Original Article

Obst. & Gynae

Threatened Miscarriage as a Predictor of Obstetric Outcome

1. Sadia Waheed 2. Anila Ansar 3. Bushra Meraj

1,2,3. Asstt. Profs. of Obst. & Gynae, Islam Teaching Hospital Sialkot

ABSTRACT

Objective: It was to study pregnancy outcome in patients with threatened miscarriage as compared to patients who had no bleeding in early pregnancy.

Study Design: It was a prospective case control / cohort study.

Place and Duration of Study: This study was carried out in department of Obs. and Gyn. Islam teaching hospital, Sialkot from 1st January 2012 to 31 December 2012.

Materials and Methods: 100 patients were enrolled randomly to group A, who had vaginal bleeding with closed cervix in first half of pregnancy. 100 asymptomatic age matched controls were enrolled randomly to group B. Data recorded included demographic features and detailed pregnancy outcome.

Results: overall adverse pregnancy outcome was significantly higher in group A as compared to group B (p value <0.05). 15% of patients had miscarriage in group A, while 2.1% miscarried in group B (p value <0.01). Similarly 18% patients had preterm delivery in group A as compared to group B with 3.2% rate (p value <0.001).

Conclusion: Threatened miscarriage is associated with adverse pregnancy outcomes. Most significantly miscarriage, preterm delivery and low birth weight of neonates.

Key Words: Threatened miscarriage, Adverse pregnancy outcome , Preterm delivery Preterm premature rupture of membranes.

INTRODUCTION

Vaginal bleeding occurs in about 20% clinically diagnosed pregnancies[1]. It causes considerable anxiety for women and her partner. The term miscarriage implies loss of pregnancy before age of independent viability of the fetus. Viability implies the ability of the fetus to survive extra uterine life and according to WHO this limit is less than 22 weeks or less than 500 grams weighing babies[2].

The clinical diagnosis of threatened miscarriage is presumed when bloody vaginal discharge or bleeding appears through a closed cervical OS before 20 weeks of gestation[3]. About 15-20% of clinically recognized pregnancies miscarry. When bleeding occurs in the first trimester about 30% of pregnancies miscarry[4]. However the risk of abortion is substantially reduced if fetal cardiac activity is appreciated[5]. About 17% of cases with threatened miscarriage are expected to present complications later in pregnancy[6].

Bleeding in the first trimester can originate from uterus, cervix, vagina or extra genital. Thorough examination and ultrasound is essential for correct diagnosis. Any woman with bleeding in early pregnancy is offered ultrasound to ascertain viability, location of placenta, and the presence or absence of subchorionic hematoma which is associated with 4-33% rate of miscarriage[7]. Older women are at increased risk of miscarriage similarly patients with previous history of miscarriage increases the risk[6].

If abortion does not follow early trimester bleeding, these fetuses are at increased risk of preterm delivery, low birth weight and perinatal death[8]. Maternal risks include antepartam hemorrhage and cesarean delivery for fetal distress[9]. It is also seen to be associated with preeclampcia, placental abruption and intrauterine growth restriction[8,10].

MATERIALS AND METHODS

This study was conducted in department of Obstetrics and Gynecology, at Islam teaching hospital, Sialkot from 1st January 2012 to 31 December2012. Hundred (100) cases were randomly selected. Group A presenting with vaginal bleeding at or before 20 weeks of gestation. Their ultrasound examination was carried out to confirm threatened miscarriage. The diagnostic criteria for threatened miscarriage was based on documented fetal cardiac activity on ultrasound with history of vaginal bleeding in the presence of closed cervix and gestational age less than or at 20 weeks. They were matched with hundred (100) control cases in group B who had no bleeding in pregnancy and were visiting antenatal clinic as routine. Patient developing bleeding or had history of bleeding in pregnancy were excluded from group B.

Patients were evaluated and followed up till the ultimate outcome. Statistical analysis was performed using SPSS 17 for windows. Pregnancy outcomes were compared using chi square test, gestational age and birth weights were compared using t test. The level of significance for the statistical test was taken as $p \leq 0.05$.

RESULTS

A total of 200 patients were included in this study. Hundred (100) patients in group A with threatened miscarriage and 100 patients in group B as age and gestation matched (at 20 weeks or less than 20 weeks),

asymptomatic controls. However 8 patients in group B developed bleeding after enrollment so they were excluded from study.

Demographic feature of both groups is shown in table 1. Mean maternal age of both groups was 28 ± 5.5 and 29 ±5.6years with age range from 18 – 41 years. There is no significant difference in age distribution of patients. The mean parity for group A was 2.2 and for group B it was 2.7. Group A had 25% primigravida patients and 75% multigravida, while group B had 32.6% and 67.3% respectively. The mean gestational age at presentation to antenatal clinic was 10.5 weeks and 12.3 weeks in group A and B respectively. Mean number of previous abortions is also not statistically different in both groups.

Table No. 1: Mean meternal age, parity,mean gestational age at Presentation & Mean number of previous abortions

	Group A (n=100)	Group B (n=92)
Mean maternal age	28±5.5	29 ±5.6
Maternal age range	18-40	19-41
Parity Primigravida Multigravida	 25(25%) 75(75%)	 30(32.6%) 62(67.3%)
Mean gestational age at presentation	10.5 weeks	11.2 weeks
Mean number of previous abortions	0.85	0.87

The overall adverse pregnancy outcome was significantly higher in group A as compared to group B (p value <0.05). Different adverse outcome variables studied in both groups is shown in table 2. Group A had significantly increased risk of miscarriage 15% compared to group B 2.17% (p value <0.01). This risk was observed to be more in patients with age range of 35-41 years and with previous history of abortions for both groups (Figure 1).

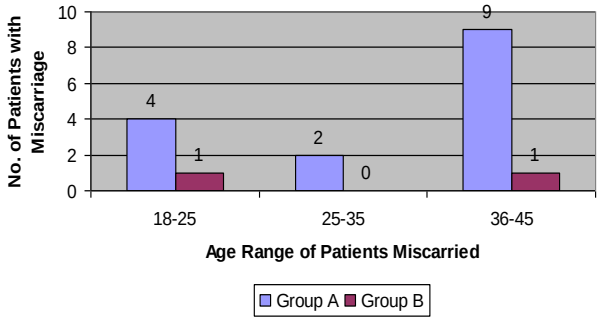

Figure No.1: No. of patients with miscarried

It was also observed that patients with threatened miscarriage had increased risk of preterm delivery (PTD) and preterm premature rupture of membranes (PPROM) 18% vs. 3.2%(p value <0.001). This increased risk is statistically significant. Gestational ages at which these patients delivered are shown in Fig.No.2.

Another adverse outcome was risk of antepartam hemorrhage (APH) which was 8% in group A as compared to 2.1% in group B (p value >0.05). Although this risk is not statistically significant, yet the difference of risk is considerable for the clinicians to consider while managing their patients with threatened miscarriage. Out of 8 patients who had APH in group A, 5 patients had placenta previa and 2 patients had placental abruption and in 1 patient's source of bleeding could not be find out. 2 patients had APH in Group B and both had placenta previa. So from this data we can conclude that placenta previa is the main reason of APH in threatened miscarriage group.

Table No. 2: Risk of miscarriage, Risk of PTD & PPROM, Risk of APH, Risk of hypertensive disorders of pregnancy, Risk of LSCS & Risk of low birth weight neonates

Pregnancy outcome	**Group A** N=100	**Group B** N=92	**p value**
Risk of miscarriage	15 (15%)	2 (2.1%)	<0.01
Risk of PTD & PPROM	18 (18%)	3 (3.2%)	<0.001
Risk of APH	8 (8%)	2 (2.1%)	<0.05
Risk of hypertensive disorders of pregnancy	7 (7%)	3 (3.2%)	>0.05
Risk of LSCS	35 (35%)	21 (22.8%)	>0.05
Risk of low birth weight neonates	20 (20%)	3 (3.2%)	<0.01

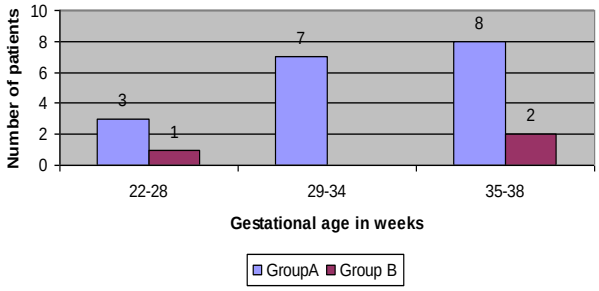

Figure No.2: Gestational ages at which patients delivered prematurely

Risk of hypertensive disorders of pregnancy like preeclampcia, pregnancy induced hypertension were also observed to be more in Group A as compared to Group B 7% vs. 3.2% (p value >0.05). Similar results were obtained for the risk of lower segment cesarean section being 35% vs. 22.8% in Group A & B respectively giving a non significant value statistically (p value >0.05).Although these are insignificant but this data is obviously of interest to gynecologists, so that extra vigilance in assessment is taken during antenatal

period of these patients.

Another very significant outcome observed is the risk of low birth weight neonates. Babies weighing 1.5 to 2 .5 kg were taken as low birth weight neonates. In Group A 20% and Group B 3.2 % patients had neonates in this age range (p value<0.01).

DISCUSSION

Bleeding in early pregnancy is the commonest complaint and from this study it is concluded that it is associated with increased risk of miscarriage, PTD, PPROM, and LBW neonates to a significant level. Also risk of APH is more in patients with threatened miscarriage than in general low risk population. Other adverse outcomes noted are increased risk of hypertensive disorders of pregnancy and increased risk for delivery by cesarean section.But an important conclusion from this study is that 85% of patients in threatened miscarriage group have a positive outcome of pregnancy. An important observation was that majority of patients who had adverse outcomes were from the cases who had frequent episodes of vaginal bleeding throughout pregnancy. Similar reports from literature support this observation[4,5].

Other adverse pregnancy outcomes like PTD, PPROM, APH, and LBW which were found to be significantly higher in threatened miscarriage group is also well supported by a Cochrane review[11]. It has reviewed 14 studies from all over the world and reports almost similar results. The increased occurrence of hypertensive disorders of pregnancy especially preeclampcia observed in threatened miscarriage patients in my studty, is studied also in 1994 by Verma et al[12]. Another study had supported that preeclampcia is common among women with threatened miscarriage[10].

In my study significant adverse outcomes was PTD and PPROM being 18% in threatened miscarriage group (group A). These 2 variables are studied together as both these conditions intermingle. It seems that high low birth weights observed in this group of patients is the consequence of PTD. It may also be due to early pregnancy insult by reactive oxygen species[13] or impaired placentation[14], leading to growth restriction of fetus. These are the risk factors observed with threatened miscarriage leading to adverse outcomes but the exact etiological factors responsible for these adverse outcomes are yet to be defined. As no studies have done research on the etiology.

Results of this study along with results from past studies indicate that early pregnancy especially first trimester bleeding is associated with some underlying placental dysfunction. This placental dysfunction seems to be responsible for adverse outcomes seen in later pregnancy like PTD, PPROM, APH, pregnancy induced hypertension and preeclampcia and LBW babies. As it is now well known that threatened miscarriage has strong association with preterm delivery, screening of this group of women by cervical length measurement or by fetal fibronectin is recommended. Although interventions like progesterone and antioxidant supplements are yet under trials and to be further investigated, by knowing this high risk group for PTD many patients can get benefit from these treatment options in future. Also by knowing this high risk group for PTD, dexamethasone cover can be given at good time. It will help to reduce respiratory distress in premature neonates. The knowledge of these complications to arise in pregnancy, it can help to decide mode, place and time of delivery which will definitely help to improve neonatal outcome.

CONCLUSION

Threatened miscarriage is associated with increased occurrence of PTD and this should be considered as a high risk pregnancy to be screened for PTD so that timely decisions about management could be done. These patients have increased risks of APH and preeclampcia so they should be followed up frequently in antenatal clinics.

REFERENCES

1. Krause SA, Graves BW: Midwifery triage for first trimester bleeding. J Nurse Midwifery 1999; 44:537-548.
2. David JC, Rebecca S, Peter GW. Bleeding and Pain in early Pregnancy. High risk pregnancy: management options 4th ed. Saunders UK; 2011.p.57-61.
3. Cunningham FG, Kenneth J. Wenstrom. Clinical diagnosis of threatened miscarriage. 23rd ed. Williams Obstetrics; 2010.p.215-224.
4. Stabile I, Campbell S, Grudinskas JG: Ultrasonic assessment of complications of pregnancy in first trimester of pregnancy. Lancet 1987;2: 1237-40.
5. Tongsong T, Srisomboon J, Wanapirak C, et al. Pregnancy outcome of threatened abortion with demonstrable fetal cardiac activity: A cohort study. J Obstet Gynecol 1995; 331:21.
6. Alexandros S, Stefania P, George M. Threatened miscarriage: Evaluation and management. BMJ 2004; 329:152.
7. Pearlstone M, Baxi L. Subchorionic hematoma: A review. Obstet Gynecol Surv 1993; 48: 65-8.
8. Johns J, Jauniaux E. Threatened miscarriage as a predictor of obstetric outcome. Obstet Gynecol 2006; 107: 845.
9. Wijesiriwardana A, Bhattachariya S, Shetty A, et al. Obstetric outcome in women with threatened miscarriage in first trimester. Obstet Gynecol 2006; 107: 557.

10. Weis JL, Malone FD, Vidaver J, et al. Threatened abortion: a risk actor for poor pregnancy outcome, a population based-screening study. Am J Obstet Gynecol 2004; 190: 745-750.
11. Saraswat L, Bhattacharya S, Maheshwari A. Maternal and perinatal outcome in women with threatened miscarriage in first trimester: A systematic review. BJOG 2010; 117(3): 245-57.
12. Verma SK, Premi HK, Gupta TV. Perinatal outcome of pregnancies complicated by threatened abortion. J Indian Med Assoc 1994; 92: 364-5.
13. Plessinger MA, Woods JR, Miller R. Pretreatment of human amnion-chorion with vit. C and E prevent hypochlorous acid induced damage. Am J Obstet Gynecol 2000; 183: 979-85.
14. Khong TY, De Wolf F, Robertson WB. Inadequate maternal vascular response in pregnancies complicated by preeclampcia and by small for gestational age infants. Br J Obstet Gynecol 1986; 93: 1049-59.

Address for Corresponding Author:
Dr. Sadia Waheed
Asstt. Prof. of Obst. & Gynae,
Islam Teaching Hospital Sialkot