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Comparison between the Pregnancy Outcome in Women both with or without Threatened Abortion

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Abstract
Background: *Threatened miscarriage is defined as any bleeding in the first half of pregnancy and is seen in about 20–25% of pregnancies therefore is a fairly common complication during pregnancy. Most of the time bleeding is a small amount, but sometimes it may be more serious and severe. About 50% of cases of threatened miscarriage terminate in complete miscarriage and loss of pregnancy. If pregnancy continues, the sub optimal events have been reported more; like preterm delivery and Preeclampsia. The aim of the study was to evaluate the pregnancy outcome in pregnancies with threatened abortion (miscarriage).*
Methods: *This prospective cohort study was conducted at the Department of Obstetrics and Gynecology, Al-Azhar University Hospitals on 70 pregnant women; 35 women (case group) had a history of vaginal bleeding during the first half of pregnancy and the other 35 women (control group) do not had this history. Each case in the study was subjected to the following: Detailed obstetric and gynaecological history. Clinical examination. Gestational age according to the last menstrual period and ultrasound findings. The following pregnancy outcomes between the two groups were compared: abortion, preterm delivery, IUGR, IUFD, PPROM, LBW, preeclampsia, type of delivery.*
Results: *There was statistically significant difference between Cases and Control regarding (abortion, preterm labour and PPROM). There were no statistically significant difference between Cases and Control regarding (age, preeclampsia development, IUGR, IUFD, LBW, placenta previa, low lying placenta, NICU admission and type of delivery).*
Conclusion: *Pregnant women with threatened abortion are at increased risk for spontaneous loss and adverse pregnancy outcomes. Current study reports that patients with history of vaginal bleeding during the first half of pregnancy are at a risk for spontaneous pregnancy loss and adverse pregnancy outcomes. For patients who reported vaginal bleeding during the first trimester, high risks of abortion, LBW, preterm delivery, PPROM, and low lying placenta were observed. These associations are clinically significant since they denote increased morbidity and mortality.*
Keywords: *Threatened miscarriage –pregnancy- outcome.*

Introduction

Pregnancy is a major life event. The purpose of pregnancy is to develop a healthy baby and keep the mother healthy. Threatened abortion is an adverse event during pregnancy, which needs meticulous attention to fulfill the purpose of pregnancy. (Sarmalkar et al., 2016).

Threatened miscarriage is defined as any bleeding in the first half of pregnancy and is seen in about 20–25% of pregnancies therefore is a fairly common complication during pregnancy. Most of the time bleeding is a small amount, but sometimes it may be more serious and severe. (Dadkhah et al., 2010).

About 50% of cases of threatened miscarriage terminate in complete miscarriage and loss of pregnancy but this risk is substantially lower if fetal cardiac activity has been confirmed (Cunningham et al., 2005)

If pregnancy continues, the sub optimal events have been reported more; like preterm delivery PROM, Placental abruption, Preeclampsia, small for gestational age, cesarean delivery, but the risk of neonatal malformations does not seem to be increased (Weiss et al., 2004)

However some reports did not show any significant adverse effects by threatened abortion on pregnancy outcome. In a study by DAS et al., (1996) there was no report of any increase in the rate of poor pregnancy outcome like preterm delivery, SGA, and overall perinatal outcome in the women with threatened miscarriage.

The purpose of the present study was to evaluate the pregnancy outcome in pregnancies with threatened abortion (miscarriage).

Subjects and Methods

This prospective cohort study was conducted at the Department of Obstetrics and Gynecology, Al-Azhar University Hospitals on 70 pregnant women; 35 women (case group) had a history of vaginal bleeding during the first half of pregnancy and the other 35 women (control group) do not had this history.

Inclusion Criteria

1- Patients diagnosed by 1st trimester threatened miscarriage.
2- Patients with a singleton spontaneous pregnancy and presenting with vaginal bleeding or spotting.
3- The pregnancy confirmed by a visible gestational sac of a living embryo, verified by cardiac activity visualized on real time ultrasound.
4- The maternal age should range between 20-40 years and the gestational age should range between 7-13 weeks.

Exclusion Criteria

1- Patients with history of general medical disease e.g. diabetes or thyroid disease.
2- Presence of local (gynecological) disease e.g. fibroid or adnexal masses verified by normal appearance of the uterus and ovaries by ultrasound.
3- Presence of uterine malformations e.ghypoplastic uterus or septate uterus.
4- Patients with history of recurrent miscarriages.
5- Abnormal findings in the dating scan as blighted ovum or missed miscarriage.

Methods

Each case in the study was subjected to the following:

1- Explanation of the procedure.
2- Verbal consent was taken.
3- Detailed obstetric and gynaecological history**.**
4- Clinical examination**.**
5- Gestational age according to the last menstrual period and ultrasound findings**.**

Baseline data was recorded by questionnaire and patient interview. Post delivery follow-up will be performed by telephone interview or medical record review by the research coordinator at each site. Only primigravida included in study to exclude confounding factors of gravidity and recurrent abortion. Any incident of preeclampsia,

IUGR, intrauterine fetal distress (IUFD), low birth weight (LBW), low lying placenta, placenta previa or low lying placenta, birth weight and neonatal sex were recorded. The following pregnancy outcomes between the two groups will be compared: abortion, preterm delivery, IUGR, IUFD, PPROM, LBW, preeclampsia, type of delivery. The following adverse pregnancy outcomes among the two groups were compared: IUGR (estimated fetal weight by ultrasound examination of <10th percentile or birth weight of <10th percentile for gestational age), gestational hypertension (blood pressure >140/90 mm Hg on at least two occasions >6 hours apart without evidence of chronic hypertension), preeclampsia (criteria for gestational hypertension and significant proteinuria), preterm labor (labor <37 weeks of gestation), PPROM (membrane rupture <37 weeks of gestation), placental abruption (premature separation of a normally implanted placenta), placenta previa (placenta completely or partially covering the internal os), low lying placenta (placenta edge does not reach the internal os but is in close proximity to it) and caesarean delivery. Both groups of women were monitored from 20 weeks of pregnancy up to delivery.

Statistical Analysis

The data were coded, entered and processed on computer using *SPSS* (version 18).The results were represented in tabular and diagrammatic forms then interpreted. Mean, standard deviation, range, frequency, and percentage were use as descriptive statistics.

The following test was done: Chi-Square testX^2 was used to test the association variables for categorical data. Student's t-test was used to assess the statistical significance of the difference between two population means in a study involving independent samples. P value was considered significant as the following: * P> 0.05: Non significant * P ≤ 0.05: Significant

Results

There were no statistically significant difference between Cases and Control regarding age. Table (1)

There was statistically significant difference between Cases and Control regarding Abortion. Table (2)

There were no statistically significant difference between Cases and Control regarding Preeclampsia development. Table (3)

There was statistically significant difference between Cases and Control regarding Preterm labour. Table (4)

There were no statistically significant difference between Cases and Control regarding IUGR. Table (5)

There was statistically significant difference between Cases and Control regarding PPROM. Table (6)

There were no statistically significant difference between Cases and Control regarding IUFD. Table (7)

There were no statistically significant difference between Cases and Control regarding LBW. Table (8)

There were no statistically significant difference between Cases and Control regarding placenta previa. Table (9)

There were no statistically significant difference between Cases and Control regarding low lying placenta . Table (10)

There were no statistically significant difference between Cases and Control regarding NICU admission. Table (11)

There were no statistically significant difference between Cases and Control regarding Type of delivery. Table (12)

There were no statistically significant difference between Cases and Control regarding Type of sex. Table (13)

Table (1): Comparison between cases and controls regarding age

		Cases	Control	t. test	P. value
age	Range	20 - 30	20 - 29	.316	.753
	Mean+SD	22.83 ± 2.370	22.66 ± 2.169		

Table (2): Comparison between cases and controls regarding Abortion

			Cases	Control	X2 test	P. value
Abortion	Yes	No.	8	2	4.20	.040
		%	22.9%	5.7%		
	No	No.	27	33		
		%	77.1%	94.3%		

Table (3): Comparison between cases and controls according who developed preeclampsia

			Cases	Control	X2 test	P. value
Preeclampsia development	Yes	No.	2	2	.00	1.0
		%	5.7%	5.7%		
	No	No.	33	33		
		%	94.3%	94.3%		

Table (4): Comparison between cases and controls regarding Preterm labour

			Cases	Control	X2 test	P. value
Preterm labour	Yes	No.	9	3	3.621	.05
		%	25.7%	8.6%		
	No	No.	26	32		
		%	74.3%	91.4%		

Table (5): Comparison between cases and controls regarding IUGR

			Cases	Control	X2 test	P. value
IUGR	Yes	No.	3	3	.00	1.000
		%	8.6%	8.6%		
	No	No.	32	32		
		%	91.4%	91.4%		

Table (6): Comparison between cases and controls regarding PPROM

			Cases	Control	X2 test	P. value
PPROM	Yes	No.	5	0	5.385	.020
		%	14.3%	.0%		
	No	No.	30	35		
		%	85.7%	100.0%		

Table (7): Comparison between cases and controls regarding IUFD

			Cases	Control	X2 test	P. value
IUFD	Yes	No.	1	1	.00	1.0
		%	2.9%	2.9%		
	No	No.	34	34		
		%	97.1%	97.1%		

Table (8): Comparison between cases and controls regarding LBW

			Cases	Control	X2 test	P. value
LBW	No	No.	27	33	0	1
		%	100.0%	100.0%		

Table (9): Comparison between cases and controls regarding placenta previa

			Cases	Control	X2 test	P. value
placenta previa	Yes	No.	1	0	1.014	.314
		%	2.9%	.0%		
	No	No.	34	35		
		%	97.1%	100.0%		

Table (10): Comparison between cases and controls regarding low lying placenta

			Cases	Control	X2 test	P. value
low lying placenta	Yes	No.	1	0	1.014	.314
		%	2.9%	.0%		
	No	No.	34	35		
		%	97.1%	100.0%		

Table (11): Comparison between cases and controls according NICU admission

			Cases	Control	X2 test	P. value
NICU admission	Yes	No.	2	1	.599	.439
		%	7.4%	3.0%		
	No	No.	25	32		
		%	92.6%	97.0%		

Table (12): Comparison between cases and controls regarding Type of delivery

			Cases	Control	X2 test	P. value
Type of delivery	VD	No.	10	15	.965	.326
		%	33.3%	45.5%		
	CS	No.	20	18		
		%	66.7%	54.5%		

Table (13): Comparison between cases and controls regarding Type of sex

			Cases	Control	X2 test	P. value
Type of sex	Female	No.	14	16	1.449	.484
		%	40.0%	45.7%		
	Male	No.	16	17		
		%	45.7%	48.6%		

Discussion

This study showed that, there were no statistically significant difference between cases and control regarding maternal age.

This agrees with (Dadkhah et al., 2010) who aimed to find if threatened abortion makes a pregnancy high risk, and if it has adverse effects on pregnancy outcome, and also if there is any relationship between the amount and the number of episodes of bleeding and adverse effects. A prospective Cohort study was performed in Akbarabadi Teaching Hospital in Tehran, Iran between August 2007–October 2008, on all pregnant women who referred to prenatal clinic for prenatal care. A prospective cohort study was performed on 1000 pregnant women.500 women (case group), had a history of vaginal bleeding during the first half of pregnancy and the other 500 women (control group), did not have this history. The women of the 2 groups did not have statistically significant differences according to age (25.8± 4.6 years in the case group and 25.3± 4.9 years in the control group).

This study showed that, the incidence of abortion in the present study was 22.9% among (case group) who had a history of vaginal bleeding during the first half of pregnancy. The incidence of abortion in the present study was 5.7% among (control group) who do not had this history.

This agrees with a previous study done by (Agrawal et al., 2014) who found an incidence of 21% in 62 patients with a history of threatened abortion in first twenty weeks of pregnancy. This agrees also with another study by (Ahmed et al., 2012) showed the incidence of abortion in 85 patients with bleeding in first twenty weeks of pregnancy to be 17%.

This disagrees with (Sarmalkar et al., 2016) who aimed to identify the pregnancy outcome in women with threatened abortion in the first trimester of pregnancy in a tertiary hospital.A retrospective-prospective observational study was done on 100 pregnant women with a history of threatened abortion in the first trimester. They found lower rate of abortion in their study (7%). They explained this by attributeion to the fact that they have included only first trimester threatened abortion. Moreover, all their included subjects had confirmed ultrasound fetal viability.

In this study, there was no statistically significant difference between cases and control according to preeclampsia development.

This is in agreement with (Sarmalkar et al., 2016).

This agrees also with (Dadkhah et al., 2010) who found that, there were no significant differences between the 2 groups according to Preeclampsia.

This disagrees with (Verma et al., 1994) who reported that preeclampsia was significantly more common in subjects with threatened abortion and a viable pregnancy compared with subjects without vaginal bleeding (6% vs. 4.7%, respectively; $p < 0.05$).

This study showed that, incidence of preterm labour in our study it was 25.7% among (case group). The incidence of preterm labour in the present study was 8.6% among (control group). There was statistically significant difference between cases and control regarding preterm labour.

These results were in agreement with those of some studies (Arafa et al., 2000) who showed an incidence of 26.19% among women with threatened abortion.

The association between vaginal bleeding and preterm delivery has also been noted by others. (Makikallio et al., 2004)

Despite significant advances in perinatal medicine, the incidence of preterm delivery has remained unchanged. The prediction of preterm delivery from currently available methods is unreliable; therefore, associated risk factors remain an important measure of identifying at-risk pregnancies.(Sarmalkar et al., 2016).

This study showed that, incidence of IUGR among (case group) was 8.6%. The incidence of IUGR in the present study was 8.6% among (control group). There was no statistically significant difference between cases and control regarding incidence of IUGR.

There were varying reports as regards intrauterine growth restriction is concerned among various groups. A study done by (Arafa et al., 2000) reported an incidence of 48.5% among women with threatened abortion group.

Another study done by (Davari-Tanha et al., 2008) revealed an incidence of 2% among case group.

In the study of (Sarmalkar et al., 2016) the incidence of IUGR was found to be 6% among case group.

This study showed that, incidence of PPROM among (case group) was 14.3%. The incidence of PPROM in the present study was 0% among (control group). There was statistically significant difference between cases and control regarding incidence of PPROM.This agrees with (Davari-Tanha et al., 2008) who had 16% of patients with PPROM.This agrees also with (Sarmalkar et al., 2016) who found incidence of PROM/PPROM was 14%.

Although the cause is unclear, it is hypothesized that disruption of the chorionicamniotic plane by adjacent haemorrhage may make the membranes more susceptible to rupture.Alternatively, the prolonged presence of blood may act as a nidus for intrauterine infection. Persistent or recurrent placental haemorrhage could also stimulate subclinical uterine contractions that result in cervical change and eventual ruptured membranes. (Sarmalkar et al., 2016)

In our study, we had one case of IUFD among cases group and one case of IUFD among controls group.

Dongol et al., (2011) reported 3 cases of IUFD out of 70 in their study.

Sarmalkar et al., 2016) found one case of IUFD in their study.

This study showed that, no low birth weight in our study.

This disagrees with a study by (Sheiner et al., 2005) found the risk of LBW in women with first trimester bleeding and no previous history of abortion to be 9.7%.

Our results revealed incidence of placenta praevia as 2.9% among case group compared to 0% among control group. There was no statistically significant difference between cases and control regarding incidence of incidence of placenta praevia.

This agrees with (Sarmalkar et al., 2016) who found the incidence of placenta praevia as 2% among case group

The study done by (Davari-Tanha et al., 2008) revealed an incidence of 0.66%.

The location of the chorionfrondosum within the uterine cavity in early pregnancy may explain this association, with an inferior position more likely to cause first-trimester bleeding, as well as a higher risk of placenta praevia later on in pregnancy. (Sarmalkar et al., 2016).

This study showed that, incidence of low lying placenta as 2.9% among case group compared to 0% among control group. There was no statistically significant difference between cases and control regarding incidence of low lying placenta.

Weiss et al., (2004) found a similar association that was not statistically significant.

Mulik et al., (2004) found a significantly higher risk of placenta praevia at 37 weeks in women who experienced a first-trimester vaginal bleed.

Our results revealed incidence of NICU admission as 7.4% among case group compared to 3% among control group. There was no statistically significant difference between cases and control regarding incidence of incidence of NICU admission.

This agrees with (De Sutter et al., 2006) who aimed to study the effects of bleeding on the pregnancy outcome. They found the higher incidence of NICU admission was reported.

Data linking caesarean delivery to threatened miscarriage are very limited. Our study showed an incidence of 66.7% CS in this cohort. There were no statistically significant difference between cases and control regarding type of delivery.

This agrees with (Dadkhah et al., 2010) who found that, there were no significant differences between the 2 groups according to cesarean deliveries.

This agrees also with (Weiss et al., 2004) who showed no evidence of an association with cesarean deliveries.

Conclusion and Recommendation

Pregnant women with threatened abortion are at increased risk for spontaneous loss and adverse pregnancy outcomes. Knowledge of these risks may help the obstetricians to manage these cases vigorously in the antepartum period and do timely interventions as needed for a healthy mother and baby.

Current study reports that patients with history of vaginal bleeding during the first half of pregnancy are at a risk for spontaneous pregnancy loss and adverse pregnancy outcomes. For patients who reported vaginal bleeding during the first trimester, high risks of abortion, LBW, preterm delivery, PPROM, and low lying placenta were observed. These associations are clinically significant since they denote increased morbidity and mortality.

Results of the current study validate previous studies which support the school of thinking that history of vaginal bleeding during the first half of pregnancy may indicate underlying placental dysfunction, which may manifest in later pregnancy by a variety of adverse outcomes including preterm delivery, pregnancy induced hypertension, placental abruption and fetal growth restriction. Conversely, since preterm delivery is associated with threatened miscarriage, identifying women who are at "high risk" for preterm labour is very important. Knowledge of this increased risk may also facilitate decision making regarding management, for example, timely administration of corticosteroids or decisions regarding mode, place, and timing of delivery, which will inevitably improve neonatal outcome. Because the overall prognosis is favourable, these results can also be used to help reassure patients with threatened abortion during the first half of pregnancy. At the same time, obstetricians should be aware of the adverse outcomes that are associated with vaginal bleeding during the first half of pregnancy and remain alert for signs of these complications.

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