not an induced termination of pregnancy."

The death is indicated by the fact that after such expulsion or extraction, the fetus does not breath or does not show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles.

Heartbeats are to be distinguished from transient cardiac contractions; respirations are to be distinguished from fleeting respiratory efforts or gasps. IUD definition includes antepartum deaths beyond 20 weeks of gestation or birth weight > 500gm (WHO). In addition to changes in definitions over time, there are great variations in the terminology between countries, with greater variability between high-income countries than between low-income countries.[1,2]

UD refers to the birth of an fetus weighing at >or= 500 g, or born at 22 ormole completed weeks’ of gestation, or with a crown-to-heel length of 25 cm or more. In USA alone nine different definitions have been reported[3]. The gestational age by which IUFD defined varies from 18 to 28 weeks[4]. [5].

In this definition birth weight takes priority over gestational age since birthweight is thought to be more reliably reported, even though in low-income countries many stillborn infants are never weighed[6,7].

In my study I will be including cases after 28 weeks coming with intrauterine fetal death. Definition recomended by WHO for international comparision, stillbirth is ababy born with no signs of life at or after 28 weeks of gestation.

A meta-analysis of 96 population-based studies found that maternal overweight and obesity was the highest-ranking modifiable risk factor for stillbirth.[9,10] Advanced maternal age (>35 y) and maternal smoking were also significant.

1.1 Causes of IUFD

The etiology of fetal demise is unknown in 25-60% of all cases. In cases where a cause is clearly identified, the cause of fetal death can be attributable to fetal, maternal, or placental pathology. One prospective study attributed 64.9% of fetal death to placental pathology overall. The same study noted higher rates of feltal demise secondary to placental pathology at late gestational age.[8]

1.1.1 Maternal Causes

- Prolonged pregnancy (>42 wk), Diabetes (poorly controlled), Systemic lupus erythematosus, Antiphospholipid syndrome, Infection, Hypertension, Preeclampsia, Eclampsia, Hemoglobinopathy, Advanced maternal age, Rh incompatibility, Uterinerupture, Maternal trauma or death, Inherited thrombophilies

1.1.2 Fetal Causes

- Multiple gestations, Intrauterine growth restriction, Congenital abnormality, Genetic abnormality, Infection (ie, parvovirus B19, CMV, Listeria) Hydrops, postmaturity.

1.1.3 Placental Causes

- Cord accident, Abruptio placenta, Premature rupture of membranes, Placentalinjury, Placentalinsufficiency

1.1.4 Risk Factors

- Advanced maternal age, History of fetal demise, Maternalinfertility, History of small for gestational age infant, Obesity, Race.

1.2 Incidence

- According to lancet study India has highest number of stillbirth nearly 1/4th of the stillborn babies worldwide were from India.[29] They found that average of 2.6 millions of stillbirth occur every year between 1995 to 2009, 23.2% of which were from India.
- In Maharashtra, intra uterine fetal death rate calculated was 16.4% in 2012
- In AVBRH in 2011 out of 1979 delivery 39 were intrauterine death (19.7%)
- In 2012 out of 2371 deliveries 67 were intrauterine death (28.3%) Unexplained IUDs are now a major contributor to perinatal mortality.

Whereas intrapartum stillbirth are thought to be the most prevalentable component of perinatal mortality. The dramatic decline in the IUFD rate in developed countries has been attributed to an improvement in obstetric surveillance.

Perinatal mortality is a significant public health problem throughout the world. It is quite high in our region as compared to the rest of the world. This difference is mainly because of poorer socioeconomic status, maternal and paternal illiteracy etc.

Biological factors such as higher parental age, short birth intervals and poor obstetrical history are also associated significantly with this mortality.[11]

The most common factors for fetal deaths in developing countries are antepartum haemorrhage, pregnancy induced hypertension, congenital anomalies, prolonged rupture of membranes, mismanagement of labor and medical problems like diabetes mellitus, cardiac disease etc. The complications of pregnancy and labor are also significantly associated with extremes of ages.[12]

Most of the causes are treatable and fetal outcome can be improved by provision of good health care facilities during antepartum and intrapartum periods. This can be further improved by increasing public awareness regarding
reproductive health and better utilization of health services. During antenatal period, high risk cases should be selected properly, counseled and referred to proper place where the facilities for proper fetal and maternal monitoring are available.

The purpose of this study was to identify the pattern of fetal deaths, specially risk factors associated with this problem and to improve the approaches to prevent morbidity and mortality in this regard at our tertiary care set up.

II. Materials And Methods

The study is prospective type. This study was carried out from September 2013 to September 2014 in obstetrics and gynaecology department Jawaharlal Nehru Medical College, Sawangi (Meghe), Wardha, Maharashtra. 60 cases of intrauterine fetal death were selected by simple random method.

2.1 Inclusion criteria

- All the women with gestational period between 28 weeks to full term pregnancy coming with intrauterine death
- Normal / malformed fetuses died in utero
- Still born babies.
- Post dated pregnancy coming with IUD

2.2 Exclusion criteria

- Women with gestational period of less than 28 weeks
- Those who gave birth to live babies at full term pregnancy
- Babies died due to birth asphyxia

2.3 Method

All these pregnant women having fetal loss during intrauterine period were explained about the purpose of the study, and assured of confidentiality. Consent was obtained from them.

Records of all these pregnant women having fetal loss during intrauterine period was thoroughly evaluated regarding their period of gestation, symptoms, antenatal record, complications, previous obstetrical history, labor, mode of delivery and the fetal outcome.

Diagnosis of fetal death was made through history and examination; by listening fetal heart sounds with Doppler followed by confirmation with ultrasonography. Fetuses were examined regarding their gross features; either old or fresh dead, normal or congenitally malformed and their weight. Following investigations were done like CBC, LFT, KFT, RBS, BLOOD GROUPING, RH TYPING, COAGULATION PROFILE, USG.

III. Discussion

In our study incidence of intrauterine death rate was 23.41/1000 live birth. Present study is comparable with those of Kameshwaran et al. (1993) where it was 35.1/1000 live births. This is very high when compared to IUD rate in developed countries. Complicated and high risk cases were referred to our institution from far of places of the district and from the neighboring districts. Many of them were admitted late in labour. Chitrakumari et al (2001) reported that incidence was 64.1%.

In our study perinatal mortality is 3.33% in the age group < 20 years and 66.66% in the age group 20-25 years, 25% in the age group 26-30 years and 5% in age group > 30 years, as compared to Study done by Incerpi M.H. et al. (1998). In university of Southern California (1990-1994) mean maternal age was 27 years, 15% were < 20 years old whereas 16% were > 35 years. Age of the mother more than 35 years increases the chances of fetal death by increased rate of fetal chromosomal abnormalities and maternal medical disorders like hypertension.

Mishra et al. (1983) reported a high perinatal mortality when the maternal age was between 20-30 yrs. Nayak & Asha R. Dalai (1992) reported that high perinatal mortality was in the age group of 21-30 years (71%) and 25% in < 20 years.

In our study and study done by B. Mishra et al [16] IUD rate was highest in primi gravida (70%) followed by second gravida (21.66%). This was in accordance with Asha R. Dalai (1992) study where IUD rate was high in primi and fourth gravida. Optimal antenatal care reduced the incidence of fetal death to a great extent.

There is a significant correlation between the number of antenatal visits and fetal death. The incidence of fetal death is high in unbooked cases compared to the booked cases. In our study 80% were unbooked cases. Kameshwaran et al. (1993) reported 84% of cases belonging to socio economic status IV and only 21% of cases were literate. AurnaRangekar and Bandana Biswas (1990) showed 73% IUD in unbooked cases.

In our study it is 85% were from lower socio economic status. AurnaRangekar et al. (1990) reported that 76% of the cases were from lower socio economic status.

Gestational age is the most important determinant of IUD rate along with birthweight. In our study it is 80% in < 37 weeks of gestation, 15% in 37-40 weeks and 5% in postdated pregnancy. Chitrakumari et al. (2001) reported that 57.8% IUD were seen in preterm pregnancy and 42.1% IUD seen in (37-42) weeks of gestation. The critical peak at which fetuses were lost is variable in the literature (19, 20, 21, 22).

In our study, cause of intrauterine fetal death was identifiable in 90% fetuses which included both antepartum as well as intrapartum deaths. In 10% cases, no cause for IUD could be identified.

Antepartum IUD were caused by maternal, fetal and placental factors. Hypertension as a leading cause of IUD was also seen in our and several other studies (19, 20). Among the maternal factors, severe anemia i.e. Hb < 4 gm/dl and/or hypertension disorders of pregnancy were associated with significant number of fetal deaths at our centre. This was
observed because our centre is tertiary care centre where patients referred from other centres with these complications and majority of patients were unbooked and did not receive any antenatal care. A past history of intrauterine fetal death indicates some subclinical genetic or chromosomal problem which can recur in future pregnancies.

In our study history of previous IUD was seen in 10% cases. Among the fetal causes, major congenital anomalies accounted for 25% (15) cases, out of which 4 had hydrocephalus, 6 had neural tube defects, 1 had anencephaly, 1 case of bilateral renal agenesis and 3 had congenital cardiac disease.

This was in accordance to the study conducted by Tariq where congenital malformations accounted for 25.2% cases of IUD. Neural tube defects emerged as the major congenital anomaly responsible for IUD in our set up. This may be due to the lack of folic acid supplementation in periconceptional period.

Rh isoimmunization was reported in 5% of IUD in our study which was in accordance with the study by Samadi et al. who reported 4.7% incidence. Among the placental causes, 5% was due to abruptio placenta, as compared to study conducted by Jahanfar.7 in which 6.75% was due to placental abruption and 3.37% due to placenta previa.

Cord complications like cord around neck seen in 3% of patients in our study which was in contrast to study conducted by Tariq25 where cord accidents accounted for 13.3% IUDs. Other disadvantage of a long interval between fetal death and birth relate to greater emotional distress. Psychological upset was seen in 22.56% of patients.

IV. Summary

In our study perinatal mortality is 3.33% in the age group <20 years and 66.66% in the age group 20-25 years, 25% in the age group 26-30 years and 8% in the age group >30 years. IUD rate was highest in primi gravida (70%) followed by second gravida (21.66%). IUD rate was highest in unbooked cases which was 80%. In our study 85% were from lower socio economic status and 15% cases from middle socio economic status.

80% cases were belong to <37 weeks of gestation, 15% cases belong to 37-40 weeks of gestational age and 5% were postdated pregnancies. Cause of intrauterine fetal death was identifiable in 90% fetuses which included both antepartum as well as intrapartum deaths. In 10% cases, no cause for IUD could be identified.

Among the maternal factors, severe anemia i.e. Hb < 4 gm/dl and hypertensive disorders of pregnancy were associated with significant number of fetal deaths at our centre. This was observed because our centre is tertiary care centre where patients were referred from other centres with these complications and majority of patients were unbooked and did not receive any antenatal care.

Among the fetal causes, major congenital anomalies accounted for 25% (15) cases, out of which 4 had hydrocephalus, 6 had neural tube defects, 1 had anencephaly, 1 case of bilateral renal agenesis and 3 had congenital cardiac disease.29

Among the placental causes, 5% were due to abruptio placenta. Cord around neck was seen in 3% of patients in our study.

A past history of intrauterine fetal death indicates some subclinical genetic or chromosomal problem which can recur in future pregnancies. In our study history of previous IUD was seen in 10% cases.30

V. Conclusion

The purpose of counting IUD is to understand the contributory factors and to seek ways of avoiding recurrence by proper antenatal care and early diagnosis of complications and its adequate management. Clinical assessment and evaluation is recommended to assess maternal wellbeing and to determine the cause of death, the chance of recurrence and of avoiding further pregnancy complications (RCOG, 2010 guidelines). Early identification and correction of maternal risk factors such as hypertension, severe anemia can prevent intrauterine fetal death. Serial ultrasound evaluation may be helpful in ruling out congenital malformations and placental disorders which are also implicated in intrauterine fetal death. Better intrapartum fetal monitoring for high risk cases can lead to prevention of IUD. In conclusion, the associated risk factors in our community seem to be preventable. We should pay attention to health education with emphasis on antenatal care and the benefit of regular attendance, improved periconceptional environment, nutrition, micronutrient status especially iron and folic acid intake. Identification of high risk cases and their timely referral to higher centres may save the baby. Patient compliance is important in reducing most of these preventable fetal losses. Women with a history of IUD should attend a antenatal clinic in their next pregnancy and undergo increased antenatal surveillance. Future research should focus on improved means of clinical assessment of fetal well being and defining pathophysiological pathways leading to still birth associated with maternal disease.31 Parents have the greatest stake of all in the wellbeing of their baby, and must be part

References

[28]. Raina J, Lamb J, Rahman H, Wilczynko-Ketende K, Hill K. Stillbirth Rates,Estimated In 190 Countries Lancet 2006;367:1487-94of the drive to reduce stillbirth. We should let the life of every mother and baby count