

A COMPARATIVE STUDY OF MATERNAL OUTCOME IN FIRST-TRIMESTER VAGINAL BLEEDING IN THE DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY, SMS MEDICAL COLLEGE, JAIPUR

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Abstract

Background: The outcome of ongoing pregnancies after first trimester vaginal bleeding is of relevance to women and obstetricians for planning antenatal care and clinical interventions in pregnancy. Hence, this study was conducted to identify the risks associated with first trimester bleed which may facilitate decision making regarding mode, place and timing of delivery during management, which may improve maternal and neonatal outcome.

Methods: Hospital based comparative prospective study conducted at Department of Obstetrics and Gynaecology, SMS Medical College & associated Hospitals, Jaipur.

Results: APH was found in 4 (8.00%) patients of case group and nil in control group. So, APH was found to be more in the case group than control group but was statistically not significant. Pre-eclampsia was found in 4 (8.00%) in case group and 3 (6.00%) in control group with statistically insignificant difference between the two groups. 26 (52.00%) delivered at the gestational age of ≤ 37 weeks, whereas only 8 (16%) of control group delivered at ≤ 37 weeks. So, the gestational age at delivery of control group subjects was found to be higher as compared to case group subjects and the difference was statistically significant ($p=0.001$).

Conclusion: Threatened miscarriage in early pregnancy increases the risk of adverse pregnancy outcome. In our study, these patients were found to be at an increased risk of preterm delivery, PPRM.

Keywords: PROM, Miscarriage, Gestational age

Introduction

The first trimester of pregnancy is a dynamic period that spans ovulation, fertilization, implantation and organogenesis. Vaginal bleeding in early pregnancy represents a definite threat to the developing embryo and constitutes the source of anxiety to both the patient and the obstetrician. It is one of the common causes of emergency admissions to the obstetrical department and common reason for ultrasound in first trimester.¹ Hence complications occurring during this period pose a diagnostic and management challenge to the obstetrician.

Vaginal bleed during first trimester has been estimated to occur in 16 to 25% of all pregnant women.^{2,3} Various causes of first trimester vaginal bleeding include obstetric and non-obstetric causes. Obstetric causes include abortion, ectopic pregnancy, gestational trophoblastic disease and non-obstetric causes include cervical erosion, polyp, malignancy and ruptured varicose vein.

The outcome of ongoing pregnancies after first trimester vaginal bleeding is of relevance to women and obstetricians for planning antenatal care and clinical interventions in pregnancy. Hence, this study was conducted to identify the

risks associated with first trimester bleed which may facilitate decision making regarding mode, place and timing of delivery during management, which may improve maternal and neonatal outcome.

Material & Methods

Study Type: Hospital based comparative study

Study Design: Prospective study

Place of Study: Department of Obstetrics and Gynaecology, SMS Medical College & associated Hospitals, Jaipur

Duration of Study: May 2019 to July 2020

Study Universe: Pregnant women attending OPD, Department of Obstetrics & Gynaecology, SMS Medical College, Jaipur

Study Population: Women with first trimester vaginal bleeding

Sample size: Sample size of 40 patients in each group was required at 80% study power and α error of 0.05 assuming 82.50% full term deliveries in case group and 100% in control group as per the results of seed article (Journal of

South Asian Federation of Obstetrics and Gynaecology, January-March 2018;10(1):49-53). The formula used for sample size calculation is: -

$$n = \frac{Z^2 p(1-p)}{d^2}$$

wherein; Z=1.96 (the approximate value of the 97.5 percentile point of the normal distribution for significance level of 0.05 or 5%), p is the prevalence, d is the precision level (5% or 0.05, also known as acceptable margin of error).

It was further enhanced and rounded off to 50 patients in each group as final sample size assuming 25% dropout in 6 months follow-up period.

Inclusion criteria

- Women with single viable intrauterine pregnancy (diagnosed by USG) presenting with first trimester vaginal bleeding (for cases) and with no history of first trimester vaginal bleeding (for controls).
- Normal body mass index (18-25).
- Written and informed consent was taken.

Exclusion criteria

- Any pathology distorting the uterine cavity and the genital tract
- Hydatidiform mole
- Bleeding disorders
- Associated medical conditions
- History of trauma or surgery during the present pregnancy

Methodology

All pregnant women with first trimester vaginal bleeding attending the Department of Obstetrics and Gynaecology, SMS Medical College and associated hospitals, Jaipur were determined.

Cases and controls were selected according to the inclusion and exclusion criteria as per sample size.

After explaining and obtaining written informed consent from all the women and attendants, they were recruited in the study.

Institute Review Board and Ethical Committee approval was taken.

A detailed history (obstetric, menstrual, personal, past and family history) was taken. General, systemic and obstetric examination was carried out. Clinical examination including assessment for pallor, edema and systemic examination; speculum examination for assessment of bleeding characteristics and associated cervical pathologies; and to identify any evidence of miscarriage was done.

All women were investigated with necessary laboratory investigations including urine analysis (urine albumin and sugar), hematological (Hb, ABORh), biochemical (blood sugar), and serological (HIV, HBsAg, VDRL) tests alongwith USG findings (period of gestation, subchorionic hematoma).

Statistical Analysis

Statistical analysis was done using EPI info software. Linear variables were presented as mean and standard deviation and were compared by using unpaired 't' test. Normal/categorical variables were described as percentages and were compared using chi-square test/ fisher exact test. p-value <0.05 was taken as significant.

Results

Table 1: Characteristic among Cases and Controls

	Cases	Controls	p-value
Age (in yrs)	22.94 ± 2.72 yrs	23.24 ± 2.41 yrs	>0.05
Primigravida : Multigravida	28 : 22	26 : 24	>0.05
Booked : Unbooked	27 : 23	32 : 18	>0.05
APH (Present : Absent)	4 : 46	0 : 50	>0.05
PROM (Present : Absent)	8 : 42	4 : 46	0.01
Preclampsia (Present : Absent)	4 : 46	3 : 47	>0.05
Gestational age (≤37 weeks: > 37 weeks)	26 : 24	8 : 42	0.01

The mean age of case group was 22.94 ± 2.72 yrs and that of control group was 23.24 ± 2.41 yrs. The mean value of age was higher in the control group, but there was not any statistically significant difference among both groups. Among the 50 women in case group, 28 (56.00%) were primigravida and 22 (44.00%) were multigravida. In control group, 26 (52.00%) were primigravida and 24 (48.00%)

were multigravida. In case group, 27 (54.00%) patients were ANC booked and 23 (46.00%) were unbooked; and in control group, 32 (64.00%) belonged to booked group and 18 (36.00%) belonged to unbooked group. 8 (16.00%) in case group and 4 (8.00%) in control group presented with Preterm Premature Rupture of Membranes. 4 (8.00%) women of case group had APH, while no woman of control

group had APH. 4 (8.00%) women in case group and 3 (6.00%) women in control group were found to have pre-eclampsia in later gestation. 26 (52.00%) delivered at ≤ 37 weeks and 24 (48.00%) women delivered after 37 weeks. In control group, 8 (16.00%) women delivered at ≤ 37 weeks and 42 (84.00%) women delivered after 37 weeks. Statistically significant difference was observed in gestational age at delivery among the case and control women, i.e. p -value < 0.05

Discussion

Our study reveals that more number of case group subjects had PPRM as compared to control group and the difference was statistically significant (p -value=0.004). 16.00% women of case group and 8.00% women of control group presented with leaking per vaginum before the labour had started.

The study conducted by Dadkhah F et al (2010)⁴ showed similar results 51 cases (10.2%) and 24 controls (4.8%) resulted in PPRM out of 500 each. So, the results were statistically significant ($p=0.02$).

In the study conducted by Tanha FD et al (2008)⁵ 150 women with first trimester vaginal bleeding and 450 asymptomatic age matched controls were enrolled and followed-up for outcome. Statistically significant difference was observed regarding PPRM ($p < 0.001$) including 27.5% in study group and 6.4% in control group.

Also in the study conducted by John J et al (2006)⁶ 214 women presenting with first trimester bleeding and 214 asymptomatic age matched controls were studied. A highly significant difference was observed regarding PPRM ($p=0.003$) among both groups.

Although the cause of PROM is unclear, it is hypothesized by Weiss JL et al (2004)⁷ that disruption of the chorioamniotic plane by adjacent hemorrhage may make the membranes more susceptible to rupture by increased free radical production within the placental membranes. Alternatively, the prolonged presence of blood may act as a nidus for intrauterine infection. Persistent or recurrent placental hemorrhage could also stimulate subclinical uterine contractions resulting in cervical changes and eventual rupture of membranes.

In our study, the difference between the two groups was insignificant as the p -value was 0.126, although more number of case group subjects had antepartum haemorrhage as compared to the control group. Four women of case group presented with APH, of which 3 had abruption and 1 placenta previa. All 4 of them presented with severe vaginal bleeding. Three out of four women had LSCS, only 1 woman who presented with advanced labour delivered vaginally.

In the study conducted by Wijesiriwardana A et al (2006)⁸, increased prevalence of placental previa was found in study population but difference was not statistically significant. They also found no correlation between abruption and first

trimester bleeding. Similarly John J et al (2006)¹², had found no association between abruption and first trimester bleeding.

On the contrary in the study conducted by Dadkhah F et al (2010)⁴, APH was found in 20 cases (4%) and 7 controls (1.4%). The difference was statistically significant ($p=0.01$).

Early trimester bleeding is found to result in defective placentation and subsequently poor pregnancy outcome. Later pregnancy complications have been shown to be associated with impaired placentation and failure of physiological invasion of spiral arterioles. The increased risk of placenta previa, placental abruption and APH of unknown origin are also attributed to the problems with placental development. The location of the chorion frondosum 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 previa later on in pregnancy.

Our study reveals that no significant difference was seen in outcome (pre-eclampsia) in case and control groups (p -value=0.99). Unlike previous reports suggesting that pregnancy induced hypertension was significantly more common in subjects with threatened miscarriage, we found no such association. Four women of case group and three of control group were found to have pre-eclampsia in later gestation. All of them had mild hypertension without any other associated features like headache, epigastric pain, blurred vision, pedal edema etc.

Similar to our study, in study conducted by Ahmed SR et al (2012)⁹ 4.4% women in control group and 5.6% women in threatened miscarriage group resulted in hypertensive disorders and the results were having no significant difference ($p > 0.05$).

Also, in study conducted by Dadkhah F et al (2010)⁴, there were no significant difference with regard to pre-eclampsia between both the groups ($p > 0.05$).

Conclusion

Threatened miscarriage in early pregnancy increases the risk of adverse pregnancy outcome. In our study, these patients were found to be at an increased risk of preterm delivery, PPRM. The study is important in raising awareness among health care professionals and in women regarding emphasizing on the importance of antenatal surveillance. Identification of women at risk allows interventions to be implemented from a much earlier gestation. This would result in high index of suspicion in women presenting with symptoms in later months of pregnancy, enabling prompt identification of these complications.

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