ASSOCIATION OF FIRST TRIMESTER THREATENED MISCARRIAGE WITH PRETERM PRELABOR RUPTURE OF MEMBRANE AND PRETERM DELIVERY

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ABSTRACT

Background: Pregnancy related complications in the first trimester may be due to placental dysfunction, leading to complications in later stages of pregnancy. **Objectives:** To determine the association of first trimester threatened miscarriage with Preterm Premature Rupture of Membranes and preterm delivery. **Patients and Methods**: This study was conducted from 1st January to 31th December, 2012. In this retrospective cohort study, a total of 200 pregnant women were included, with group A, having history of 1st trimester bleeding and group B, having no history of 1st trimester bleeding, between 20-35 years of age in both groups with any parity, while twin pregnancy, congenital uterine anomaly, large leiomyomata distorting the uterine cavity assessed by USG, history of chronic diabetes or gestational diabetes diagnosed by glucose tolerance test, history of hypertension or diagnosed by BP monitoring of diastolic BP >90 mmHg on two occasions, vaginal spotting and the finding of an open cervix, polyhydramnios and patients with previous history of preterm labour and PPROM were excluded from the study. The collected data was entered and analyzed in computer software SPSS version 12. Frequency and percentage was calculated for categorical variables whereas, mean and standard deviation for age. Chi Square test was applied to see the association between threatened miscarriage in 1st trimester and PPROM or preterm labour. A P value of less then 0.05 was taken as significant. **Results:** In this study, most of the patients in both groups were recorded between 20-25 years of age, in Group-A, 51% and 43% in Group-B, 38% in Group-A and 41% in Group-B were between 26-30 years. Mean age was 25.78+3.43 years in Group-A and 26.42+2.78 years in Group B. Association of first trimester threatened miscarriage with preterm delivery was compared in both groups which showed 58% in Group- A have preterm delivery as compared to 17% in Group-B, with significant difference having p value of < 0.05. Association of first trimester threatened miscarriage with PPROM was also compared in both groups and found a significant difference in both groups, where 19% in Group-A and 8% in Group-B were having PPROM, with a P value of <0.05. **Conclusion:** This study showed that there is an association of first trimester threatened miscarriage with PPROM and Preterm delivery.

Key Words: First trimester threatened miscarriage, Association, PPROM, Preterm delivery

INTRODUCTION

Pregnancy related complications are more common in first trimester period, compared to other trimesters. Vaginal bleeding and pain are the most common complications.[1] Threatened miscarriage, defined as vaginal bleeding before 24 weeks of gestation, is a common complication affecting about 20% of pregnancies,[2] and is the commonest reason for general practitioner emergency gynecology referrals in the United Kingdom.[3] The presumptive diagnosis of a threatened miscarriage is based on a history of vaginal bleeding in early pregnancy in the presence of a closed cervix. The diagnosis is confirmed by ultrasonic evidence of an intrauterine gestational sac with a positive fetal heart.[4] It is hypothesized that first-trimester may indicate an underlying placental dysfunction, which may manifest later in pregnancy causing adverse outcomes such as, increased risk of preeclampsia, preterm delivery, preterm prelabour rupture of membranes (PPROM), placental abruption and intrauterine growth restriction,[5] while maternal death is rare in the first trimester.[6] In general, if a viable fetus is noted at ultrasound examination after first-trimester vaginal bleeding, 95% to 98% of such pregnancies still continues beyond 20 weeks of gestation.[2]

Knowledge about the outcome of ongoing pregnancies following first trimester bleeding will be helpful in order to plan antenatal care and consider clinical intervention in pregnancy. In our institute a large number of patients are presenting with threatened miscarriage with vaginal bleeding, therefore, this study was planned and this study will be helpful for the patients with threatened miscarriage with vaginal bleeding and obstetricians to decide antenatal surveillance and management of these pregnancies. The objective of this study was to determine the association of first trimester threatened miscarriage with Preterm Premature Rupture of Membranes and preterm delivery.

PATIENTS AND METHODS

In this retrospective cohort study, a total of 200 pregnant women were included, with group A, having history of 1st trimester bleeding and group B,

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having no history of 1st trimister bleeding, between 20-35 years of age in both groups with any parity, while twin pregnancy, congenital uterine anomaly, large leiomyomata distorting the uterine cavity assessed by USG, history of chronic diabetes or gestational diabetes diagnosed by glucose tolerance test, history of hypertension or diagnosed by BP monitoring of diastolic BP >90 mmHg on two occasions, vaginal spotting and the finding of an open cervix, polyhydramnios and patients with previous history of preterm labour and PPROM were excluded from the study. This study was conducted between 1st January to 31th December, 2012, admitted through outpatient and emergency department of Gynaecology Unit, Bahawal Victoria Hospital & Jubilee Hospital, Bahawalpur. Informed consent was obtained from all the patients after explaining the study purpose. Information like age, gestational age, parity and addresses was obtained.

First-trimester miscarriage was defined as miscarriage before 14 completed weeks of gestation. Preterm labor was defined as birth of a baby of less than 37 weeks of gestational age, and PPROM was defined as rupture of the fetal membranes before 37 weeks of gestation.

All this information was recorded in a pre-designed proforma, patients were followed till delivery in both groups to look for presence or absence of PPROM & preterm labour.

The collected data was entered and analyzed in computer software SPSS version 12. Frequency and percentage was calculated for categorical variables whereas, mean and standard deviation for age. At the end of study, preterm labour and PPROM in both groups A & B was recorded. Chi Square test was applied to see the association between threatened miscarriage and PPROM and preterm labor. A P value of less then 0.05 was taken as significant.

RESULTS

Age distribution of the patients in both groups was recorded, most of the patients in both groups were between 20-25 years of age, in Group-A, 51% and 43% in Group-B, 38% in Group-A, and 41% in Group-B were between 26-30 years, while 11 % were in 31-35 years age group in Group-A and 16% in Group-B. Mean age was calculated as 25.78±3.43 years in Group-A and 26.42±2.78 years in group B.

Parity distribution of the patients revealed 54% in Group-A and 48% in Group-B with 1-2 parity, 37% in Group-A and 39% in Group-B with parity of 3-4 while 5 and above parity was recorded in 9% in Group-A and 13% in Group-B. (Table No. I).

Association of first trimester threatened miscarriage with preterm delivery was compared in both groups which showed 58% in Group- A have preterm delivery as compared to 17% in Group-B with significant difference with p value of < 0.05 (Table II).

Association of first trimester threatened miscarriage with PPROM was also compared in both groups and found a significant difference in both groups, where 19% in Group-A and 8% in Group-B were having PPROM, with a P value of <0.05. (Table No. III)

Table I: Parity of the subjects

Parity	Group-A (n=100)		Group-B (n=100)	
	No. of cases	%	No. of cases	%
1-2	54	54	48	48
3-4	37	37	39	39
5	09	09	13	13
Total	**100**	**100**	**100**	**100**

Table II: Association of first trimester threatened miscarriage with preterm delivery

Preterm delivery	Group-A (n=100)		Group-B (n=100)	
	No. of cases	%	No. of cases	%
Yes	58	58	17	17
No	42	42	83	83
Total	100	100	100	100

Relative Risk: 3.50= P<0.05

Table III: Association of first trimester threatened miscarriage with PPROM

PPROM	Group-A (n=100)		Group-B (n=100)	
	No. of cases	%	No. of cases	%
Yes	19	19	08	08
No	81	81	92	92
Total	**100**	**100**	**100**	**100**

Relative Risk: 2.698= P < 0.05

DISCUSSION

The literature regarding threatened abortion is relatively limited on the subject of outcomes and viability at term. Small number of patients and significantly biased data collection has limited previous studies of pregnancies that were complicated by threatened abortion.[7-8]

Knowledge about the outcome of ongoing pregnancies following first trimester bleeding will be helpful in order to plan antenatal care and consider clinical intervention in pregnancy. In our institute a large number of patients are presenting with threatened miscarriage with vaginal bleeding. The current study was planned which will be helpful for the patients with threatened miscarriage with vaginal bleeding and obstetricians to decide antenatal surveillance and management of these pregnancies.

We recorded no significant difference in both groups regarding demographic information, age in both groups was comparable 25.78±3.43 years in Group A and 26.42±2.7 years in Group B. Association of first trimester threatened miscarriage with preterm delivery and PPROM was statistically significant.

It is hypothesized that first-trimester bleeding may indicate an underlying placental dysfunction, which may manifest later in pregnancy causing adverse outcomes i.e. increased risk of preterm delivery, preterm prelabour rupture of membranes (PPROM), placental abruption and intrauterine growth restriction (IUGR).[9]

The association between vaginal bleeding and preterm delivery has also been noted by others.[10-12] Batzofin et al,[8] and Williams et al,[13] reported that patients with bleeding had double the risk of preterm delivery compared with patients without bleeding. The study of Williams et al, was limited to first trimester bleeding.[13] Batzofin et al, included patients with bleeding up to 20 weeks.[8] Strobino and Pantel-Silverman failed to show an association between preterm delivery before 36 weeks of gestation with light vaginal bleeding in the first or second trimester of pregnancy.[14] Another study found that preterm delivery is increased significantly in patients with either light (OR, <2.0) or heavy (OR, 3.0) first- trimester bleeding.[15]

Davari-Tanha F,[2] is also of the view that first-trimester vaginal bleeding is an independent risk factor for adverse obstetric outcome and showed statistically significant difference in patients with first trimester vaginal bleeding, preterm delivery in 52.9% versus 14.7% and PPROM 16% versus 6.4%, these findings are in agreement with the results of the current study.

The results of the current study with the support of other studies are helpful for the patients with threatened miscarriage with vaginal bleeding and obstetricians to decide antenatal surveillance and management of these pregnancies.

CONCLUSION

This study showed that there is an association of first trimester threatened miscarriage with PPROM and Preterm delivery.

REFERENCE

1. Gezginc K, Goktolga U, Ergun A. First trimester bleeding and pain. Balkan Military Medical Review 2007;10:84-8.
2. Davari-Tanha F, Shariat M, Kaveh M, Ebrahimi M, Jalalvand S. Threatened abortion: a risk factor for poor pregnancy outcome. Acta Medica Iranica 2008;46:314- 20.
3. Johns J, Jauniaux E. Threatened Miscarriage as a Predictor of Obstetric Outcome. Obstet Gynecol 2006;107:845-50.
4. Bimsara H, Pubudu D, Perera H. A case control study on the effect of threatened miscarriage on selected pregnancy outcomes. Sri Lanka Jour Obstet and Gynae 2009;31:34-8.
5. Saraswat L, Bhattacharya S, Maheshwari A, Bhattacharya S. Maternal and perinatal outcome in women with threatened miscarriage in the first trimester: a systematic review. BJOG. 2010;117:245-57.
6. Sagili H, Divers M. Modern management of miscarriage. The Obstetrician & Gynaecologist. 2007;9(2):102-8.
7. Hertz JB, Heisterberg L. The outcome of pregnancy after threatened abortion. ActaObstetGynecol Scand.1985;64(2):151-6.
8. Batzofin JH, Fielding WL, Friedman EA. Effect of vaginal bleeding in early pregnancy on outcome.Obstet Gynecol, 1984;63(4):515.
9. Weiss JL, Malone FD, Vidaver J, Ball RH, Nyberg DA, Comstock CH. Threatened abortion: a risk factor for poor pregnancy outcome, a population-based screening study. Am J Obstet Gynecol 2004; 190:745- 50.
10. Qasim SM, Sachdev R, Trias A, Senkowski K, Kemmann E. The predictive value of first- trimester embryonic heart rates in infertility patients. Obstet Gynecol,1997;89(6):934-6.

11. Tannirandorn Y, Manotaya S, Uerpairojkit B, Tanawattanacharoen S, Wacharaprechanont T, Charoenvidhya D. Reference intervals for first trimester embryonic/fetal heart rate in a Thai population. J Obstet Gynaecol Res, 2000;26(5):367-72.

12. Makikallio K, Tekay A, Jouppila P. Uteroplacental hemodynamics during early human pregnancy: a longitudinal study. GynecolObstet lnvest, 2004;58(1)49-54.

13. Williams MA, Mittendorf R, Lieberman E, Monson RR. Adverse infant outcomes associated with firsttrimester vaginal bleeding. Obstet Gynecol 1991 Jul;78(1):14-8.

14. Strobino B, Pantel-Silverman J. Gestational vaginal beeding and pregnancy outcome. Am J Epidemiol 1989; 129 (4):806-15.

15. Weiss JL, Malone FD, Vidaver J, Ball RH, Nyberg DA, Comstock CH, Hankins GD, Berkowitz RL, Gross SJ, Dugoff L, Timor- Tritsch IE, DAIton ME; FASTER Consortium. Threatened abortion: A risk factor for poor pregnancy outcome, a population-based screening study. Am J Obstet Gynecol 2004 Mar;190(3):745-50.