



CLINICAL AND AETIOLOGICAL PROFILE FOR INTRAUTERINE FETAL DEATH

Gynaecology

Dr.Sangeeta Desai Assistant Professor, Dr. D.Y Patil Medical College & University, Kolhapur M.S.,India

Dr.Sonal Walawalkar Associate Professor, Dr. D.Y Patil Medical College & University, Kolhapur M.S.,India

ABSTRACT

Study purpose is to assess the prevalence of ante-partum fetal death and to determine various risk factors for intra uterine fetal death. This is retrospective analytical study conducted in Dr D Y Patil Hospital Kolhapur during the period Jan 2015 to april 2017. Out of 3475 singleton births 51 intrauterine death cases were recorded. Risk factors identified were Preeclampsia(21.56%), IUGR(19.6%), severe anaemia (15.68%), oligohydramnios (13.72%), hypothyroidism(11.76%), premature rupture of membranes (11.76%), patients on gardinal, alfadopa, labet (11.76%) Abruptio placenta (9.8%) postdatism (9.8%), two loops of cord around neck (9.8%), eclampsia(1.96%), febrile illnesses, true knots, epilepsy (1.96%) Conclusion: The most common maternal causes for IUFD were hypertensive disorder, IUGR and anemia. Early identification of clinical risk factors will prevent IUFD to some extent hence cannot be overlooked.

KEYWORDS:

Introduction

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.

Prevalence of perinatal deaths in society reflects quality of antenatal health care and best community indicator.

Definition of IUFD varies in context to gestational age, by different organizations. As per WHO definition considers stillbirth as fetal death in late pregnancy(1). Gestational age at which it is considered as stillbirth varies country to country. It is from 16 wks to as late as 28 wks. Here we used criteria led by perinatal mortality surveillance report (CRMACE, 2011) which defines stillbirth as "a baby delivered without signs of life after 24 completed weeks of pregnancy"(1)

If all causes of stillbirth are taken together the new estimates would place stillbirth fifth on the list of causes of stillbirth world wide(2). according to the lancet stillbirths series, authored by 69 experts from more than 50 organisations in 18 countries. The series is comprised of six scientific papers, two research articles, and eight linked comments.

In 2009 estimated global number of stillbirth was 2.64 million, approximately 7200 deaths daily, British researchers report(2) (uncertainty range 2.14- 3.82 million.(3). The worldwide stillbirth rate declined by 14.5% from 221 stillbirth/1000 birth in 1995 to 189 stillbirth/1000 birth in 2009(4)

Decline in the rate of stillbirth is low as compared to child and maternal mortality rate of decline.

Stillbirth rate varies sharply by country, from the lowest rates of 2 per 1000 births in Finland and Singapore and 2.2 per 1,000 births in Denmark and Norway, to high of Pakistan and 42 in Nigeria. 1.8 million stillbirths occur in ten countries-India, Pakistan, Nigeria, China, Bangladesh, democratic republic of Congo, Ethiopia, Indonesia, Afghanistan, and United Republic of Tanzania. Half of all stillbirths occur in India, Pakistan, Nigeria, China, and Bangladesh alone.(5) In India, rates range from 20 to 66 per 1000 births in different states.(5) National figure quoted by the central government in 2012 as 28/1000 livebirth

The major problem facing for the obstetrician, is the identification of women at risk, as many cases appear to take place in the absence of recognized risk factors. The case of stillbirth is poorly understood (5) Profile of fetal deaths in Dhahira region, Oman. Oman Medical Journal 2008 Vol.23 issue 1 Jan 2008.(6)

Various demographic maternal factors like advanced maternal age, obesity, low Socioeconomic Status, Illiteracy, Smoking, Alcoholism

etc. are also studied.

Possible causes of IUD are 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 and fetal causes like, Congenital Anomalies, Infections, Placental Abnormalities, Cord Accidents & Prolonged PROM.

Five main causes of stillbirths are childbirth complications, maternal infections in pregnancy, maternal disorders (especially preeclampsia and diabetes), fetal growth restrictions and congenital abnormalities. (5)

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, was 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. Aims and objective of our study were to assess the prevalence of ante-partum fetal death and 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, Perceived Less/Reduced Fetal movements, Fetal wt-Fresh/Macerated & Assoc Medical & Obstetrical Complications of Pregnancy was also assessed.

Methodology

This study was carried out during period between Jan 2015 to april 2017. 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 nonwillingness in spite of counseling may be due to cost and ignorance of the parents about the benefits.

The fetal deaths were defined as a baby delivered without signs of life after 24 completed weeks of pregnancy. Weight of fetuses were recorded, with minimum of 700 gms. The BMI was calculated using formula $\text{Wt. (kgs)} / \text{Ht. (m}^2\text{)} \times 100$. The values between 18.5 - 24.9, were considered normal (4). Maternal Hb <10.5 gm%, was considered as Anaemia in Pregnancy, 75gm glucose challenge test more than 140-199 mg% as per dipstick guidelines taken as Gestational DM. HTN >140/90 mmHg as PIH. The data was analysed.

Observations and Results.**Observation tables****Table 1****Table showing demographic and clinical profile (maternal characteristics) of cases under study**

Booking status	Number(%)	Age group	Number (%)
Booked in our hospital	4 (7.8%)	<20	11 (21.56%)
		21-25	28 (54.9%)
Referred & unbooked	47 (88.23%)	26-30	10 (19.6%)
		31-35	1 (1.96%)
		>35	1 (1.96%)

More than half were in age 21 to 25 yrs of age (54.9%)

Referral & unbooked cases were maximum (88.23%)

Table 2

Conception	Number (%)	region	Number(%)
spontaneous	47 (92.1%)	urban	19 (37.25%)
Induced	4 (7.9%)	rural	32 (62.74%)
Parity		Socioeconomic status	
G1	23 (45.09%)	lower	39 (76.47%)
G2	18(35.29%)	middle	9 (17.64%)
G3/>G3	10(19.65%)	upper	3 (5.8%)

In 92.1% of cases conception was spontaneous.

76.47% patients were from lower socioeconomic status

45.09% were primigravidae.

Table 3

Period of gestation	Number (%)	BMI	Number(%)
<28 wks	5 (9.8%)	<18.5 kg/msq	9 (17.64%)
28-32 wks	16 (31.37%)	18.5 to 24.9 kg/msq	32(62.74%)
33-36 wks	6 (11.76%)	25 to 29.9 kg/msq	10 (19.6%)
36-40 wks	17 (33.33%)	h/o of iud in past pregnancy	10 (19.6%)
40-42 wks	7 (13.72%)		

33.33% iud were in postdatism ie 40 to 42wks.

62.74% were of normal BMI

19.6% had H/O IUD in past pregnancy

Table 4**Symptomatology with which patients presents**

Complaints	Number (%)
P/v leaking	13 (25.49%)
pain abdomen	28 (54.9%)
reduced fetal movements	13(25.49%)
Vomiting ,headache ,pedal oedema	3 (5.8%)
Convulsions	2 (3.92%)

54.9% patients presented with pain in abdomen

Table 5**Fetal characteristics**

Fetal weight	Number (%)	Fetal morphology	Number (%)
<1500 gms	20 (39.21%)	fresh	10 (19.6%)
1501 -2000 gms	17 (33.33%)	macerated	41 (80.39%)
2001-2500 gms	11 (21.56%)	Liquor colour	
>2.5 kgs	3 (5.8%)	Mechonium stained liquor	14 (27.4%)
		Tobacco coloured liquor	15 (29.4%)
		Clear liquor	22 (43.13%)

69.54% that is 70% had <2 kg baby wts

Table 6**Clinical risk factors with cases under study**

Maternal factors	Number (%)	Fetal Factors	Numbers(%)
preeclampsia	11 (21.56%)	IUGR	10 (19.6%)
eclampsia	2(3.9%)	Congenital anomalies	
epilepsy	1 (1.96%)	Spina bifida	1 (1.96%)

hypothyroidism	6 (11.76%)	Diaphragmatic hernia	1(1.96%)
Gestational diabetes	0	Placental factors	
jaundice	0	postdatism	
Febrile illnesses	1 (1.96%)	Placental abruption	5(9.8%)
Severe anaemia	8 (15.68%)	Placenta previa	0
h/o infections	0	PROM	6(11.76%)
Rh negative pregnancy	0	oligohydramnios	7(13.72%)
Postdate pregnancy	5 (9.8%)	True knots	1(1.96%)
On drugs like labet, alfadopa,eltroxin gardinal	6 (11.76%)	2 loops of cord around neck	5(9.8%)

Maximum patients 21.56% were of preeclampsia as a contributing cause .IUGR (19.6%)and severe anemia (15.68%) fallows then after. Hypothyroidism,PROM, patients on gardinal were 11.76%

The risk of stillbirth at term increases with gestational age from 2.1 per 10,000 ongoing pregnancies at 42 weeks of gestation.(7)

During the study period,out of 3475 singleton births 51 intrauterine death cases were recorded (14.67/1000 births)

Out of women (n=51) studied in present study maximum (54.9%) were found to be between 21 to 25 years as shown in table no 1.women studied were more in number from rural(62.74%) than urban area (table no 2). In our study 25.49% had h/o reduced fetal movements (table no 3).Table no 4 shows that most of the women studied were primigravidae(45.09%). Maximum number of women were between gestational age of 28 to 32 wks(31.37%) and 36-40 wks (33.33%).In our study 62.74% women were of normal BMI(table 3) while 19.65% were overwt and 17.64% were underwt. In 61.79% fetal wt were more than 1500 gms in our study.

Following risk factors were indentified in logistic regression model. Preeclampsia(21.56%), IUGR(19.6%),severe anaemia (15.68%), oligohydramnios (13.72%), hypothyroidism(11.76%), premature rupture of membranes (11.76%), Abruptio placenta(9.8%) postdatism (9.8%), eclampsia(3.9%) congenital abnormalities (3.9%) placental insufficiency(3.84%),.Women with none risk factors were 57.69%.

Discussion.

As per Indian censuses of 2006,still birth rate in india in urban 8/1000 live births and in rural 9/1000 birth which quite low and may underquoted.(2)

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 referred from outside(88.23%) to our institute with the diagnosis of IUFD who were unbooked This has reflected our fetal death rate(14.67% per 1000 birth). Booked cases were only 7.8 %.

The fetal death rate varies country to countries from 2.6 to 29.9per 1000 total births(8).

The maximum incidence we found in women were in between 21 to 25 years(54.9%) followed by 15 to 20 years of age group (21.56%).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(9) which are again the risk factor for intrauterine fetal death.

In our study,fetal death(45.09%) 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(10).In our study though the incidence of IUFD is more in second gravida,(35.29%).

Previous study have proved that fetal outcome worsens with advanced maternal age (9). This is contrast to our findings where we got more patients 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 (11). This was in contrast to the study.

In our study 62.74% women were of normal BMI (18.5-24.9 kg/m square) and 19.6% were overweight (>25 kg/m square) though previous study shows more incidence in overweight (7)

The leading maternal factors related to fetal death in this study were hypertensive disorders ie preeclampsia and eclampsia (25.46%) anemia (15.68%), hypothyroidism (11.76%), postdatism (9.8%), epilepsy and febrile illnesses (1.96%) total were (68.62%)

The fetal factors related to fetal death were IUGR (19.6%), congenital anomalies like spina bifida, diaphragmatic hernia (1.96%) total (23.52%)

Placental factors were placental insufficiency with oligohydramnios (13.72%), PROM (11.76%), abruption placenta (9.8%) two patients were having two tight loops of cord around neck (9.8%) true knot in one patient (1.96%) total were (47.05%)

In our study 31.38% women did not show any maternal and fetal risk factors which is quite high as compared to study conducted in tertiary referral centre in Uttarakhand (19.5%) (9). May be we need to do more extensive investigations inclined to find out the cause. The percentage of unexplained fetal demise has stayed constant over the years in spite of extensive investigations and treatment (9). The way to address the problem of stillbirth is to strengthen existing maternal, newborn, and child health programs by focusing on key interventions that benefit mothers and neonates (11). In our study we agree those statements as preventable factors we found in 68.62% cases. We need to strengthen antepartum and intrapartum fetal monitoring. Patients referred from outside may be not following up properly antenatal visits.

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 25.49% (n=6)

Conclusion:

Early identification of at risk patients for fetal death like HTN, anemia, postdatism, hypothyroidism, teenage pregnancy will minimize the fetal death rate. Patients have to be categorised under "high risk" with closed antepartum surveillance. Treatment of anemia, timely treatment of lower genital tract infection, avoidance of postdate pregnancies with timely interventions are key factors to reduce rate of IUFD. 68.62% patients risk factors were identified which could be preventable to some extent.

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

The significance of clinical risk factors can not be ignored which are preventable to some extent (8)

References:

1. Clinical practice guidelines investigations and management of late fetal intrauterine death and stillbirth, Institute of obstetrician and gynaecologist royal college of physicians Ireland and Directorate of strategies and clinical programmed health service executive. Version 1.0 guideline no 4 October 2011-revised 2013
2. Huang D Y, Usher R H, Kramer M S et al Determinants of unexplained antepartum fetal deaths. *Obstet Gynaecol* 2000; 95: 215-21
3. Ian Donald *Obst Problems* 6th edition, page no. 422
4. Cousan S, Blencowe H, Stanton et al National Regional & Worldwide estimate of stillbirth rate in 2009 with trends since 1995 & systems analysis.
5. PMNCH fact sheet update sept 2011 by WHO
6. Profile of fetal deaths in Dhahira region, Oman. *Oman Medical Journal* 2008 Vol. 23 issue 1 Jan 2008.
7. Risk of stillbirth and infant death stratified by gestational age. Melissa G. Rosenstein, MD, Yvonne W. Cheng, MD, PhD, (.) and Aaron B. Caughey, MD, PhD. *Obstetrics and gynecology* Author Manuscript HHS Public Access
8. Estimates of mortality indicators – census of India website. *Vital statistics* chapter 4 pg 81, statement 512010
9. *Oman medical journal* 2008 vol 23 issue 1 Jan 2008
10. *J Obs Gyn India* Vol. 60 No. 6 Nov-Dec 2010 pg 494-497.
11. *IOSR Journal of Dental and Medical sciences* (IOSR-JDMS) e-ISSN: 2279-0861. Volume 13, Issue 3 Ver. @ (Mar. 2014), PP03-06 Nayak S R, Garge Nidhi from Kasturba medical college Lady Goschan Hospital Mangalore Karnataka