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ASSOCIATION OF INTRA-UTERINE FETAL DEATH WITH MATERNAL MORBIDITY

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ABSTRACT

OBJECTIVE: To determine the maternal morbidity associated with intrauterine fetal death (IUFD). **STUDY DESIGN:** Cross-sectional study. **STUDY DURATION:** 11 months **MATERIALS AND METHODS:** Mothers having singleton pregnancy with intrauterine death at 28 weeks of gestation or more visiting Fatima Memorial Hospital were included in the study. The main outcome measures were assessed by taking into account the maternal age, parity, gestational age at the time of fetal death, Interval between intrauterine fetal demise and delivery and the mode of delivery. **RESULTS:** 124 patients within trauterine fetal demise were included in the study. Among them 108 patients (87.4%) were delivered by vaginal route and 16 (12.6%) by cesarean section.12 out of 16 patients (75%) who were delivered by cesarean section developed post-operative problems like post-partum hemorrhage, endometritis, urinary tract infection and wound dehisence, while 12% of mothers delivered by vaginal route gotperineal tears, urinary tract infection and puerperal pyrexia. There was no maternal death. **CONCLUSION:** Maternal morbidity like urinary tract infection,

endometritis and perineal tears may occur after vaginal mode of delivery but the frequency and severity of complications after cesarean delivery are quite higher.

Keywords: Intrauterine fetal death (IUFD), Maternal morbidity, Cesarean section (CS) Perineal tear, Endometritis

INTRODUCTION

Intrauterine fetal death is defined as fetal demise at > 24 weeks of gestation **[1, 2]**. Increased gestational age at the time of fetal death decreases intervention-delivery interval. Mode of delivery and pre-existing medical conditions are major risk factors associated with increased maternal morbidity **[1, 4]**. There is 4-6 times more maternal morbidity in emergency cesarean section than vaginal delivery and 2 times greater than elective cases **[3-6]**. Similarly, it is proven by different studies that maternal morbidity is more when in utero dead fetus is delivered by caesarean section. However maternal mortality is rare **[5, 7, 8, 9]**. The purpose of this study was to determine the maternal morbidity associated with vaginal delivery and cesarean section after intra uterine fetal death.

MATERIALS AND METHODS

The duration of this study is from March 2018 to April 2019.This is cross-sectional analytical study which was conducted on women presented in labour ward with IUFD at 28 weeks of gestation or more. IUFD was defined as fetal demise at or> 24 weeks of gestation based on the last menstrual period. Parameters used for analysis included maternal age, parity, gestational age at fetal demise, IUFD-delivery interval, mode of delivery and maternal complications. For data analysis the SPSS version 10 was used. Student t-test was applied for statistical significance. The clinical parameters used for the diagnosis of IUFD were absent fetal movements perceived by mother and failure to listen fetal heart sounds by fetoscope. Ultrasound scan was carried out in all such patients not only to confirm IUFD but also to estimate the fetal weight and localization of placenta. For vaginal delivery. Induction done using Misoprostol (Cytotec) PGE1 with a dose of 50- 200 µg pervaginum depending upon the period of gestation and response of the patient. In some cases, who did not respond to PGE1, PGE2 was used. Cesarean section was performed only for maternal indications like placenta previa, grossly contracted pelvis and good size baby, previous two or more cesarean

sections.

RESULTS

In this study, over the period of almost 12 months 124 mothers with IUFD were delivered. The different maternal parameters like age, gravidity, parity and gestational age at the time of fetal demise were assessed **(Table1)**. It was noticed that in majority of the cases IUFD to delivery interval was unknown **(Table 2)**. Mode of delivery was vaginal in108 patients (87.4%) and 16 patients (12.6%) were delivered by caesarean section **(Table 3)**. Antepartum hemorrhage remained the commonest indication of cesarean section; other indications were previous two caesarean sections, cephalopelvic disproportion and eclampsia **(Table 3)**. The prevalence of maternal morbidity in vaginal route group was 21% and in caesarean section group was 75% (P=0.05). Severity of complications in each group is highlighted in **(Table 4)**. In vaginal delivery group, 6 patients had repair of perineal tear. Urinary tract infection in 2 patients and puerperal pyrexia in 16 patients. Problems were settled down with medical treatment. Caesarean section group had maternal complications i.e. urinary tract infection, endometritis , wound dehiscense and postpartum haemorrhage **(Table 4)** One of the patients with postpartum haemorrhage went into shock and was managed by obstetrical hysterectomy while others became stable by non-surgical measures. All 40 patients (in both groups), who had complications after delivery of dead fetus, had significantly prolonged intervention to delivery interval (P=0.004) as compared to those who had no complication (P=0.001).

The study was carried out to evaluate the maternal morbidity associated with different modes of delivery like caesarean section and vaginal route. In the present study, range of gravidity as well as parity was 1-11 and 1-9 respectively. Majority of women fell in high parity group because these pregnant ladies belonged to such group of population who had high illiteracy rate and poor socioeconomic setup, being resident of rural areas. The maternal demographics of age, gravidity and parity in the present study were almost consistent with other local studies **(Table 1)**.

Table 1: Maternal Demographic Characteristics

Maternal Demographics	Mean + SD*	Range	No of	Percentage	P-value
Maternal age yr.	25.04 ± 6.4	16-41	124		0.420
Gravidity	-	1 -11	-	-	
1			22	17.7 %	
2			16	12.9 %	

3			24	19.3 %	
4-5			32	25.8 %	
6-8			18	14.5 %	
9 – 11			12	9.7 %	
Parity		1 -9	.	.	
1			24	19.4 %	
2			18	14.5 %	
3			20	16.1 %	
4-5			42	33.33 %	
6-8			14	11.5 %	
9			06	4.8 %	
Gestational age at fetal demise (weeks)	34.8 ± 3.4	28-41	-	-	0.06

Table 2: Showing IUFD And Intervention To Delivery Internal

IUFD - Delivery Interval			Intervention -Delivery Interval		
Time interval	No. of cases	Percentage	Mean ± SD	Range	P-value
Unknown	98/124	79.0 %	19.96 + 7.78 hrs	11-41 hrs	0.07
1 week	6/124	04.8 %	17.28 ±5.25 hrs	11-40 hrs	0.001
72 hour	20/124	16.1 %	27.27 ± 9.44 hrs	12-41 hrs	0.004

Table 3: Showing Association of Mode of Delivery With Maternal Complications and Indications For Cesarean Section

Mode of delivery			Complications		
Route	No. of cases	%	Type	No. of cases	%
Vaginal	108/124	87.0%		24/108	22.2
- SVD*	80/108	74.0	Puerperal pyrexia	16/108	14.8
- Instrumental	16/108	14.8	Perineal tear	6/108	5.5
- Assisted breech	12/108	11.1			
			UTI	2/108	1.8
Cesarean Section	16/124	12.9%		12/16	75.0%
- Indications			UTI	2	12.5
- APH	8/16	50.0	Severe endometrits	4	25.0
- Previous two sections	4/16	25.0	Wound dehiscence	2	12.5
- Cephalo pelvic disproportion	2/16	12.5	Massive PPH	4	25.0
- Eclampsia	2/16	12.5			

Undertaken for general population **[4, 7, 9]** but was quite different from the well-developed populations. Similar studies carried out in America by Magann *et al* **[1]** and others **[8, 9]** reported 84.5 pregnancies per 1000 women with poor outcome These studies were carried out among unmarried teenage school girls having early onset of sexual activity, . No doubt their social status was high, the only factor affecting the poor obstetric outcome was most probably occurrence of pregnancy in teenage group.

The time period between IUFD and

delivery is important because of the serious risk of coagulation defect. This risk is low initially but increases with time, particularly in case time period exceeds 4 weeks. In this study, in 16.1% cases, the time period between fetal demise and delivery was 72 hrs and in 4.8% cases, it was 1 week while in the rest of patients, time period could not be estimated due to lack of any antenatal records. It must be less than 4 weeks as no complication of disseminated intravascular coagulation was faced in any of these cases during the study **(Table 2)**. Pharmacological drugs, used in this study, for vaginal mode of delivery were cheaper, easily available and effective for termination of pregnancy after fetal demise. Minimum side effects were found with PGE1 (Misoprostol) in tablet form with dose of 50-200 microgram vaginally every 6 hourly. In very few cases PGE2 vaginal tablet was needed. Some recent studies have shown that sometimes serious complications like ruptured uterus are notedas compared to conventional methods **[7-9]** but were being used effectively to reduce the induction to delivery interval.

Delivery process should be completed as early as possible, as dead fetal tissue is an ideal source of spread of anaerobic infection in spite of antibiotic administration **[6]**. Mode of delivery after intrauterine fetal death always remained a matter of great concern for the obstetricians. It was well proven that the maternal mortality and morbidity was quite higher in caesarean section as compared to vaginal delivery **[1, 3, 6]**. In this study, 87.4% of pregnant women with IUFD were delivered by vaginal route and 12.6% by caesarean section. It was found that 16 patients suffered from puerperal pyrexia, 2 developed urinary tract infection and 6 patients required perineal tear repair among 108 patients, who delivered by vaginal route. On the other hand, 14 (75%) patients out of 16, delivered by cesarean section developed complications like postpartum haemorrhage, endometritis, urinary tract infection and wound dehiscence. Similarly, in a large size study, Megann *et al*. **[1]** reviewed 498 singleton pregnancies and 24 twin pregnancies after IUFD. According to their report, 95.2% cases delivered vaginally and 4.8% cases by caesarean section. In vaginal route group, 10% women required surgical repair of genital tract injuries. About 50% cases delivered by caesarean section developed complications of endometritis, 25% suffered from disse-minated intravascular coagulation and 12.5% developed puerperal sepsis along

with Adult respiratory distress syndrome (ARDS). They reported one maternal death due to HELPP syndrome. Ladfors and Milsom, Gupta and Chitra from India did similar study. They reported 56 cases delivered vaginally and 27 cases by caesarean section. Their findings were consistent with this study as they found high rate of major post-delivery complications including one maternal death in caesarean section group. Similarly, Tariq and Korejo **[4]** reported 12.5% maternal morbidity and no mortality in women with IUFD, who delivered vaginally.

CONCLUSION

Maternal morbidity may accompany the management and delivery of intrauterine fetal death. Spontaneous vaginal delivery is possible in majority of the patients. Care must be taken for induction of labour. The decision of cesarean delivery should only be taken if there is an absolute indication for it, as it is associated with high maternal morbidity, and rarely, mortality may accompany if prompt action is lacking to treat the complications.

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LIMITATIONS

Small sample size is limitation of this study.

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