

Evaluation of Clinical and Aetiological Factors for Intrauterine Fetal Death

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Abstract

Aims & objectives: 1) To assess the prevalence of ante-partum fetal death. 2) To determine various risk factors for intra uterine fetal death. **MATERIAL&METHODS:** This is retrospective analytical study conducted in Dr D Y Patil Hospital Kolhapur during the period Jan 2011 to dec 2012. **Results-**Out of 957 singleton births 26 intrauterine death cases were recorded. Risk factors identified were abruption placenta (30.26%), history of previous abortion (23.07%), maternal anemia (23.07%) ,history of PIH (19.23%), oligohydramnios (15.38%), multiple pregnancy (3.84%), IUGR (7.69%), placental insufficiency(3.84%), history of maternal infection(3.84%), history of eclampsia (3.84%). **Conclusion-**The most common maternal causes for IUFD were hypertensive disorder and anemia. Early identification of clinical risk factors will prevent IUFD to some extent hence cannot be overlooked.

INTRODUCTION:

According to WHO, it is recommended that IUD occurring after 20 weeks or Fetal wt > 500 gms (When gestational age is unknown) are classified as Fetal Death (3)

Fetal death, may be antepartum or intrapartum, and is one of the most dreaded complications of pregnancy & might cause tremendous emotional trauma to mother as well as family members. Antepartum fetal death, occurs 10 times more frequently than Sudden Infant Deaths (4). An estimated 10-15% of all pregnancies, end in unexpected loss (2).

In 2005, data from National Vital Statistics report, showed a US avg. stillbirth rate of 6.2/100 birth (5). Worldwide this rate varies considerably depending on the quality of medical care available in the country in question & definition used for classifying fetal death under reporting in developing countries is common which makes comparison more difficult.

In 2009 estimated global number of stillbirth was 2.64 million (uncertainty range 2.14-3.82 million)(13). The worldwide stillbirth rate declined by 14.5% from 221 stillbirth/1000 birth in 1995 to 189 stillbirth/1000 birth in 2009.

The major problem facing for the obstetrician, is the identification of women at risk, as many cases appears to take place in the absence of recognized risk factors. The cause of stillbirth is poorly understood (6).

Some of the known causes of fetal death are maternal, like Advanced maternal age, Obesity, Low Socioeconomic Status, Illiteracy, Smoking, Alcoholism etc. Pregnancy complicated by PIH, Placental Abruption, IUGR, Rhesus Isoimmunisation, Multiple Gestation, Post-Term Pregnancy, Infections, Prev H/o Stillbirths, Medical Disorders Complicating Pregnancy like DM, HTN, Chr. Nephritis, Thrombophilias, SLE etc. may lead to IUD.

Fetal causes like, Congenital Anomalies, Infections, Placental Abnormalities, Cord Accidents & Prolonged PROM. Despite the above possible known causes, upto 50% stillbirth have no identifiable etiology (3).

In our study, we found 61.54% causes of fetal death, were Unexplained. Hence this study was planned to evaluate, Various factors related to Fetal Death,so that in this area of obstetrics, improvement could be made.

OBJECTIVE:

- 1) To assess the prevalence of ante-partum fetal death
- 2) To determine various risk factors for intra uterine fetal death

STUDY DESIGN:

This is a retrospective hospital based study of all stillbirth occurred at D.Y.Patil Hospital, Kolhapur, Maharashtra. The demographic factors analyzed were Maternal Age, BMI, Illiteracy, Urban V/s Rural, Smoking habits etc. Clinical features like, Obstetric history, ANC visits, Gest. Age, Percieved less/reduced Fetal movements, Fetal wt-Fresh/Macerated & Assoc Medical & Obstetrical Complications of Pregnancy was also assessed.

METHODS:

This study was carried out during period between Jan 2011 to Dec 2012. The data was collected from record section of the hospital & was analyzed to determine possible causes for fetal deaths. No postmortem was carried out, because of ignorance of the parents about the benefits & costs inspite of counseling.

The fetal deaths were defined as birth wt of >500 gms with no signs of life & >20 weeks of gestation. Weight of fetuses were recorded, with minimum of 700 gms. The BMI was calculated using formula $Wt. (kgs)/ Ht. (m^2) \times 100$. The values between 18.5 - 24.9, were considered Normal (1). (Table 8.1,7) 88. Maternal Hb <10.5 gm%, was considered as Anaemia in Pregnancy, Random Blood Sugar (RBS) >140 mg% as Gestational DM, HTN >140/90 mmHg as PIH. The data was analysed by percentage method.

RESULTS:

During the study period, out of 957 singleton births 26 intrauterine death cases were recorded (27.16/1000 births)

Out of women (n=26) studied in present study maximum (46.15%) were found to be between 21 to 25 years as shown in table no 1. women studied were equal in number from urban and rural area (table no 2). In our study 23.07% had h/o reduced fetal movements

(table no 3).Table no 4 shows that most of the women studied were primigravidae(46.15%). Maximum number of women were between gestational age of 28 to 32 wks (50%). In our study 50% women were of normal BMI (table 6),while 23% were overweight and 19% were underweight.Mean fetal weight was 1174.2gms in our study.

Following risk factors were indentified in logistic regression model. Abruption placenta(30.76%) h/o previous abortion (23.07%), anaemia (23.07%) h/o PIH (19.23%),oligohydramios (15.38%),multiple pregnancies (3.84%),IUGR (7.69%),placental insufficiency(3.84%),h/o maternal infection (3.84%), h/o eclampsia(3.84%).Women with none risk factors were 57.69%.

DISCUSSION:

In our teaching institute based retrospective study,we tried to analyse the observed data on the basis of clinical maternal and fetal risk factors,The results obtained gave us the idea about causes of IUFD.

Maximum patients were registered outside. They were refered from outside to our institute with the diagnosis of IUFD.This has reflected our fetal death rate(27.16 per 1000 birth)

The fetal death rate varies in different countries from 2.6 to 29.9per 1000 total births (7).

The maximum incidence we found in women were in between 21 to 25 years(46.95%) followed by 15 to 20 years of age group (30.76%).Again it shows teenage pregnancy at risk for intrauterine fetal death. Relation of teenage pregnancy with hypertensive disorders,anaemia,malnutrition and chances of abortion have been proved which are again the risk factor for intrauterine fetal death.(8)

In our study,fetal death(46.15%) were associated with primigravida.In study by Raymond E G et al showed stillbirth was not associated with primiparity but it seems that in multiparous women with previous delivery of live birth is a protective feature(9).In our study though the incidence of IUFD is more in second gravida than third gravida & only three of them had previous live births(n=3) Rest of them are with previous abortion(n=6).

Previous study have proved that fetal outcome worsens with advanced maternal age (8). This is contrast to our findings where we got more patints on teenage side. Maternal age above 35 years was not found to be a significant contributing factor towards fetal death in our study. Similar findings were noted in study done by Nayak S R (10). This was in contrast to the study done by Fretts and huang et al (11) in adanced maternal age was major contributing factor.

In our study 57.69% women were of normal BMI(18.5-24.9 kg/m square) and 23.07% were overwt (>25 kg/m square) though previous study shows more incidence in overwt(7)

The leading maternal factors related to fetal death in this study were anaemia(23.07%),h/o abortion(19.23%),hypertensive disorders(19.23%)

The fetal factors related to fetal death were abruption placenta (30.76%),IUGR(7.69%),placental insufficiency(3.18%)

In our study 57.69% women did not show any maternal and Fetal risk factors

The study of clinical factors has some limitations. To determine the other causes of fetal death like genetic abnormalities, fetal autopsy, histopathology of placenta along with prenatal detection by serum markers NT scan, CVS, FISH, H/o of consanguinity are needed with pre and postnatal counselling is considered necessary.

Women who complained reduced fetal movements prior to admission were 23.07% (n=6)

CONCLUSION:

Early identification of at risk patients for fetal death like HTN, anemia, teenage pregnancy and h/o abortion will minimize the fetal death rate. Patients have to be categorised under "high risk" with closed antepartum surveillance.

The most common maternal cause of intrauterine fetal death in our study is hypertensive disorder and anaemia.

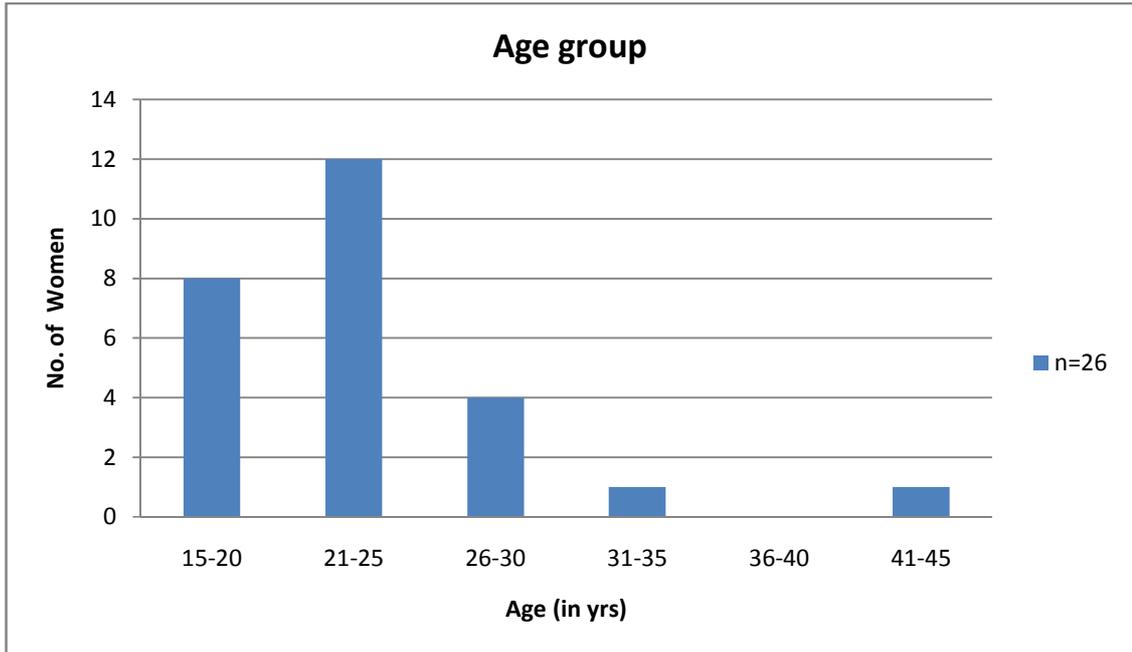
Though most common cause associated with intrauterine demise is fetal anomaly and fetal autopsy is must, but the significance of clinical risk factor can not be ignored which are preventable to some extent (10)

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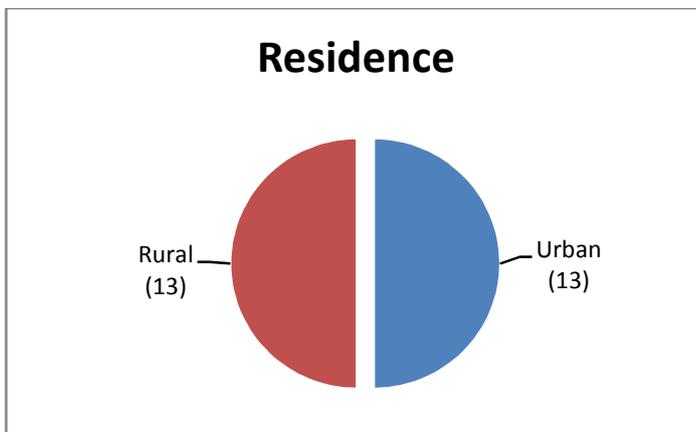
1) AGE (yrs) (n=26)

- i] 15-20 yrs - 8
- ii] 21-25 yrs - 12
- iii] 26-30 yrs - 4
- iv] 31-35 yrs - 1
- v] 36-40 yrs - 0
- vi] 41-45 yrs - 1



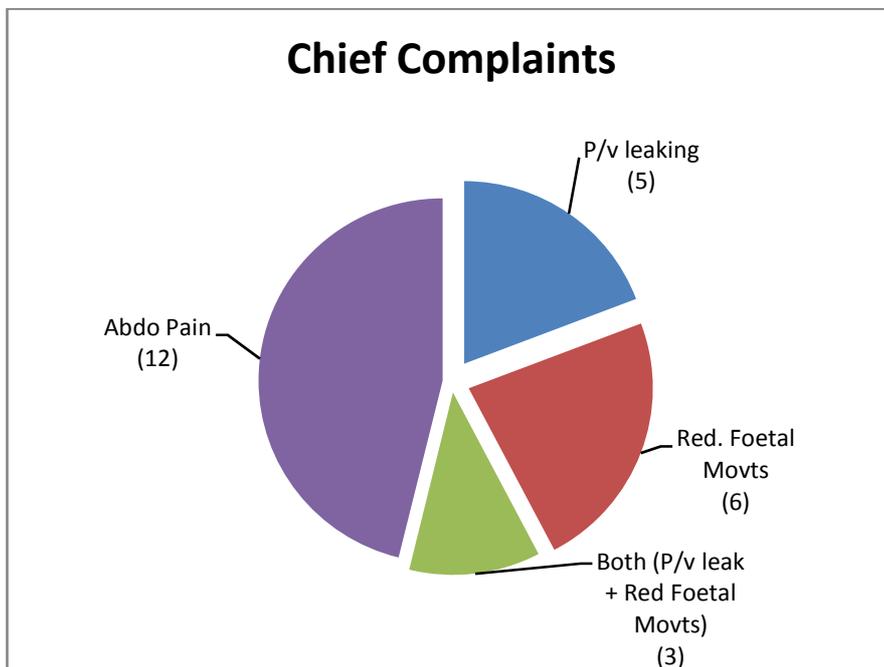
2) RESIDENCE (n=26)

- i) Urban - 13
- ii) Rural - 13



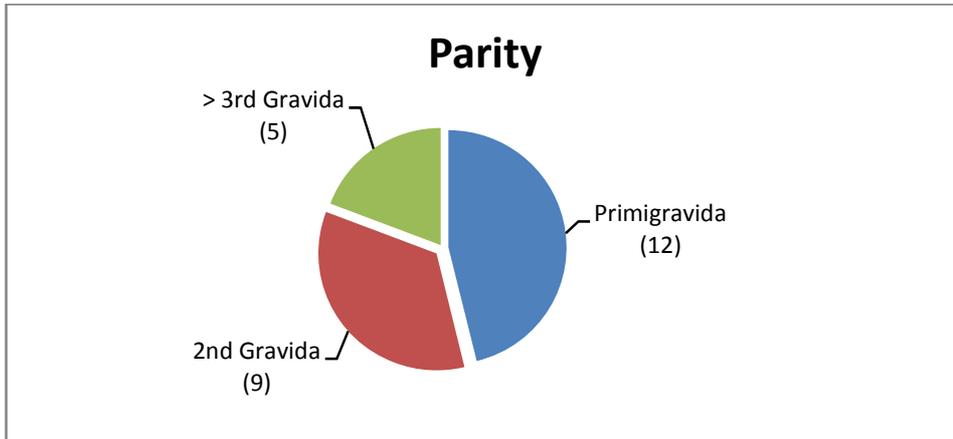
3) CHIEF COMPLAINTS (n=26)

- i] P/V Leaking - 5
- ii] Reduced Foetal Movements - 6
- iii] Both (i+ii) - 3
- iv] Abdominal Pain - 12



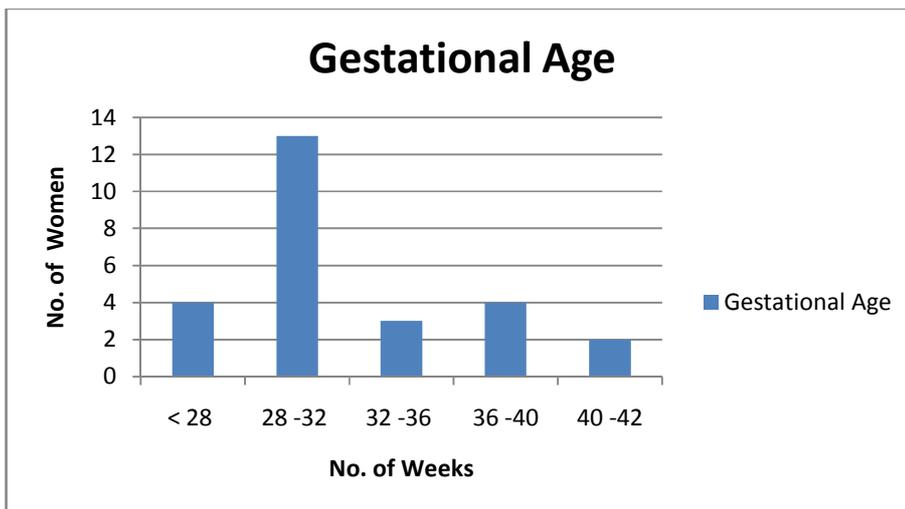
4) PARITY (n=26)

- i) Primigravida - 12
- ii) 2nd Gravida - 9
- iii) > 3rd Gravida - 5



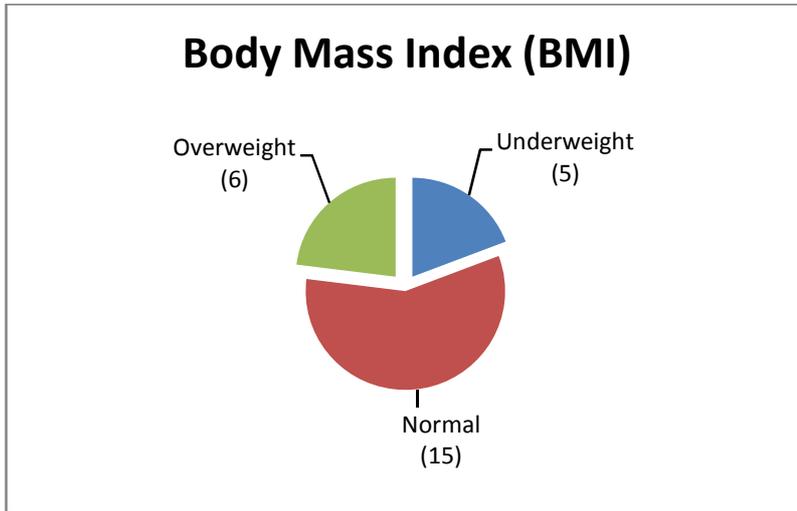
5) GESTATIONAL AGE (n=26)

- i] <28 weeks - 4
- ii] 28 -32 weeks - 13
- iii] 32 -36 weeks - 3
- iv] 36 -40 weeks - 4
- v] 40 -42 weeks - 2



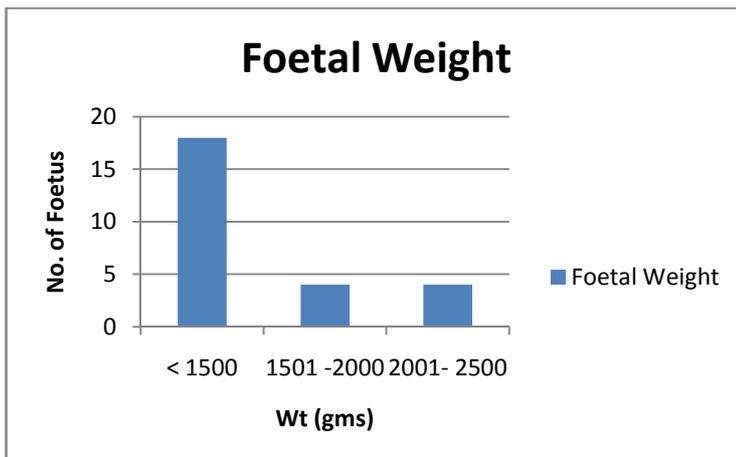
6) BODY MASS INDEX (BMI) (n=26)

- i) $< 18.5 \text{ kg/m}^2$ - 5 (Underweight)
- ii) $18.5 - 24.9 \text{ kg/m}^2$ - 15 (Normal)
- iii) $25 - 29.9 \text{ kg/m}^2$ - 6 (Overweight)



7) FOETAL WEIGHT (n=26)

- i) $< 1500 \text{ gms}$ - 18
- ii) $1501 - 2000 \text{ gms}$ - 4
- iii) $2001 - 2500 \text{ gms}$ - 4



MATERNAL FACTORS PERCENTAGE	OBSERVED NOS. (n)
1) Hypertensive Disorders 19.23% in Pregnancy (PIH)	5
2) Anaemia 23.07%	6
3) Oligohydramnios 15.38%	4
4) H/o Abortion 23.07%	6
5) Multiple Pregnancies 11.53%	3
6) H/o Infections 3.84%	1
7) GDM ---	0
8) Polyhydramnios ---	0
9) Rh -ve pregnancy ---	0
10) Hyperpyrexia ---	0
FETAL FACTORS PERCENTAGE	OBSERVED NOS. (n)
1) IUGR 7.69%	2
2) Placental Insufficiency 3.84%	1
3) Abruptio Placenta 30.76%	8

4) Congenital Anomalies 0

5) Post Maturity 0

BABIES DELIVERED

1) Fresh IUD - 24

2) Macerated IUD - 2