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"Evaluation of Cases of Intrauterinefetal Deathat 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 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 fetaloutcome.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 likeCBC, 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 and66.66% in the age group 20-25 years ,25% in the age group 26-30 years and 5%inage 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 % casesfrom middle socio economic status.80% cases were belong to <37weeks of gestation,15% cases belong to37-40 weeks of gestational age and 5% were postdatedpregnancies.Cause of intrauterine fetal death was identifiable in 90% fetuses whichincluded both antepartum as well as intrapartum deaths. In 10 % cases, no cause forIUD could be identified.Among the maternal factors, severe anemia i.e. Hb- 4 gm/dl and hypertensivedisorders of pregnancy were associated with significant number of fetal deaths at ourcentre. Among the fetal causes, major congenital anomalies accounted for 25%(15)cases, out of which 4 had hydrocephalous, 6 had neural tube defects, 1 hadanencephaly, 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 toseek ways of avoiding recurrence by proper antenatal care and early diagnosis ofcomplications 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 attendingobstetrician, 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 theirobstetrician.

To address these issues, a careful and complete medical evaluation of etiologyand pathogenesis of fetal death is necessary. The principle goal of such an evaluationis to establish an identifiable diagnosis that will aid in counselling of the familyregarding the cause of baby's death, the recurrence risk, and the plan of managementin future pregnancy.Parents now expect, demand and deserve accurate information on which tobase future child bearing decisions. These expectations can only be met, when a causeor diagnosis is established. Newer techniques of diagnosis and a better understandingof pathophysiology have led to the determination of the cause of death in a greaterproportion of fetal deaths than in the past.

The loss of a fetus at any stage of pregnancy is a fetal demise. According tothe 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 thecomplete expulsion or extraction from its mother of a product of human conception, irrespective of the duration of pregnancy and which is not aninduced termination of pregnancy**."

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

Heartbeats are to be distinguished from transient cardiac contractions; respirations areto be distinguished from fleeting respiratory efforts or gasps."IUD definition includes antepartum deaths beyond 20 weeks of gestation orbirth weight > 500gm (WHO). In addition to changes in definitions over time, thereare great variations in the terminology between countries, with greater variabilitybetween 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 ormore completed weeks' of gestation, or with a crown-to-heel length of 25 cm or moreIn USA alone nine different definitions have been reported[3]. The gestationalage 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 countriesmany stillborn infants are never weighed[6,7**].**

In my study I will be including cases after 28 weeks coming with intrauterinefetal death.Definition recomonded 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 maternaloverweight and obesity was the highest-ranking modifiable risk factor for stillbirth.[9,10] Advanced maternal age (>35 y) and maternal smoking were alsosignificant.

1.1Causes of IUD

The etiology of fetal demise is unknown in 25-60% of all cases. In caseswhere 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 fetaldeath to placental pathology overall. The same study noted higher rates of fetaldemise secondary to placental pathology at late gestational age.[8]

1.1.1Maternal Causes

Prolonged pregnancy (>42 wk),Diabetes (poorly controlled),Systemic lupuserythematosus, Antiphospholipid syndrome, Infection, Hypertension, Preeclampsia,Eclampsia, Hemoglobinopathy, Advanced maternal age,Rhincompatibility,Uterinerupture,Maternal trauma or death,Inheritedthrombophilias

1.1.2Featal Causes

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

1.1.3Placental Causes

Cord accident, Abruptio placenta, Premature rupture of membranes, placentaprevia, Fetomaternalhemorrhage, Placental insufficiency

1.1.4Risk Factors

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

1.2Incidence

 According to lancet study India has highest number of stillbirth nearly ¼th ofthe stillborn babies worldwide were from India .[29] They found that averageof 2.6 millions of stillbirth occur every year between 1995 to 2009 ,23.2 % ofwhich 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 stillbirths are thought to be the most preventable component ofperinatal mortality. The dramatic decline in the IUD rate in developed countries hasbeen 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 ismainly because of poorer socioeconomic status, maternal and paternal illiteracy etc.

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

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

Most of the causes are treatable and fetal outcome can be improved byprovision of good health care facilities during antepartum and intrapartum periodsThis can be further improved by increasing public awareness regarding

reproductivehealth and better utilization of health services. During antenatal period, high risk casesshould be selected properly, counseled and referred to proper place where thefacilities for proper fetal and maternal monitoring are available.

 The purpose of this studywas to identify the pattern of fetal deaths, speciallyrisk factors associated with this problem and to improve the approaches toprevent 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 2013to september 2014 in obstetrics and gynaecology department Jawaharlal NehruMedical College, Sawangi (Meghe), Wardha, Maharashtra.60 cases of intrauterinefetal death were selected by simple random method.

2.1Inclusion criteria

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

2.2Exclusion 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

2.3Method

All these pregnant women having fetal loss during intrauterine period wereexplained about the purpose of the study, and assured of confidentiality. consent wasobtained from them.

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

Diagnosis of fetal death was made through history and examination; bylistening fetal heart sounds with Doppler followed by confirmation withultrasonography.Fetuses was examined regarding their gross features; either old or fresh dead,normal or congenitally malformed and their weight. Following investigations weredone like-

CBC, LFT, KFT, RBS, BLOOD GROUPING, RH TYPING,COAGULATION PROFILE, USG

III. Discussion

In our study incidence of intra uterine death rate was **23.41/1000** live birth.Present study is comparable with those of Kameshwaran et al. (1993)13Where 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 ofthe district and from the neighboring districts. Many of them were admitted late inlabour.Chitrakumari et al (2001)14 reported that incidence was 64.1%.

In our study perinatal mortality is 3.33% in the age group <20 years and66.66% in the age group 20-25 years ,25% in the age group 26-30 years and5%in age group >30 years, as compared to Study done by Incerpi M.H. et al.,(1998)15in university of Southern California (1990-1994) mean maternal age was 27years, 15% were < 20 years old whereas 16% were >35 years.Age of the mother morethan 35 years increases the chances of fetal death by increased rate of fetalchromosomal abnormalities and maternal medical disorders like hypertension.

Mishra et al., (1983)16 reported a high perinatal mortality when the maternalage was between 20 -30 yrs.Arun H Nayak17 & Asha R. Dalai (1992) reported that high perinatal mortalitywas 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 highestin primi gravida (70%) followed by second gravida.(21.66%).26This was in accordance with Asha R. Dalai (1992)17 study where IUD rate washigh 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 fetaldeath. The incidence of fetal death is high in unbooked cases compared to the bookedcases**In our study 80% were unbooked cases.** Kameshwaran et al., (1993)13 fivetimes higher mortality rate in unbooked cases. In a study done by ChitraKumari et al.(2001)14 at M.G.M. Medical College, 81.5% of cases were unbooked. ArunaRangekar and Bandana Biswas (1990)18 study showed 93% IUD in unbooked cases.

In our study it is 85% were from lower socio economic status as comparedto Chitrakumari et al (2001)14, reported 84% of cases belonging to socio economicclass IV and only 21% of cases were literate. AurnaRangekar et al., (1990)18 reportedthat 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<37weeks of gestation, 15% in 37-40 weeks and5% in postdated pregnancy**. Chitrakumari et al, (2001)14 reported that 57.8% IUDwere 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 literature19,20,21,22 .

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.**23,24

Antepartum IUD were caused by maternal, fetal and placental factors.Hypertension as a leading cause of IUD was also seen in our and several otherstudies.19,20. Among the maternal factors, severe anemia i.e. Hb- 4 gm/dl and27hypertensive disorders of pregnancy were associated with significant number of fetaldeaths at our centre. This was

observed because our centre is tertiary care centrewhere patients were referred from other centres with these complications and majorityof patients were unbooked and did not receive any antenatal care.

A past history of intrauterine fetal death indicates some subclinical genetic orchromosomal problem which can recur in future pregnancies**.**

In our study history ofprevious IUD was seen in 10% cases21. Among the fetal causes, major congenital anomalies accounted for 25%(15)cases, out of which 4 had hydrocephalous, 6 had neural tube defects, 1 hadanencephaly, , 1 case of bilateral renal agenesis and 3 had congenital cardiac disease.

This was in accordance to the study conducted by Tariq where congenitalmalformations accounted for 25.2% cases of IUD25 Neural tube defects emerged asthe major congenital anomaly responsible for IUD in our set up. This may be due tothe lack of folic acid supplementation in periconceptional period.

Rh isoimmunization was reported in 5% of IUD in our study which was inaccordance with the study by Samadi et al who reported 4.7% incidence.26Among the placental causes, 5% was due to abruption 5 % was due to placentaprevia, as compared to study conducted by Jahanfar.27 in which 6.75% was due toabruption and 3.37% due to placenta previa.

Cord complications like cord around neck seen in 3% of patients in our studywhich was in contrast to study conducted by Tariq25 where cord accidents accountedfor 13.3%IUDs.

Other disadvantage of a long interval between fetal death and birth relate togreater 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 and66.66% in the age group 20-25 years ,25% in the age group 26-30 years and 5%inage 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 % casesfrom middle socio economic status.

80% cases were belong to <37weeks 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 whichincluded both antepartum as well as intrapartum deaths. In 10 % cases, no cause forIUD could be identified.

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

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

V. Conclusion

The purpose of counting IUD is to understand the contributory factors and toseek ways of avoiding recurrence by proper antenatal care and early diagnosis ofcomplications and its adequate management. Clinical assessment and evaluation isrecommended to assess maternal wellbeing and to determine the cause of death, thechance of recurrence and of avoiding further pregnancy complications (RCOG, 2010guidelines).Early identification and correction of maternal risk factors such ashypertension, severe anaemia can prevent intrauterine fetal death. Serial ultrasoundevaluation may be helpful in ruling out congenital malformations and placentaldisorders which are also implicated in intrauterine fetal death. Better intrapartum fetalmonitoring for high risk cases can lead to prevention of IUFD. In conclusion, theassociated risk factors in our community seem to be preventable. We should payattention to health education with emphasis on antenatal care and the benefit ofregular attendance, improved periconceptional environment, nutrition, micronutrientstatus especially iron and folic acid intake. Identification of high risk cases and theirtimely referral to higher centres may save the baby. Patient compliance is important inreducing most of these preventable fetal losses.Women with a history of IUFD should attend a antenatal clinic in their nextpregnancy and undergo increased antenatal surveillance. Future research should focuson improved means of clinical assessment of fetalwell being and definingpathophysiological pathways leading to still birth associated with maternal disease.31Parents have the greatest stake of all in the wellbeing of their baby, and must be part

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