



STUDY OF THE PERINATAL OUTCOME OF PATIENTS AFFECTED BY THREATENED MISCARRIAGE IN FIRST TRIMESTER OF PREGNANCY

Gynaecology

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ABSTRACT

Background : First-trimester bleeding is a common complication which affects 16–25% of all pregnancies. 1 Threatened miscarriage is diagnosed on the basis of documented fetal cardiac activity on ultrasound with a history of vaginal bleeding in the presence of a closed cervix. Bleeding during pregnancy can cause maternal anxiety and that it may be associated with poor fetal outcomes. 2– This study aimed to evaluate the perinatal outcomes with the complain of vaginal bleeding in the first trimester.

Materials and Methods : Patients with complaints of bleeding per vaginam before 20 weeks and documentation of fetal viability by ultrasound was done were selected for the study. 150 such patients were observed. Similarly 150 patients who did not have vaginal bleeding with viable pregnancy were selected as controls and were observed. The following adverse pregnancy outcomes among the two groups were compared: intrauterine fetal growth restriction, birth weight. Both the groups were compared by chi-square test.

Results : 15 were for low birth weight, 1 was for meconium stained amniotic fluid, 1 was admitted in view of tachypnoea. There is a difference in number of admissions for low birth weight in intensive care unit between study and control group which is statistically significant. The incidence of fetal growth restriction in patients in control group is only 1.3%. The difference is statistically significant. Weights of majority of babies in the study group is between 2.1-2.5 kilograms followed by most of the remaining between 2.6-3 kilograms.

Conclusion : The baby weights in patients with threatened miscarriage generally tends to be lower than those in normal patients, average being 2.4 kilograms as against 3.1 kilograms in normal patients. Hence if timely diagnosed & adequately treated, the perinatal outcome would improve in cases of threatened miscarriage.

KEYWORDS

Introduction

Abortion or miscarriage is the term to denote vaginal bleeding with or without abdominal cramps in early stages of pregnancy, usually 20 to 24^{1,2} weeks of gestation, which may lead to expulsion of the fetus before it is capable of ex-utero survival. Abortion may be spontaneous or induced. Since abortion is the term usually used to denote medically or surgically augmented voluntary termination of pregnancy, the term miscarriage is usually used to denote a spontaneous loss of a wanted pregnancy. First-trimester bleeding is a common complication which affects 16–25% of all pregnancies.¹ Threatened miscarriage is diagnosed on the basis of documented fetal cardiac activity on ultrasound with a history of vaginal bleeding in the presence of a closed cervix. Bleeding during pregnancy can cause maternal anxiety and that it may be associated with poor fetal outcomes.–2

Although the exact incidence of threatened miscarriage is difficult to assess due to a large number of cases going unreported, it has been reported to be associated with 20% of clinically confirmed pregnancies^{3,4}. It is estimated that around 20-30% of threatened miscarriages may eventually result in loss of pregnancy^{5,6}. However, if fetal viability is confirmed, the chances of a live birth are 98%⁷.

Vaginal bleeding can be a normal sign of implantation of the pregnancy, may herald the initiation of spontaneous abortion, or may be the sign of a pathologic condition such as ectopic pregnancy or gestational trophoblastic disease. Vaginal bleeding after confirmation with a positive pregnancy test requires further assessment in order to identify normal or abnormal development of the pregnancy or a pathologic condition that requires intervention so it is of utmost importance to diagnose the condition at the earliest and prevent it from progressing to imminent or complete miscarriage.

Even after the episode of threatened miscarriage is managed adequately, there is an increased risk of fetal loss as well as greater incidence of preterm delivery which may be partly explained by reactive oxygen species and chronic damage to fetal membranes leading to impaired placentation⁸. There is also an association of poor neonatal weight in term pregnancies⁹. First trimester vaginal bleeding has also been associated with an increased risk of congenital malformations in the conceptus^{10,11,12}.

Therefore, even after the episode of threatened miscarriage has been successfully handled, a close monitoring and follow-up is desirable to ensure optimum maternal outcome. Hence it is very essential to prevent its onset and once occurred, to reassure the couple and the family along with giving adequate treatment so as to have a fruitful perinatal outcome. This study aimed to evaluate the perinatal outcomes with the complain of vaginal bleeding in the first trimester.

Materials and Methods :

Patients who came to the hospital in OPD or in emergency casualty with complaints of bleeding per vaginam before 20 weeks and documentation of fetal viability by ultrasound was done were selected for the study. 150 such patients were observed. Similarly 150 patients who did not have vaginal bleeding with viable pregnancy were selected as controls and were observed.

Informed consent was taken from the patients after explaining them the study procedure and their role. Baseline data was recorded by a questionnaire and patient interview as to the amount and duration of bleeding. An ultrasound examination was done to confirm fetal viability by documenting the cardiac activity. The patients were followed up regularly every 3 weekly till 28 weeks, then every 2 weekly till 35 weeks and then every week till 40 weeks. During every antenatal visit, blood pressure was measured, general examination, systemic examination, abdominal examinations were performed. Serial ultrasound monitoring for interval growth was done at 24 weeks, 28 weeks, 32 weeks and at 36 weeks.

Any incidence of preeclampsia, intrauterine fetal growth restriction, intrauterine fetal death, low birth weight, low lying placenta, placenta praevia or low lying placenta, birth weight was recorded. Potential confounding factors of maternal age, gravidity and previous recurrent abortion were identified and adjustments were made in the statistical models. The following pregnancy outcomes between the two groups were compared: intrauterine fetal growth restriction, intrauterine fetal death, low birth weight, congenital anomalies, postpartum infection and type of delivery.

The following adverse pregnancy outcomes among the two groups were compared: intrauterine fetal growth restriction (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), mode of delivery i.e vaginal delivery, forceps, vacuum or caesarean delivery. Both the groups were compared by chi-square test. All P values are reported.

Results :

Table 1: Study of admissions in neonatal intensive care unit

Neonatal ICU admitted * Group Crosstabulation		Group		Test for Comparison of Proportions	Total
		CONTROL	STUDY		
Neonatal ICU admitted	Not Admitted	Count	141	134	275
		% within Group	94.0%	87.0%	90.5%
	Admitted due to other reason	Count	0	3	3
		% within Group	0.0%	1.9%	1.0%
	Admitted due to Low Birth Weight	Count	4	15	19
		% within Group	2.7%	9.7%	6.2%
	Admitted due to Meconium Stained Amniotic Fluid	Count	2	1	3
		% within Group	1.3%	0.6%	1.0%
	Higher Respiratory Rate	Count	2	1	3
		% within Group	1.3%	0.6%	1.0%
	Respiratory Abnormality	Count	1	0	1
		% within Group	0.7%	0.0%	0.3%
Total		Count	150	154	304
		% within Group	100.0%	100.0%	100.0%

* Significantly different at 5% level of significance

The study shows that out of 154 patients in study group, there were 20 admissions. Of these 15 were for low birth weight, 1 was for meconium stained amniotic fluid, 1 was admitted in view of tachypnoea. Of the 150 patients in control group, there were 4 admissions for low birth weight, 2 for meconium stained amniotic fluid, 2 for tachypnoea and 1 admission in a case of tracheo-oesophageal fistula. There is a difference in number of admissions for low birth weight in intensive care unit between study and control group which is statistically significant.

Table 2: Fetal Growth Restriction in the two groups.

Foetal Growth Restriction * Group Crosstabulation		Group		Test for Comparison of Proportions	Total
		CONTROL	STUDY		
Foetal Growth Restriction	No	Count	148	110	258
		% within Group	98.7%	71.4%	84.9%
	Yes	Count	2	44	46
		% within Group	1.3%	28.6%	15.1%
Total		Count	150	154	304
		% within Group	100.0%	100.0%	100.0%

* Significantly different at 5% level of significance

44 out of 154 patients i.e. 28% of the patients in study group have fetal growth restriction. On the other hand, the incidence of fetal growth restriction in patients in control group is only 1.3%(2 out of 150). The difference is statistically significant.

Weights of majority of babies in the study group is between 2.1-2.5 kilograms followed by most of the remaining between 2.6-3 kilograms. On the other hand, majority of the babies in control group had birth weights between 3.1-3.5 kilograms followed by other major proportion in 2.6-3.0 kilograms.

Discussion :

A recent studies was conducted^{13,14,15} to explore the effects of threatened miscarriage in the first trimester on maternal and perinatal outcomes. Women with threatened miscarriage had a significantly higher incidence of antepartum haemorrhage due to placenta praevia or antepartum haemorrhage of unknown origin when compared with those without first-trimester bleeding. They were more likely to experience PPRM, preterm delivery and to have babies with intrauterine growth restriction. First-trimester bleeding was associated with significantly higher rates of and low-birthweight babies.

Various studies reported an increased risk for low birth weight (<2500 g) in pregnancies that were complicated by vaginal bleeding.^{16,17,18} Infants of patients with heavy bleeding had nearly a 200 g difference in birth weight compared with control infants after accounting for preterm delivery. Also, 65% of subjects in study group had baby weight at birth less than 2.5kilograms whereas only 7% subjects in control group had baby weight less than 2.5 kilograms which is again

statistically significant.

Threatened miscarriage not only increases the risk of subsequent inevitable abortion but also has predisposition for certain risk factors. There is a slightly higher risk of intra-uterine fetal growth restriction in these patients. The mean gestational age at which these patients with threatened miscarriage deliver is around 36-37 weeks as against normal patients delivering at 38-40 weeks of gestation.

The baby weights in patients with threatened miscarriage generally tends to be lower than those in normal patients, average being 2.4 kilograms as against 3.1 kilograms in normal patients. Hence if timely diagnosed & adequately treated, the perinatal outcome would improve in cases of threatened miscarriage.

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