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Original Article

Evaluation of intrauterine foetal death at tertiary care center

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ABSTRACT

Aims and Objectives: To identify the risk factors and to evaluate measures, to reduce complications, and to improve maternal outcome.

Materials and Methods: This was a prospective study from December 2012 to December 2013 which was conducted at M.G.M. Medical College and M.Y. Hospital, Indore, Madhya Pradesh, India, in the Department of Obstetrics & Gynecology. All the patients are having fetal death beyond 20 weeks of gestation and/or birth weight >500 g were included in the study. Maternal and fetal outcome were analyzed. Mode of delivery and associated complications were studied.

Results: Total numbers of deliveries were 13500. Incidence of intrauterine death (IUD) at our center was 38.30 per 1000. 68.83% were antepartum, and 36.17% were intrapartum. Congenital malformations were responsible for 12.77% cases. Among the identifiable causes, placental causes (17.99%), and hypertensive disorders (15.47%) were most common followed by severe anemia (6.58%). The most devastating complication of IUD was disseminated intravascular coagulation (DIC) found in 28 patients (5.42%).

Conclusion: The present study has emphasized upon the need for augmentation of health services for the pregnant mother, because the extra attention paid to the mother during the pregnant state goes a long way in improving both maternal and fetal survival. The majority of fetal deaths in our study could have been prevented by appropriate antenatal and intranatal care. Decrease in the incidence of IUD would significantly reduce the perinatal mortality.

Keywords: Antepartum foetal deaths, disseminated intravascular coagulation, intrapartum foetal deaths, intrauterine foetal death

INTRODUCTION

Intrauterine death (IUD) definition includes antepartum deaths beyond 20 weeks of gestation or birth weight ≥500 g (WHO).[1] An antepartum and intrapartum foetal deaths together constitutes a large portion of perinatal mortality. Antepartum foetal death contributes to 2/3rd of perinatal mortality.[2]

The most common factors for foetal deaths in developing countries are antepartum haemorrhage (APH), pregnancy-induced hypertension, congenital anomalies, prolonged rupture of membranes, mismanagement of labor and medical problems such as diabetes mellitus and cardiac diseases. The complications of pregnancy and labor are also significantly associated with extremes of ages.[3] Most of the causes are treatable and foetal 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 the proper place where the facilities for proper foetal and maternal monitoring are available.

The purpose of this study was to identify the pattern of foetal 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 setup.

MATERIALS AND METHODS

This was a prospective study from December 2012 to December 2013 which was conducted at Department of Obstetrics & Gynecology, M.Y. Hospital, M.G.M Medical College, Indore, Madhya Pradesh, India. All the women

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with gestational period between 20 weeks to full term pregnancy having normal/malformed foetuses and stillborn babies were included in the study. However, women with gestational period of <20 weeks and those who gave birth to live babies at full term pregnancy were excluded from the study.

Total number of deliveries during this period was 13500. Among this, total number of IUD including both antepartum and intrapartum deaths were 517. Records were thoroughly analyzed with respect to age, parity, and gestational age, associated complicating factors such as hypertensive d/o of pregnancy, diabetes, rhesus isoimmunization, severe anemia, and history of IUD in previous pregnancy. Foetal characteristics were studied with respect to sex, birth weight, and their gross features either old or fresh dead, normal or congenitally malformed. Risk factors related to placenta and cord (cord prolapse and tight cord around neck) were also analyzed. Mode of delivery, associated complications and co-morbidities were also studied. Transabdominal ultrasonography was done to confirm IUD. Laboratory investigations were studied.

RESULTS

During the study period, we observed from Table 1 that majority of foetal deaths (68.28%) occurred in women between 21 and 30 years of age. The majority (31.72%, 17.21%) of women were primigravida and primipara, respectively. Most of the cases (67.70%) were unbooked.

It was observed that majority of IUD foetuses (55.51%) were from 38 to 40 weeks, whereas preterm IUD accounted for 32.69% of total IUDs. It was observed from Table 2 that 35.4% of dead foetus weighed from 1.6 to 2.5 kg. Among the IUD foetuses, male sex was found to be significantly higher (54.16%) as compared to female sex (45.65%).

Table 1: Maternal characteristics

Characteristics	*n* (%)
Maternal age (year)	
15-20	93 (17.99)
21-25	209 (40.43)
26-30	144 (27.85)
31-35	44 (8.51)
36-above	27 (5.22)
Parity	
P0	164 (31.72)
P1	89 (17.21)
P2	83 (16.05)
P3	70 (13.54)
P4	51 (9.86)
P5 and above	60 (11.61)
Gestational age (weeks)	
<34	169 (32.69)
35-37	39 (7.54)
38-40	287 (55.51)
>40	22 (4.26)
Booking status	
Booked	167 (32.30)
Unbooked	350 (67.70)

In Table 3, among maternal factors, hypertensive disorder of pregnancy accounted for 15.47% and very severe anemia caused 6.58% of IUD. Foetal factors most common found in our study were congenital malformations (12.77%) and Rh incompatibility (2.9%). Among the placental factors, 12.38% were due to abruption and 5.61% IUDs were due to placenta

Table 2: Foetal characteristics

Characteristics	*n* (%)
Foetal weight (kg)	
0.5-1	122 (23.60)
1.1-1.5	83 (16.05)
1.6-2	96 (18.57)
2.1-2.5	87 (16.83)
2.6-3	84 (16.25)
3.1-3.5	37 (7.16)
3.5 and above	8 (1.55)
Foetal sex	
Male	280 (54.16)
Female	237 (45.65)

Table 3: Causal factors

Factors	*n* (%)
Antepartum	
Maternal	
Hypertensive d/o of pregnancy	80 (15.47)
Very severe anemia	34 (6.58)
Hyperpyrexia	6 (1.16)
Polyhydraminos	5 (0.97)
Gestational DM	3 (0.58)
Jaundice	3 (0.58)
Heart disease	2 (0.39)
Toxoplasma	2 (0.39)
Trauma	2 (0.39)
Malaria	1 (0.19)
Syphilis	1 (0.19)
Auto immune	1 (0.19)
Total	140 (27.08)
Fetal	
Congenital malformations	66 (12.77)
Rh incompatibility	15 (2.90)
Total	81 (15.67)
Placental	
Abruption	64 (12.38)
Placenta previa	29 (5.61)
IUGR	12 (2.32)
Post-term pregnancy	4 (0.77)
Total	109 (21.08)
Total	330 (36.83)
Intrapartum	
Malpresentation	61 (11.80)
Malpresentation	61 (11.80)
Cord prolapse	30 (5.80)
Prom >48 h	29 (5.60)
Obstructed labor	18 (3.48)
Prematurity	17 (3.29)
Cord around neck	17 (3.29)
Rupture uterus	15 (2.90)
Total	187 (36.17)

DM: Diabetes mellitus, IUGR: Intrauterine growth restriction

previa. Malpresentation (11.8%) was the major intrapartum factor. Table 4 shows that out of 517 IUDs, 73 patients (14.12%) needed induction, 365 (70.6%) had spontaneous onset of labor and 66 patients (12.77%) had caesarean section. Indications for lower segment caesarean section (LSCS) were hand prolapsed, placenta previa, abruption, obstructed labor, previous 2 LSCS, and history of classical caesarean section.

In Table 5, most common morbidity encountered in patients with IUD was postpartum hemorrhage (PPH) seen in 6.58% patients. The most dreaded complication of IUD requiring intensive care unit admission was disseminated intravascular coagulation (DIC) encountered in 5.42% of patients. There were 2 mortalities which were due to DIC.

DISCUSSION

Intrauterine foetal deaths and stillbirth is one of the major psychological trauma to the parents and cause for stress to the family. Intrauterine foetal deaths are still occurring in spite of development of newer modalities for diagnosis and treatment of high-risk cases. This may be because of lack of utilization of health care facilities by the population.

Incidence of IUD at our center was found to be 38.3 per 1000 births in year December 2012- December 2013. Out of 517 cases, 167 were booked (32.3%) and 350 cases were unbooked (67.7%).

In our study, majority of women were in the age group of 21-25 years and second being 26-30 years. Total stillbirth in age 21-30 years was 68%. Similar figures were quoted by Sainaba and Nayar (1971) 60.8%,[4] Mirchandani (1973) 66.6%.[5] However, this defers when we compare with western community where, problem was seen in elderly women. This can be explained by better antenatal services and utilization of health care facilities, early detection and treatment of high risk cases in western countries. In our study maximum stillbirth rate occurred in primipara (31.72%) thereafter decreasing with parity up to 5th parity. This is in contrast to the study by Khaskheli et al., who reported 52% cases being grandmultiparas.[6] Sainaba and Nayar (1971) shows the similar findings, i.e. maximum in primi (25.9%).[4] However, stillbirth rate gradually increased with parity. Some studies found that parity had no association with IUD.

Table 4: Mode of delivery

Mode of delivery	*n* (%)
Induction leading	
Vaginal delivery	67 (12.96)
Instrumental deliveries	6 (1.16)
Total	73 (14.12)
Spontaneous labor leading	
Vaginal delivery	359 (69.44)
Instrumental	6 (1.16)
Total	365 (70.6)
LSCS	66 (12.77)

LSCS: Lower segment caesarean section

Table 5: Maternal morbidity and mortality

Maternal morbidity	*n* (%)
PPH	34 (6.58)
DIC	28 (5.4)
Caesarean hysterectomy	13 (2.51)
Blood transfusion	308 (59.57)
≥1 unit	159 (30.75)
≥2 unit	115 (22.24)
≥3 unit	34 (6.58)
Maternal mortality	2 (39.00)

DIC: Disseminated intravascular coagulation, PPH: Postpartum hemorrhage

In our study, antepartum IUD was caused by maternal, foetal, placental factors. APH and toxemia of pregnancy were associated with significant number of foetal deaths at our center (17.99% and 15.47% respectively). This was observed as our center is tertiary care center where patients were referred from other centers with these complications and majority of patients were unbooked and did not receive any antenatal care. Hypertension as a leading cause of IUD was also seen in several other studies. Nayak and Dalai (1993) reported 45% deaths were due to APH and PIH.[7] APH continues to extract a heavy loss of both foetal and maternal lives in developing countries. It is neither preventable nor predictable in majority of cases. In developed countries maternal and foetal outcomes have been improved due to early arrival of the patient and timely intervention. In our study diabetes was found to be associated in 1.14% cases which was in contrast to study conducted by Gunton where diabetes came out to be the major factor for IUD.[8]

Among the foetal causes, major congenital anomalies accounted for (12.77%) cases, out of which 29 had anencephaly, 21 had hydrocephalus, 4 had meningomyelocele, 3 had foetal ascites, and a case contain multiple abnormalities. This was in contrast to the study conducted by Tariq et al in 2005 where congenital malformations accounted for 25.2% cases of IUD.[9] Neural tube defects emerged as the major congenital anomaly responsible for IUD in our setup. This may be due to lack of folic acid supplementation in periconceptional period and also in 1st trimester of pregnancy due to lack of antenatal visit early. Rh isoimmunization was reported in 2.9% of IUD in our study which was in accordance with the study by Samadi et al who reported 4.7% incidence.[10]

Intrapartum foetal death accounted for 36.17% of foetal deaths. Among intrapartum complications, cord prolapse leading to IUD was common in our study (5.8%) and obstructed labor accounts for (3.48%) cases. These are rarely seen in developed countries. This is due to patient's ignorance and lack of well-equipped healthcare delivery systemat grass root level.

Male foetus was more vulnerable to foetal death (54.16%) which was in accordance to study conducted by Zhang and Klebanoff.[11]

It was noticed that most of our foetuses were lost between 38-40 weeks of gestation. Therefore, it is recommended to apply closer surveillance at 37 weeks and beyond so that foetuses will not be lost at that critical period. The critical peak at which foetuses were lost is variable in the literature.

Onset of labor was spontaneous in 365 cases while 73 patients needed induction. Induction was done with

prostaglandins (PG) PG E_1/PG E_2 gel and its dose varied according to the gestational age. Sixty-six patients were directly taken for caesarean section for indications like transverse lie with hand prolapsed, abruption, placenta previa, obstructed labor, cord prolapse, previous 2 LSCS, and classical caesarean section.

In our study, 5.41% patients had DIC and 6.5% patients had PPH. These patients came with prolonged retention of dead foetus. When a baby dies before birth, the options for care are either to wait for labor to start spontaneously or to induce labor. In majority of women (90%) labor begins within 3 weeks of IUD, but if labor does not begin, there is a risk of developing a DIC, as well as intrauterine infection if the membrane is ruptured.[12] Blood transfusion was required in 59.58% of cases because majority of the patients were severely anemic.

In developing countries like India, socio-demographic factors also contribute to the increased risk of intrauterine foetal demise. Early marriages, teenage pregnancies, short interconceptional period, low socioeconomic status, poor nutrition and less tendency to utilize the available health care facilities predispose to increased risk of intrauterine foetal death in the country.

Intrauterine foetal death is a tragic event for the parents. In most of the cases, the associated risk factors are preventable by early detection and treatment of underlying conditions. Hypertensive disorders, APH, post-dated pregnancy, Rh isoimmunization are preventable causes of foetal death where foetal death can be prevented by more vigilant antenatal care and treatment. Although congenital anomalies are unavoidable, prenatal diagnostic tests and first trimester screening by triple marker test can detect anomalies at early gestation when, termination of pregnancy causes lesser psychological trauma to the family than late foetal deaths.

CONCLUSION

In conclusion, the associated risk factors in a community seen to be preventable. We should pay attention to health education with emphasis on antenatal care and the benefit, improved periconceptional environment, nutrition, micronutrient status especially iron and folic acid intake. Identification of high risk cases and their timely referral to higher centers may save the baby. Patient compliance is important in reducing most of these preventable foetal losses.

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PEERREVIEW

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CONFLICTS OF INTEREST

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REFERENCES

1. Stanton C, Lawn JE, Rahman H, Wilczynska-Ketende K, Hill K. Stillbirth rates: Delivering estimates in 190 countries. Lancet 2006;367:1487-94.
2. Richardus JH, Graafmans WC, Verloove-Vanhorick SP, Mackenbach JP. The perinatal mortality rate as an indicator of quality of care in international comparisons. Med Care 1998;36:54-66.
3. Khandait DW, Ambadekar NN, Zodpey SP, Vasudeo ND. Maternal age as a risk factor for stillbirth. Indian J Public Health 2000;44:28-30.
4. Mirchandani JJ. Placenta in intrauterine growth retardation. J Obstet Gynecol India 1973;23:695.
5. Sainaba MK, Nayar V. ???. J Obstet Gynecol India 1971;22:402.
6. Khaskheli M, Baloch S, Khushk IA, Shah SS. Pattern of fetal deaths at a university hospital of Sindh. J Ayub Med Coll Abbottabad 2007;19:32-4.
7. Nayak AH, Dalai AR. A review of stillbirth. J Obstet Gynaecol India 1993;43:225.
8. Gunton JE. Outcome of pregnancies complicated by pregestational diabetes mellitus. J Obstet Gynaecol 2000;22:34-8.
9. Khashoggi TU. Epidemiology of intrauterine foetal deaths in Saudi Arabia: Kkuh experience. Biomed Res 2005;16:59-64.
10. Samadi R, Miller D, Settlage RH, Goodwin TM. Massive fetomaternal hemorrhage and fetal death: Is it predictable? Am J Ostet Gynecol 1996;174:391.
11. Zhang J, Klebanoff MA. Small-for-gestational-age infants and risk of fetal death in subsequent pregnancies. N Engl J Med 2004;350:754-6.
12. Weiner CP. Fetal death. In: James DK, Steer PJ, Weiner CP, Gonik B, editors. High Risk Pregnancy Management Options. 2nd ed. London: WB Saunders; 1999.

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