

## Analytical Study of Intrauterine Fetal Death Cases and Associated Maternal Conditions in Northeast of Libya.

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**Abstract:** Intrauterine fetal death (IUFD) is a heart-breaking and tragic event. Stillbirth remains an enormous challenge in the care of pregnant women, especially in developing countries. To determine maternal causes and risk factors associated with stillbirth, this was a descriptive retrospective study performed in El-Beida teaching government hospital over a period of seventeen months. Socio-demographic characteristics and clinical parameters were recorded. Through this study, overall 5372 deliveries were recorded, out of them were 221 cases of stillbirth. The age group of mothers were at ranges 26-30, 31-35 and 36-40 representing 26.7%, 20.8% and 20.4% respectively. Majority cases of intrauterine fetal death were diagnosed among 36-40, 31-35 and 25-30 weeks in range 29%, 26.2% and 20.8% respectively. More than a half of stillbirth cases 137 (62%) weighed less than 2500mg. Multiple pregnancy was a significant associated stillbirth and represented (18.1%), pre-eclampsia 17.2%, severe anemia present (13.6%), and abruptio placenta (12.2%). Gestational diabetes and maternal infection (UTI) were found and accounted for 9% and 7.7% respectively. Unexplained cases were 8.6%. Maximum numbers of cases were unbooked ANC (70.6%). In conclusion, the majority of IUFD was associated with different cause's risk factors like pre-eclampsia, abruptio placenta, severe anemia, gestational diabetes, multiple pregnancy, and maternal infection. All these factors can be avoided with booking and offering appropriate antenatal care through preconception and conception periods with health counseling to save a life of babies and help researchers and health care providers to set strategies to prevent other intrauterine fetal deaths.

**Keywords:** Intra uterine fetal death (IUFD), Stillbirths, El-Beida and Libya.

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### I. Introduction

Intrauterine fetal death (IUFD) is a heart-breaking and tragic event [1]. Stillbirths remain an enormous challenge in the care of pregnant women, especially in developing countries [2]. The phenomenon of stillbirth is often about suddenness, not only from the concept of the passing of time but also from a viewpoint of experiential felt unexpectedness. Suddenly the fetal heart is not there; suddenly the baby is born with any response [3]. The occurrence of IUFD or stillbirths can constitute a nightmare for parents and the attending clinician. It is even more agonising, with a feeling of defeat to the clinician, if it occurs unexpectedly and the cause cannot be explained. In the developing countries the bulk of intrauterine deaths are intrapartum and are attributed commonly to avoidable factors [4, 5]. In contrast, stillbirths in developed countries are largely antepartum with no apparent cause [6, 7]. The definition recommended by WHO for international comparison is a baby born with no signs of life at or after 28 weeks' gestation [8].

In UK, stillbirths are those babies born dead after 24 weeks of gestation. In other countries, such as Australia, Canada, Finland, New Zealand, Iceland and many states in the USA, fetal death occurring after 20 weeks of gestation is termed as stillbirth [9]. The estimated global still birth rate worldwide was 18.4 per 1000 total births in 2015 [10]. Over 3.3 million stillbirths and more than 3 million early neonatal deaths occur every year. A vast majority (98%) takes place in developing countries where stillbirths represent over half of the perinatal deaths [11]. Complications during pregnancy and childbirth are known to be closely associated with high stillbirth and perinatal mortality rate [12].

Most intrapartum stillbirths are associated with obstetric emergencies, whereas antepartum stillbirths are associated with maternal diseases and infections [13]. They include pre-eclampsia, intrauterine growth restriction, abruptio placentae, infections, umbilical cord complications, and environmental hazards. Maternal smoking, advanced maternal age, high parity, obesity, and obstructed labor are also widely recognized risk factors for stillbirth [11, 14]. Another study reported that lack of prenatal care, inaccessible or limited health care facility is the major factor responsible for high peri-natal deaths in developing countries as Asia and sub-Saharan Africa [15].

The stillbirth is a big problem, and it has happened to various causes and some of the risk factors that contributed to stillbirth exist. Although, determination of causes and factors of stillbirth is difficult. However, many studies have been reported the causes and risk factors of stillbirth. The aim of the present study to indicate the incidence of stillbirth and determine their associated sociodemographic and maternal, placental causes and obstetric causes and risk factors in El-Beida teaching government hospital, there has not been research on intrauterine fetal death to determine causes and risk factors at the hospital. As a consequence, this study makes it possible to know the extent of the stillbirth problem and moreover serves as a baseline for future studies on intrauterine fetal death in this hospital and give some recommendations for partners and health care providers.

## II. Methodology

This study was carried out in El-Beida teaching government hospital that are located in Northeast of Libya. The descriptive retrospective was performed, the data retrieved from statistics files from January 2016-May 2017. The data were obtained and collected from statistic department for all mothers delivered in labour room to investigate the incidence of stillbirth in this hospital and to determine maternal causes and risk factors associated with stillbirth. A total of cases of stillbirth over a period of one year and five months were found as 221 cases. Socio-demographic characters and clinical parameters were noted including maternal age, parity, gestational age, mode of delivery, birth weight, place of residence, and booking status including obstetric complication, maternal, and placental risk factors were recorded.

## III. Results

In this study the data of stillbirth were obtained from the department of statistic in hospital. There were 5372 deliveries within this study out of which 221 cases of stillbirth in seventeen months. Table (1) was illustrated sociodemographic factors. In term of Ages, maximum of cases of IUFD 26.7%, 20.8% and 20.4% belonged to age group 26-30, 31-35 and 36-40 respectively. Approximately (33%) of women were multigravida and primigravida in the range 17.6%. Majority cases of IUFD were diagnosed among 36-40, 31-35 and 25-30 weeks in range 29%, 26.2% and 20.8% respectively. More than a half of stillbirth cases 137 (62%) weighted < 2500mg, while 84 (38%) had weight ≥ 2500mg. The majority of women, 83.7% had a normal vaginal delivery, while 11.3% and 5% were emergency and elective caesarean section respectively. Maximum numbers of the cases were unbooked (70.6%) and about 29.4% were booked and had regular antenatal care. Majority of women with stillbirth in current study were from rural areas and they represent 73.3%, while only 26.7% were from urban area.

The Table (2) was demonstrated causes and risk factors of stillbirth. Where result revealed that multiple pregnancy remained significant associate factor with stillbirth and represent (18.1%). Out of various causes and factors pre-eclampsia 17.2%, followed by severe anemia which represent accounted (13.6%), and abruption placenta (12.2%). Gestational diabetes and maternal infection (urinary tract infection) was found accounted 9% and 7.7% respectively. Placenta previa were found in 2.7% cases, maternal fever 2.2% cases and cardiac disease was 1.8%. Other factors were associated with stillbirth as placenta previa (2.7%), and maternal fever (2.3%). There were cases of rupture of the uterus and one case were road traffic accidents. The study demonstrated that 8.6% of cases was unexplained causes.

**Table (1): Sociodemographic factor**

PARAMETERS	NUMBER	PERCENTAGE(%)	
Maternal age	16-20	15	5.9%
	21-25	35	15.8%
	26-30	59	26.7%
	31-35	46	20.8%
	36-40	45	20.4%
	41-45	21	9.5%
Parity	≥ 46	2	0.9%
	G1	39	17.6%
	G2	37	16.8%
	G3	34	15.4%
	G4	38	17.2%
	≥G5	73	33%
Gestational age (In week)	20-24	40	18.1%
	25-30	46	20.8%
	31-35	58	26.2%
	36-40	64	29%
	> 40	13	5.9%
Birth weight	< 2500mg	137	62%
	≥ 2500mg	84	38%
Mode of delivery	NVD	185	83.7%
	C/S elective	11	5%
	C/S emergency	25	11.3%

Place of resident	Urban	59	26.7%
	Rural	162	73.3%
Booking status	Booking	65	29.4%
	Un booking	156	70.6%

**Table (2):** key clinical causes and risk factors

KEY CAUSES FACTORS	NUMBER	PERCENTAGE(%)	
Maternal	Multiple pregnancy	40	18.1%
	Gestational diabetes	20	9%
Maternal	Severe anemia	30	13.6%
	Pre-eclampsia	38	17.2%
Maternal	Infection(UTI)	17	7.7%
	Cardiac disease	4	1.8%
Maternal	Maternal fever	5	2.3%
	Placental	Placenta previa	6
Placental	Abruption placenta	27	12.2%
	Obstetric complication	Rupture uterus	2
Obstetric labour		2	0.9%
Prolonged labour		10	4.5%
Others	Road Traffic accident	1	0.5%
Unexplained	No risk factor	19	8.6%

#### IV. Discussion

Table 1 illustrated incidence of IUFD. For the duration of the study period there were 5372 deliveries in our hospital out of 221 cases of IUFD 41.1%. Based on our finding the majority of delivered have been occurring after 20 weeks, where gestational age of stillbirths in our study were 25-30, 31-35 and 36-40 with percentages as 20.8%, 26.2% and 29% respectively. These findings are nearly similar to the result of a study in General Hospital, Ahmedabad in India that is 22.5% at 20-24 weeks of gestational age [8]. Estimate our result had ranged between the definitions recommended by the World Health Organization: baby born with no cardiac pulsation at or after 28 weeks of gestational age [8, 11]. Moreover, the other definition was recommended by various states of the USA, Australia, Canada, New Zealand: stillbirth occurring after twentieth weeks of gestation [9].

Multiple pregnancy in women affects the outcome of pregnancy. In our result, the rate of IUFD was higher in multigravida 40 (18%). Another study by [16] found that the association between IUFD and multigravida was 51.6%. Also in our result, there is approximately 17.6% belonging to (G1) primigravida followed by multiple gravida in Table (2). In our result, the maximum of stillbirth 26.7% occurred in the age between 26-30 years, 31-35 years and 36-40 years were represented with 20.8% and 20.4% respectively. This established association between stillbirth rate and maternal age, which was in accordance with another study by [17]. Moreover, another study found no significant increase in the risk of IUFD with mothers' ages [18].

Prematurity is another risk factor that contributes to IUFD. Our result found that the maximum of stillbirth were prematurity 105 (47.5%) which were between 26-30 and 31-35 weeks of gestational age and these observations similar to another study reported that 57.8% of stillbirth who were prematurity [19].

In current study, 83.7% cases were delivered by the normal vaginal (NVD) and not mentioned required instrument delivery as forceps delivery and ventouse. Similar to another study reported that the normal vaginal delivery occurred in 73.1% and 89.4% respectively [19]. This suggests to increase rates in IUFD that are delivered by normal vaginal delivery with minimal aids or untrained or low experienced midwife or lack facilities in hospital.

A very few cases indicated hysterectomy with 1.8% and the cases indicated for surgical intervention required in 5% elective caesarean section and emergency caesarean section 11.3% were preeclampsia and it is

complication as abruption placenta or obstetric complication as rupture of uterus. There is another similar study reported that indication for hysterectomy and cesarean were 5% and 8.7% respectively, with induction of labor failure and accidental haemorrhage (abruption placenta) and hysterectomy was done previous caesarean section[8].

In this study, pre – eclampsia and its complications accounted for the largest cause of stillbirth of 17.2%, which is consistent with another study accounted 17% [20] and 19% [21]. In our study, severe anemia (13.6%) was the second highest frequency of preeclampsia and its complications as a cause of stillbirth. This may be the highest incidence of severe anemia due to poor compliance with folic acid oral iron therapy. This is consistent with another study that reveals that anemia associated with stillbirth and represents 11.2% [8]. Another study, represented 16% stillbirth due to anemia but it could be prevented by adequate prenatal care and supplementation with folic acid and iron are recommended[22]

In our study, diabetes mellitus, urinary tract infection, maternal fever, and cardiac disease contributed 9%, 7.7%, 2.3% and 1.8 to stillbirth respectively. Which was accordance with other study reported that diabetes, maternal infection were causes attributable of increase IUFD[22]. In our study Abruption placenta was observed in 12.2%, another similar study found that abruption placenta accounted 12% [20].

In this current study, incidence of obstetric complications as prolonged labor, rupture of uterus established and were very less 4.5%, 0.9% and 0.9% respectively. There is another study similar which reported that obstructed labor was 1.8%[1]. Even though extensive research and treatment are available, many intrauterine fetal death remains unknown cause[23]. Previous studies also confirmed that despite intensive evaluations, intrauterine fetal death of uncertain causes representing 25 to 60% of the total number of events, at a rate of 2.8 / 1000 births[24,25]. Another study referred to the percentage of unexplained of IUFD has remained constant over the years. It was noted in their study that 19.5% of stillbirths belonged to this category [22]. Which was consistent with the result in the present study which found that 19(8.5%) cases without a probable causes. In this study maximum number of stillbirth cases were unbooked patient (70.6%) which consistent with another study result which indicated that unbooked cases accounted for 80.9% [1]. The majority of studies have shown that intrauterine mortality was closely related to low socioeconomic status and unregistered cases. Due to the lack of antenatal care, high-risk pregnancies are still undiagnosed, leading to untimely IUFD. And also neither intake folic acid nor iron therapy are at risk of neural tube defects in the fetus and severe anemia, resulting in fetal death and complications in different mothers. It is a well-established fact that adequate and regular prenatal care is associated with better pregnancy outcomes [8].

## V. Conclusion

The huge majority of IUFD is associated with common causes and risk factors like preeclampsia, hypertension, abruption placenta, severe anemia, gestational diabetes, multiple pregnancy, and maternal infection which increased in presence low socioeconomic status, and lack booked of antenatal care, low resources in rural hospital and lack of mother education regarding to IUFD. Targeting these factors and causes that related to stillbirth is very important issues to diminish intrauterine fetal death rate. Since the health of pregnancy is closely linked to maternal health, strategies to improve the health and well-being of women living in low-resource hospitals should also improve the outcome of pregnancy. However, while it is true that a shortage health system, low afford health care services inaccessible perfect health care providers have negatively affects on pregnant women and their pregnancy in many hospitals not just in this hospital. But this phenomenon can be prevented in our society by reserving and offering appropriate antenatal care through preconception and conception period with health counseling, and encourage pregnant women to visit to detect high –risk pregnancies cases as anemia and PID and their complications and referral to higher center may save a lot of babies and help researchers and health care providers to set strategies to prevent other intrauterine fetal deaths.

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