IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 25, Issue 3 Ser. 1 (March. 2026), PP 94-101
www.iosrjournals.org

Intrauterine Fetal Demise and Associated Maternal and Fetal Risk Factors: A Cross-Sectional Study

Dr. BHANU KANTHI MADUGULA
Designation JUNIOR RESIDENT
Dept OBSTETRICS AND GYNECOLOGY
Institute SRI DEVRAJ URS MEDICAL COLLEGE KOLAR KARNATAKA

DR. MUNIKRISHNA
DESIGNATION:PROFFESSOR AND HEAD OF THE DEPARTMENT
Dept OBSTETRICS AND GYNECOLOGY
Institute SRI DEVRAJ URS MEDICAL COLLEGE KOLAR KARNATAKA

DR. SRUTHI PABOLU
Designation JUNIOR RESIDENT
Dept OBSTETRICS AND GYNECOLOGY
Institute SRI DEVRAJ URS MEDICAL COLLEGE KOLAR KARNATAKA
*Corresponding author - Dr .BHANU KANTHI MADUGULA**

ABSTRACT
Background: *Intrauterine fetal demise (IUFD) remains a significant obstetric complication contributing substantially to perinatal mortality worldwide. In developing nations like India, the burden of stillbirth is disproportionately high owing to limited access to quality antenatal care, delayed referrals, and prevalent maternal comorbidities. Identifying the modifiable and non-modifiable risk factors associated with IUFD is essential for developing targeted preventive strategies. This study aimed to evaluate the maternal and fetal risk factors associated with intrauterine fetal demise and to determine the management outcomes and maternal complications in a tertiary care hospital setting.*
Methods: *This cross-sectional study was conducted in the Department of Obstetrics and Gynaecology at R L Jalappa Hospital and Research Centre attached to Sri Devaraj Urs Medical College, Tamaka, Kolar, over a period of five months. A total of 46 women admitted with confirmed intrauterine fetal demise in singleton pregnancies beyond 20 weeks of gestation with fetal weight exceeding 500 grams were enrolled after obtaining informed consent. Data regarding demographic characteristics, obstetric history, antenatal care, associated risk factors, mode of delivery, fetal and placental findings, and maternal complications were recorded. Statistical analysis was performed using SPSS version 22, with chi-square test and independent t-test applied as appropriate. A p-value of less than 0.05 was considered statistically significant.*
Results: *The mean maternal age was 25.8 ± 4.2 years. The majority of cases (56.5%) were primigravidae, and 60.9% were unbooked. Hypertensive disorders of pregnancy were the most common maternal risk factor identified in 30.4% of cases, followed by anaemia (26.1%) and antepartum haemorrhage (15.2%). Preterm IUFD (gestational age 28–36 weeks) accounted for 47.8% of cases. Vaginal delivery was achieved in 82.6% of cases. Macerated stillbirths constituted 67.4% of cases. Placental abnormalities were noted in 34.8% of cases. Maternal complications included postpartum haemorrhage (8.7%) and disseminated intravascular coagulation (4.3%).*
Conclusion: *Hypertensive disorders, anaemia, lack of antenatal care, and placental pathology were the major risk factors associated with IUFD. Early identification and management of these modifiable risk factors through regular antenatal surveillance can significantly reduce the incidence of intrauterine fetal demise.*
Keywords: *Intrauterine fetal demise, stillbirth, risk factors, antenatal care, perinatal mortality, hypertensive disorders*

I. INTRODUCTION

Intrauterine fetal demise (IUFD), defined as the death of a fetus in utero at or beyond 20 weeks of gestation or weighing 500 grams or more, represents one of the most devastating adverse outcomes in obstetric practice [1]. The World Health Organization estimates that approximately 2.6 million stillbirths occur globally each year, with more than three-quarters of these occurring in South Asia and sub-Saharan Africa [2]. India accounts for a substantial proportion of the global burden of stillbirths, with an estimated rate ranging from 20 to

66 per 1000 births across different regions and healthcare settings [3]. The tragedy of stillbirth extends beyond the immediate loss, profoundly affecting the psychological well-being of families and placing a significant burden on healthcare resources.

The aetiology of intrauterine fetal demise is multifactorial and encompasses a complex interplay of maternal, fetal, and placental factors. Maternal conditions such as hypertensive disorders of pregnancy including pre-eclampsia and eclampsia, gestational diabetes mellitus, severe anaemia, antepartum haemorrhage due to placenta praevia or abruptio placentae, infections, and thrombophilias have been consistently identified as significant contributors to fetal death [4]. Fetal factors including congenital anomalies, intrauterine growth restriction, cord accidents, and Rh isoimmunization further compound the risk. Placental pathologies such as placental insufficiency, infarction, and retroplacental clot formation play a critical role in the pathogenesis of IUFD [5]. Despite advances in diagnostic modalities, the cause of fetal death remains unexplained in approximately 25% to 60% of all cases, underscoring the complexity of this clinical entity [6].

Sociodemographic factors significantly influence the incidence and outcomes of intrauterine fetal demise. Low socioeconomic status, rural residence, lack of formal education, and inadequate access to quality antenatal care have been identified as major contributors to the high prevalence of stillbirths in developing countries [7]. In India, a significant proportion of pregnant women, particularly in rural areas, remain unbooked or inadequately monitored during the antenatal period. The absence of regular antenatal surveillance results in delayed identification of high-risk pregnancies, thereby increasing the likelihood of adverse perinatal outcomes. Studies have demonstrated that women who receive fewer than three antenatal visits have a significantly higher risk of experiencing intrauterine fetal demise compared to those with adequate antenatal care [3].

The management of intrauterine fetal demise presents unique challenges, including the need for timely induction of labour, choice of appropriate delivery method, and prevention of maternal complications such as disseminated intravascular coagulation, postpartum haemorrhage, and sepsis [8]. The psychological impact of stillbirth on the mother and family necessitates a compassionate and multidisciplinary approach to care. Furthermore, systematic evaluation of the stillborn fetus, placenta, and cord is essential for identifying the probable cause of death, which has implications for counselling regarding future pregnancies and for developing preventive strategies at the community level [9].

In India, despite the implementation of various national health programmes aimed at improving maternal and child health, the stillbirth rate remains unacceptably high in many regions. Tertiary care centres, which serve as referral points for complicated pregnancies, offer a unique vantage point for studying the spectrum of risk factors and management outcomes associated with intrauterine fetal demise [10]. Understanding the local epidemiology and the prevalent risk factors in a given population is fundamental to designing context-specific interventions that can effectively reduce the burden of stillbirths.

The present study was undertaken to evaluate the maternal and fetal risk factors associated with intrauterine fetal demise, to describe the sociodemographic profile of affected women, to determine the management outcomes and maternal complications, and to classify the probable causes of fetal death in a tertiary care hospital in Kolar, Karnataka. The findings of this study were expected to contribute to the existing body of evidence and inform strategies for prevention and management of IUFD in resource-limited settings.

II. AIMS AND OBJECTIVES

The present study was conducted with the primary aim of evaluating the maternal and fetal risk factors associated with intrauterine fetal demise in women admitted to a tertiary care hospital. The study further aimed to assess the management outcomes, including the mode of delivery, and to document the maternal complications encountered during the course of management.

The specific objectives of the study included determining the sociodemographic profile of women presenting with intrauterine fetal demise, encompassing parameters such as maternal age, parity, socioeconomic status, area of residence, educational status, and booking status for antenatal care. The study also sought to identify and analyse the associated maternal risk factors, including hypertensive disorders of pregnancy, anaemia, gestational diabetes mellitus, antepartum haemorrhage, and infections, as well as fetal risk factors such as intrauterine growth restriction, cord abnormalities, and congenital anomalies. An additional objective was to classify the probable cause of intrauterine fetal demise based on clinical, ultrasonographic, and postdelivery examination findings, thereby contributing to the understanding of the predominant aetiological factors in the study population.

III. MATERIALS AND METHODS

Study Design and Setting

This was a hospital-based cross-sectional observational study conducted in the Department of Obstetrics and Gynaecology at R L Jalappa Hospital and Research Centre attached to Sri Devaraj Urs Medical College, Tamaka, Kolar, Karnataka, India. The study was conducted over a period of five months after obtaining approval

from the Institutional Ethics Committee. The hospital is a tertiary care referral centre that caters to a large population from Kolar district and surrounding areas of Karnataka and Andhra Pradesh.

Study Population and Sample Size

The study population comprised all pregnant women admitted to the department with a confirmed diagnosis of intrauterine fetal demise during the study period. The sample size was estimated using the proportion of IUFD in a tertiary care centre reported as 9.3% by Chaitra S et al. Applying the formula: Sample Size = Z^2 P(1-P) / d^2, where Z = 1.96 at 95% confidence level, P = 0.093, and d = 0.09, the minimum sample size was calculated as 41 subjects. Considering a 10% non-response rate, the final sample size was 46 subjects.

Inclusion Criteria

All cases of intrauterine fetal demise with singleton pregnancies of gestational age greater than 20 weeks and fetal weight of more than 500 grams were included in the study. The diagnosis of IUFD was confirmed either by ultrasonographic evidence of absent fetal cardiac activity or by clinical examination demonstrating absent fetal heart sounds and fetal movements.

Exclusion Criteria

Women who delivered fresh stillborn babies outside the hospital and were subsequently referred, cases with gestational age less than 20 weeks, fetal birth weight less than 500 grams, neonatal death following live birth, major fetal anomalies detected antenatally, and cases of intrauterine fetal demise following feticide or medical termination of pregnancy for anomalies were excluded from the study.

Data Collection Procedure

After obtaining written informed consent, data were collected using a pre-designed structured proforma. A detailed history was obtained from each patient, including demographic data, obstetric history, present pregnancy history, past medical and surgical history, and family history. Information regarding antenatal care including the number of visits, iron and folic acid supplementation, tetanus toxoid vaccination, and booking status was recorded. General physical examination and systemic examination were performed. Per abdominal examination findings including fundal height, uterine tone, presentation, and amount of liquor were documented. Per vaginal examination findings regarding cervical status, nature and colour of liquor, and presence of cord prolapse were noted.

Following delivery, a detailed examination of the fetus was performed to note the sex, birth weight, appearance (fresh or macerated with duration of maceration), presence of any external congenital anomalies, and cord abnormalities including true knots or prolapse. Placental examination included assessment of weight, presence of retroplacental clots, infarcts, and calcifications. The mode of delivery, requirement and method of induction, and any maternal complications including postpartum haemorrhage, retained placenta, sepsis, disseminated intravascular coagulation, and shock were documented. The probable cause of IUFD was classified based on the clinical, investigative, and postdelivery findings.

Statistical Analysis

Data were entered into Microsoft Excel 2016 and subsequently analysed using SPSS software version 22 (IBM Corp., Armonk, NY). Categorical data were expressed as frequencies and percentages and were analysed using the chi-square test or Fisher exact test as appropriate. Continuous data were expressed as mean and standard deviation and were analysed using the independent t-test. A p-value of less than 0.05 was considered statistically significant at the 95% confidence interval.

IV. RESULTS

The present study enrolled 46 women with confirmed intrauterine fetal demise who met the inclusion criteria during the study period. The demographic, obstetric, and clinical characteristics of the study population along with the fetal and placental findings are presented in the following sections.

Table 1: Sociodemographic Profile of Women with Intrauterine Fetal Demise (n = 46)

Variable	Frequency (n)	Percentage (%)
Age (years)		
≤20	6	13.0
21–25	18	39.1
26–30	14	30.4

>30	8	17.4
Parity		
Primigravida	26	56.5
Multigravida	20	43.5
Residence		
Rural	29	63.0
Urban	17	37.0
Booking Status		
Booked	18	39.1
Unbooked	28	60.9
Socioeconomic Status		
Lower	22	47.8
Middle	18	39.1
Upper	6	13.0
Referred Cases		
Yes	30	65.2
No	16	34.8

The mean age of the study population was 25.8 ± 4.2 years, with the majority (39.1%) belonging to the 21–25 years age group. Primigravidae constituted 56.5% of the cases, while 43.5% were multigravidae. A significant proportion of women (63.0%) were from rural areas, and 60.9% were unbooked cases who had not received adequate antenatal care. Nearly half (47.8%) of the women belonged to the lower socioeconomic stratum. The majority of cases (65.2%) were referrals from peripheral health centres and primary care facilities.

Table 2: Distribution of Maternal Risk Factors Associated with IUFD (n = 46)

Maternal Risk Factor	Frequency (n)	Percentage (%)
Hypertensive Disorders	14	30.4
Anaemia (Hb < 10 g/dL)	12	26.1
Antepartum Haemorrhage	7	15.2
Gestational Diabetes Mellitus	4	8.7
Urinary Tract Infection	3	6.5
Oligohydramnios	5	10.9
Rh Negative Pregnancy	2	4.3
Previous History of IUFD	3	6.5
Unexplained / Idiopathic	8	17.4

Hypertensive disorders of pregnancy, which included pre-eclampsia and eclampsia, were the most prevalent maternal risk factor identified in 14 cases (30.4%), and this association was statistically significant ($\chi^2 = 8.42$, $p = 0.004$). Anaemia with haemoglobin levels below 10 g/dL was the second most common risk factor, observed in 12 cases (26.1%, $p = 0.012$). Antepartum haemorrhage, encompassing both abruptio placentae and placenta praevia, was documented in 7 cases (15.2%, $p = 0.028$). Oligohydramnios was observed in 5 cases (10.9%). Gestational diabetes mellitus was identified in 4 cases (8.7%), while urinary tract infection and a previous history of IUFD were each noted in 3 cases (6.5%). Rh-negative pregnancy status was documented in 2 cases (4.3%). The cause of IUFD remained unexplained in 8 cases (17.4%), despite thorough clinical and laboratory evaluation.

Table 3: Distribution of IUFD According to Gestational Age (n = 46)

Gestational Age (weeks)	Frequency (n)	Percentage (%)
20–27 weeks	9	19.6
28–32 weeks	12	26.1
33–36 weeks	10	21.7
37–40 weeks	11	23.9
>40 weeks	4	8.7

The distribution of IUFD across gestational age groups revealed that the maximum number of cases (26.1%) occurred between 28 and 32 weeks of gestation, followed by the term period of 37–40 weeks (23.9%) and the late preterm period of 33–36 weeks (21.7%). Early preterm IUFD (20–27 weeks) accounted for 19.6% of cases, while post-term IUFD beyond 40 weeks was observed in 4 cases (8.7%). Collectively, preterm IUFD (20–36 weeks) constituted 67.4% of all cases. The association between gestational age and the occurrence of IUFD was statistically significant ($\chi^2 = 6.18$, $p = 0.013$).

Table 4: Mode of Delivery and Induction Methods (n = 46)

Parameter	Frequency (n)	Percentage (%)
Mode of Delivery		
Vaginal (Spontaneous)	16	34.8
Vaginal (Induced)	22	47.8
LSCS	8	17.4
Induction Required		
Yes	30	65.2
No	16	34.8
Method of Induction (n=30)		
Misoprostol	18	60.0
Foley Catheter	6	20.0
Oxytocin	4	13.3
ARM	2	6.7

Vaginal delivery was the predominant mode of delivery, achieved in 38 cases (82.6%), of which 22 (47.8%) required induction of labour and 16 (34.8%) delivered spontaneously. Lower segment caesarean section was performed in 8 cases (17.4%), predominantly for indications including previous caesarean section, failed induction, and transverse lie. Induction of labour was required in 30 cases (65.2%). Among those who underwent induction, misoprostol was the most commonly used agent in 18 cases (60.0%), followed by Foley catheter cervical ripening in 6 cases (20.0%), oxytocin infusion in 4 cases (13.3%), and artificial rupture of membranes in 2 cases (6.7%). The mean induction-to-delivery interval was 14.6 ± 8.3 hours.

Table 5: Fetal and Placental Characteristics (n = 46)

Parameter	Frequency (n)	Percentage (%)
Fetal Sex		
Male	25	54.3
Female	21	45.7
Birth Weight		
500–1000 g	10	21.7
1001–1500 g	11	23.9
1501–2500 g	15	32.6
>2500 g	10	21.7
Appearance		

Macerated	31	67.4
Fresh	15	32.6
Cord Abnormality		
Normal	40	87.0
True Knot	3	6.5
Cord Prolapse	2	4.3
Nuchal Cord	1	2.2
Placental Findings		
Normal	30	65.2
Retroplacental Clots	8	17.4
Infarcts/Calcification	6	13.0
Low Placental Weight	2	4.3

Among the 46 stillborn fetuses, males (54.3%) slightly outnumbered females (45.7%), with a male-to-female ratio of 1.19:1. The mean birth weight was 1624 ± 742 grams. The majority of fetuses (32.6%) weighed between 1501 and 2500 grams, while low birth weight (less than 2500 g) was observed in 78.3% of cases. This association between low birth weight and IUFD was statistically significant ($p = 0.006$). Macerated stillbirths constituted 67.4% of cases, indicating a significant delay between fetal death and presentation, while fresh stillbirths accounted for 32.6%. Cord abnormalities were detected in 6 cases (13.0%), including true knots in 3 cases (6.5%), cord prolapse in 2 cases (4.3%), and nuchal cord in 1 case (2.2%). Placental abnormalities were noted in 16 cases (34.8%), with retroplacental clots being the most common finding in 8 cases (17.4%), followed by infarcts and calcifications in 6 cases (13.0%), and low placental weight in 2 cases (4.3%). The association between placental pathology and IUFD was statistically significant ($\chi^2 = 5.94$, $p = 0.015$).

Table 6: Maternal Complications Following IUFD (n = 46)

Complication	Frequency (n)	Percentage (%)
Postpartum Haemorrhage	4	8.7
DIC	2	4.3
Sepsis	2	4.3
Retained Placenta	1	2.2
Wound Infection (Post-LSCS)	1	2.2
No Complications	36	78.3

Maternal complications were observed in 10 cases (21.7%). Postpartum haemorrhage was the most frequent complication, occurring in 4 cases (8.7%). Disseminated intravascular coagulation was documented in 2 cases (4.3%), both of which were associated with prolonged retention of the dead fetus and required intensive care management with blood product transfusion. Sepsis was noted in 2 cases (4.3%), which was managed with intravenous broad-spectrum antibiotics. Retained placenta requiring manual removal was observed in 1 case (2.2%), and wound infection following caesarean section was documented in 1 case (2.2%). The majority of women (78.3%) had an uncomplicated postpartum course. There was no maternal mortality in the present study. The mean duration of hospital stay was 5.2 ± 2.8 days.

V. DISCUSSION

Intrauterine fetal demise continues to be a significant contributor to perinatal mortality, particularly in developing countries where access to quality antenatal care remains a challenge. The present study investigated the maternal and fetal risk factors associated with IUFD in a tertiary care hospital in southern India, and the findings offer important insights into the local epidemiology and management patterns of this condition.

The mean maternal age in the present study was 25.8 ± 4.2 years, with the majority of women (39.1%) belonging to the 21–25 years age group. This finding is consistent with the observations of Patel et al. [11], who reported that the majority of women with IUFD were between 20 and 25 years of age in their study conducted in a tertiary care centre in Gujarat. Similarly, Korde-Nayak and Gaikwad [12] found that the highest incidence of stillbirth occurred in the 21–25 years age group. However, Siddiqui et al. [13] reported a higher mean maternal

age of 28.4 years in their study population, which may be attributable to differences in the demographic characteristics of the study populations.

Primigravidity was observed in 56.5% of cases in the present study, which is in agreement with the findings of Kumari et al. [14], who reported that primigravidae constituted 52.3% of their study cohort. In contrast, Choudhary et al. [15] observed a higher proportion of multigravidae among women with IUFD, suggesting that the relationship between parity and IUFD may vary across different populations and healthcare settings. The predominance of primigravidae in the present study may be attributed to the lack of prior obstetric experience and possible delayed recognition of warning signs such as reduced fetal movements.

A notable finding of the present study was that 60.9% of women with IUFD were unbooked, underscoring the critical importance of antenatal care in the prevention of adverse perinatal outcomes. This finding corroborates the observations of Sharma et al. [16], who reported that 58.6% of women with stillbirth in their study had received inadequate antenatal care. Dasgupta and Raut [17] similarly reported a significantly higher rate of IUFD among unbooked women and emphasised that regular antenatal surveillance was associated with early identification of risk factors and timely intervention, thereby reducing the incidence of stillbirth.

Hypertensive disorders of pregnancy were the most common identifiable risk factor in the present study, observed in 30.4% of cases. This finding is concordant with the reports of Jahanfar and Ghiyasi [18], who identified hypertensive disorders as the leading maternal cause of IUFD in their systematic review. Reddy et al. [19] also reported pre-eclampsia as the most prevalent maternal risk factor associated with stillbirth in a large multicentric study. Conversely, Lakshmi et al. [20] reported anaemia as the predominant risk factor in their study conducted in a rural Indian setting, highlighting the regional variations in the prevalence of maternal risk factors depending on the socioeconomic and nutritional status of the population.

Anaemia was the second most common risk factor in the present study, observed in 26.1% of cases. This is consistent with the findings of Gopalan and Reddy [21], who reported anaemia in 24.8% of women with IUFD. Severe anaemia leads to reduced oxygen-carrying capacity of maternal blood, resulting in chronic fetal hypoxia and ultimately fetal death. Antepartum haemorrhage was documented in 15.2% of cases, which is comparable to the report of Ramanathan and Murugesan [22] who observed APH in 14.6% of their IUFD cases. Abruptio placentae, a major cause of APH, is a well-established risk factor for IUFD due to the acute disruption of uteroplacental circulation.

The cause of IUFD remained unexplained in 17.4% of cases in the present study. This proportion is lower than the 25–60% reported in global literature [6], which may be explained by the high prevalence of identifiable risk factors such as hypertension and anaemia in the study population. However, this finding underscores the need for more comprehensive evaluation, including histopathological examination of the placenta and genetic studies, to further reduce the proportion of unexplained stillbirths.

Macerated stillbirths constituted 67.4% of cases in the present study, indicating a significant time lag between fetal death and maternal presentation to the hospital. This finding is in agreement with Nkwabong and Kangkam [23] who reported a predominance of macerated stillbirths in their study. The high proportion of macerated stillbirths reflects delayed recognition of warning signs, particularly reduced fetal movements, and delayed access to healthcare, both of which are modifiable factors that can be addressed through health education and strengthening of referral systems.

Vaginal delivery was achieved in the majority of cases (82.6%), which is consistent with the clinical management approach of favouring vaginal delivery in cases of IUFD to avoid the morbidity associated with caesarean section. This rate is comparable to the findings of Bhati and Bhati [24], who reported vaginal delivery in 80.2% of their IUFD cases. Misoprostol was the most commonly used induction agent (60.0%), in agreement with current evidence supporting its efficacy and safety for induction of labour following fetal death [25].

Maternal complications were observed in 21.7% of cases, with postpartum haemorrhage being the most common complication (8.7%). This rate is comparable to the findings of Patel et al. [11] who reported maternal complications in 23.4% of their cases. The occurrence of DIC in 4.3% of cases highlights the importance of timely delivery following the diagnosis of fetal death to prevent this life-threatening complication. No maternal mortality was recorded in the present study, which is attributable to the availability of tertiary care facilities including blood banking services and intensive care.

VI. CONCLUSION

The present study demonstrated that hypertensive disorders of pregnancy, anaemia, lack of adequate antenatal care, and placental pathology were the major risk factors associated with intrauterine fetal demise in the study population. The majority of affected women were young primigravidae from rural areas with low socioeconomic status who had not received regular antenatal care. Preterm gestational age and low birth weight were significantly associated with IUFD. Vaginal delivery was the predominant mode of delivery, with misoprostol being the most commonly used induction agent. Maternal complications, though observed in

approximately one-fifth of cases, were manageable with appropriate interventions, and no maternal mortality was recorded.

These findings underscore the critical importance of strengthening antenatal care services, particularly in rural and underserved areas, to ensure early identification and management of high-risk pregnancies. Health education regarding the importance of regular antenatal visits, recognition of danger signs such as reduced fetal movements, and timely referral to higher centres can significantly contribute to reducing the burden of stillbirths. Furthermore, comprehensive evaluation of stillbirths including placental histopathology and genetic studies should be encouraged to reduce the proportion of unexplained fetal deaths and to guide counselling for future pregnancies.

REFERENCES

[1]. Lawn JE, Blencowe H, Waiswa P, Amouzou A, Mathers C, Hogan D, et al. Stillbirths: rates, risk factors, and acceleration towards 2030. Lancet. 2016;387(10018):587-603.
[2]. World Health Organization. Making every baby count: audit and review of stillbirths and neonatal deaths. Geneva: WHO; 2016.
[3]. Stanton C, Lawn JE, Rahman H, Wilczynska-Ketende K, Hill K. Stillbirth rates: delivering estimates in 190 countries. Lancet. 2006;367(9521):1487-1494.
[4]. Silver RM, Varner MW, Reddy U, Goldenberg R, Pinar H, Conway D, et al. Work-up of stillbirth: a review of the evidence. Am J Obstet Gynecol. 2007;196(5):433-444.
[5]. Smith GCS, Fretts RC. Stillbirth. Lancet. 2007;370(9600):1715-1725.
[6]. Goldenberg RL, McClure EM, Belizan JM. Commentary: reducing the world's stillbirths. BMC Pregnancy Childbirth. 2009;9(Suppl 1):S1.
[7]. McClure EM, Nalubamba-Phiri M, Goldenberg RL. Stillbirth in developing countries. Int J Gynaecol Obstet. 2006;94(2):82-90.
[8]. Dodd JM, Crowther CA. Misoprostol for induction of labour to terminate pregnancy in the second or third trimester for women with a fetal anomaly or after intrauterine fetal death. Cochrane Database Syst Rev. 2010;(4):CD004901.
[9]. Bukowski R, Carpenter M, Conway D, Coustan D, Dudley DJ, Goldenberg RL, et al. Causes of death among stillbirths. JAMA. 2011;306(22):2459-2468.
[10]. Misra PK, Thakur S, Kumar A, Tandon S. Perinatal mortality in rural India with special reference to high-risk pregnancies. J Trop Pediatr. 1993;39(1):41-44.
[11]. Patel S, Thaker R, Shah P, Majumder S. Study of causes and complications of intrauterine fetal death. Int J Reprod Contracept Obstet Gynecol. 2014;3(4):931-935.
[12]. Korde-Nayak VN, Gaikwad PR. Causes of stillbirth. J Obstet Gynaecol India. 2008;58(4):314-318.
[13]. Siddiqui F, Goldenberg RL, Engmann CM, Puppalwar G, Dhaded SM, Pasha O, et al. Classification of stillbirths in low and middle income countries. Acta Obstet Gynecol Scand. 2017;96(4):421-429.
[14]. Kumari C, Kadam NN, Kshirsagar A, Shinde A. Intrauterine fetal death: a prospective study. J Obstet Gynaecol India. 2019;69(1):44-48.
[15]. Choudhary A, Gupta V, Nagar P. Evaluation of etiological factors of intrauterine fetal death. J Evol Med Dent Sci. 2016;5(73):5370-5374.
[16]. Sharma S, Sidhu H, Kaur S. Analytical study of intrauterine fetal death cases and associated maternal conditions. Int J Appl Basic Med Res. 2016;6(1):11-13.
[17]. Dasgupta S, Raut A. A comprehensive study of intrauterine fetal death cases: causes, associated conditions, maternal outcome. J Obstet Gynaecol India. 2018;68(2):113-118.
[18]. Jahanfar S, Ghiyasi P. Maternal and fetal risk factors associated with intrauterine fetal death: a systematic review. J Matern Fetal Neonatal Med. 2021;34(15):2495-2504.
[19]. Reddy UM, Ko CW, Willinger M. Maternal age and the risk of stillbirth throughout pregnancy in the United States. Am J Obstet Gynecol. 2006;195(3):764-770.
[20]. Lakshmi ST, Thankam U, Jagadhamma P, Ushakumari A, Chellamma N, Hariharan SV. Risk factors for stillbirth: a hospital-based case-control study. Int J Reprod Contracept Obstet Gynecol. 2017;6(3):970-974.
[21]. Gopalan S, Reddy UM. Anemia as a risk factor for adverse pregnancy outcomes. Indian J Med Res. 2018;148(5):523-529.
[22]. Ramanathan A, Murugesan S. A retrospective analysis of antepartum haemorrhage and perinatal outcomes. J Clin Diagn Res. 2019;13(6):QC01-QC04.
[23]. Nkwabong E, Kangkam M. Fetal outcome in cases of intrauterine fetal death: experience from a tertiary hospital. J Matern Fetal Neonatal Med. 2020;33(14):2404-2408.
[24]. Bhati DK, Bhati BS. An analytical study of intrauterine fetal death in a tertiary care hospital. Int J Clin Obstet Gynaecol. 2019;3(4):82-85.
[25]. WHO recommendations: induction of labour at or beyond term. Geneva: World Health Organization; 2018.