A Prospective Case Control Study to Predict the Obstetrical (Maternal and Foetal) Outcome after First Trimester Bleeding

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ABSTRACT

Purpose: To study the obstetrical complications in women with first trimester bleeding, to evaluate the perinatal outcome in women with first trimester bleeding, to prognosticate the obstetrical and perinatal outcome based on severity of first trimester bleeding and to compared it with the obstetrical and perinatal outcome in women having normal pregnancy.

Methods: This study was conducted in the Department of Obstetrics and Gynaecology, P.B.M. and associated group of Hospitals attached to S.P. Medical College, Bikaner during the study period of one year i.e. January 2014 to December 2014.

Results: The percentage of still birth in study group was 4.9% and in control group it was only 1%. The percentage of early neonatal death in study group was 3.7% and in control group was 2.1%. The difference was found statistically highly significant (p<0.001). According to antenatal complications, all the parameters were statistically insignificant (p>0.05) except PIH preterm labour and antepartum haemorrhage where the difference was found statistically significant (p<0.05) and Abortion where the difference was found statistically highly significant (p<0.001).

Conclusion: In conclusion, considering the results of our study first trimester vaginal bleeding can be a predicting factor for adverse outcome of mother and infant. It is necessary to increase the knowledge of pregnant women in this regard for close observation. Also, because the clinical intervention of attentive obstetrician has important role in not only the continuation of pregnancy but also decreasing fetal complications in these high risk pregnancies.

KEYWORDS: Antenatal Complications, Antepartum Haemorrhage, Infertility/subfertility, Perinatal Outcome, Vaginal Bleeding.

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INTRODUCTION

Pregnancy is always a significant event in a woman's life. It is often a time of hope for the future. Majority of women experience the beauty of creating and giving birth to the child. Bleeding in the very beginning of pregnancy causes emotional disruption in a woman's life. Despite the outcome of the pregnancy, bleeding during pregnancy is alarming.

Early pregnancy events and complications are amongst the most common complications in women during pregnancy. Most of these occur before 12 weeks of gestation and include abortion, vaginal bleeding, intrauterine hematoma, vanishing twin and hyperemesis gravidarum. The presence of any of these complications can be extremely distressing for the women. For the clinician, it is important to interpret the symptoms and to understand the short and long-term consequences of these complications, especially for reassuring and supporting the couple at such a difficult time[1].

AIMS

- To study the obstetrical complications in women with first trimester bleeding.
- To evaluate the perinatal outcome in women with first trimester bleeding.
- To prognosticate the obstetrical and perinatal outcome based on severity of first trimester bleeding.
- To compare the obstetrical and perinatal outcome in women having normal pregnancy.

MATERIALS AND METHODS

This study was conducted in the Department of Obstetrics and Gynaecology, P.B.M. and associated group of Hospitals attached to S.P. Medical College, Bikaner during the study period of one year i.e. January 2014 to December 2014.

In the study population, 100 pregnant women with gestational age up to 12 weeks irrespective of their parity with complain of bleeding per vaginum and 100 controls attending the OPD in the Department of Obstetrics and Gynaecology, P.B.M. hospital were enrolled in the study. This is a Case-Control study and was performed on 100 women presenting with bleeding in first trimester and 100 controls willing to give consent for study.

INCLUSION CRITERIA

- Women with gestational age up to 12 weeks with confirmed intrauterine pregnancy with bleeding per vaginum.
- Women willing to give consent.

EXCLUSION CRITERIA

- Women who have taken medication for termination of pregnancy
- Inevitable abortion, Incomplete abortion
- Women taking treatment for chronic diseases.
- Women taking chemotherapy.
- Ectopic pregnancy

METHOD

The approval of the hospital's ethical committee was obtained prior to the commencement of the study. Informed consent was obtained from each women recruited in the study. The patients attending ANC regularly were studied till child birth and early puerperium.

Before including patients in the study group detailed history including age, gravida, parity, duration of marriage, last menstrual period of gestation, chief complaints history regarding treatment was taken for infertility/subfertility, obstetric history was taken in each case. Gestational age was assessed by self-reported last menstrual period method and sonography.

After taking a written informed consent, patients with first trimester bleeding were admitted. Routine ANC investigations were done including USG. Duration of bleeding, amount of bleeding and repeat episodes of bleeding were noted and these patients were followed up and were kept under surveillance until delivery and the consequences of pregnancy were evaluated by close observation on the progress of pregnancy and prenatal and postnatal period.

Patients with threatened abortion were managed with complete bed rest till 48 hours of cessation of bleeding, folic acid supplementation and were given tablet micronized progesterone 200mg BD.

The women were asked to come for routine follow up or SOS. Any antenatal complications like PIH, Preterm labour, PROM and APH were noted.

All subjects were followed throughout the pregnancy and during labor and managed by team of doctors who are not part of the study. Maternal outcome was assessed with respect to mode of delivery, duration of labour and any complications in labour. After delivery, the baby was managed by neonatologist on duty who was unaware of the study and Apgar at 1 and 5 minutes were noted. Any resuscitation if required was done and any NICU care if required was provided by shifting the baby to NICU. Birth weight was recorded. Any complications developing to baby was managed by neonatologist.

In the newborn sex, weight, Apgar score, gestational age and congenital anomalies, type of resuscitation if required were noted. Suggestive development of respiratory distress syndrome, intracranial or intraventricular haemorrhage, septicemia etc were noted. Mothers and newborn were followed till discharge from the hospital. Obstetric outcome, maternal and neonatal morbidity and mortality were recorded and analysed using mean, standard deviation and p value was calculated.

RESULTS

The present study "A case-control study to predict the obstetrical (maternal and foetal) outcome after first trimester bleeding" was conducted in the department of Obstetrics and Gynaecology, Sardar Patel Medical College and Associated group of Hospitals, Bikaner.

Table 1 showing that the mean period of gestation for study group was 33.17 weeks and for control group was 38.38 weeks. The difference was statistically highly significant (p<0.001). From the table 1, it was observed that spontaneous abortion were more in study group than in control group. Preterm deliveries were also more in study group than in control group while term deliveries were less in study group than in control group.

The percentage of severe anaemia in study group was 8% and in control group was 4%. 19% of the patients in study group aborted while only 4% patients aborted in control group. This difference was found statistically highly significant (p<0.001) (Table 2).

Pregnancy induced hypertension developed in 13.6% of patients in study group and 5.2% in control group. The percentage of intrauterine growth restriction in study group was 7.4% and in control group was 4.2% (Table 3).

The percentage of LSCS in study group was 26% and in control group was 15.6%. Instrumental delivery was 1.2% in study group and there was no such case in control group. The difference was statistically highly significant (p<0.001) (Table 4).

The percentage of live birth with healthy outcome was 91.4% in study group and in control group was 96.9%. The percentage of still birth in study group was 4.9% and in control group it was only 1%. The percentage of early neonatal death in study group was 3.7% and in

control group was 2.1%. The difference was found statistically highly significant (p<0.001) (Table 5). Percentage of low birth weight in study group was 18.5% and in control group was 8.3%. The percentage of very low birth weight in study group was 7.4% and in control group was 2.1%. The percentage of extremely low birth weight was 1.2% in study group and no such case was reported in control group (Table 6).

Table 1: Distribution of Cases according to Period of Gestation (weeks) at delivery

Period of Gestation (Weeks)	Study Group		Control Group		Total		p
	No.	%	No.	%	No.	%	
<20 (weeks)	19	19.0	4	4.0	23	11.5	<0.001(S)
Early preterm (20-33 weeks)	8	8.0	5	5.0	13	6.5	>0.05(NS)
Late preterm (34-<37 weeks)	8	8.0	2	2.0	10	10.0	<0.05(S)
≥37 weeks	65	65.0	89	89.0	154	77.0	<0.001(S)
Total	100	100	100	100	200	100	
Mean	33.17		38.38				
SD	11.09		4.70				
P	<0.001(S)						

* S – Significant; NS – Non Significant

Table 2: Distribution of Cases according to obstetrical complications

Obstetrical Complications	Study Group		Control Group		p
	No.	%	No.	%	
Severe Anaemia Hb (<7gm%)	8	9.9	4	4.2	>0.05(NS)
Abortion	19	23.5	4	4.2	<0.001(S)

NS – Non Significant;   S – Significant   Hb - Hemoglobin

Table 3: Distribution of Cases according to antenatal complications

Antenatal Complications	Study Group (n=81)		Control Group (n=96)		p
	No.	%	No.	%	
Pregnancy Induced Hypertension	11	13.6	5	5.2	<0.05(S)
Intrauterine growth restriction	6	7.4	4	4.2	>0.05(NS)
Premature Rupture of Membranes	7	8.6	3	3.1	>0.05(NS)
Preterm Labour	16	19.8	7	7.3	<0.05(S)
Antepartum Haemorrhage	12	14.8	4	4.2	<0.05(S)

Table 4: Distribution of Cases according to Mode of Delivery

Mode of Delivery	Study Group		Control Group		Total	
	No.	%	No.	%	No.	%
Normal	59	72.8	81	84.4	140	79.1
Forceps/vacuum	1	1.2	0	-	1	0.6
Lower segment Cesarean Section	21	26.0	15	15.6	36	20.3
Total	81	100	96	100	177	100
p	<0.001(S)					

* Significant

Table 5: Distribution of Cases according to Fetal Outcome

Fetal Outcome	Study Group		Control Group		Total	
	No.	%	No.	%	No.	%
Alive with healthy outcome	74	91.4	93	96.9	167	94.4
Still Birth	4	4.9	1	1.0	5	2.8
Early Neonatal Death	3	3.7	2	2.1	5	2.8
Total	81	100	96	100	177	100
p	<0.001(S)					

* S - Significant

Table 6: Distribution of Cases according to Baby Birth Weight (kgs)

Baby Birth Weight (kg)	Study Group		Control Group		Total	
	No.	%	No.	%	No.	%
≥2.5	59	72.8	86	89.6	145	81.9
2.49-1.50 (Low Birth Weight)	15	18.5	8	8.3	23	13.0
1.49-1.00 (Very Low Birth Weight)	6	7.4	2	2.1	8	4.5
<1.00 (Extremely LBW)	1	1.2	0	-	1	0.6
Total	81	100	96	100	177	100
Mean	2.67		2.87			
SD	0.68		0.48			
p	<0.05(S)					

* S –Significant

DISCUSSION

In our study we found that early preterm delivery (20-33 weeks) was noticed in 8% cases in study group and 5% cases in control group. Late preterm delivery (34 - 37weeks) was also observed in 8% cases of study group while 2% cases in control group. This difference was statistically significant (p<0.05).The percentage of patients who reached term pregnancy were 65% in study group and 89% in control group (p<0.001). The difference was statistically significant. The mean period of gestation for study group was 33.17 weeks and 38.38 weeks for control group.

Similar results were obtained by Yang et al[2] who showed that overall association between vaginal bleeding and preterm delivery was modest. Ahmed et al[3] also noticed similar results as our study in which he described that the patients with threatened abortion were associated with more preterm deliveries as compared to control group [15.7% vs 2.2%, p =0.001].

This may be explained by the immunological reaction leading to increased free radical mediators causing oxidative stress which may mediate the relationship between bleeding and preterm delivery. Early pregnancy bleeding may also result in infection by open access of the reproductive tract that was previously inaccessible to pathogens which may also predispose to preterm delivery.

The percentage of pregnancy induced hypertension was more in study group as compared to control group that is 13.6% and 5.2% respectively. The difference was statistically significant (p<0.05).

Similar results were obtained by Hosseini and Yaghoubipour et al[4], they showed that the incidence of gestational hypertension was more in study group than in control group .In their study difference was statistically significant (p <0.001). The possible reason may be due to increased oxidative stress in fetomaternal circulation in patients with first trimester bleeding resulting in vasoconstriction and development of pregnancy induced hypertension.

In our study we found that intrauterine growth restriction was more in study group (7.4%) as compared to control group (4.1%). The difference was statistically not significant (p>0.05).

Our findings were similar to study by Agrawal et al[5] who stated that 6.2% cases were having intrauterine growth restriction in comparison to 3.8% in control group. In their study difference was statistically non-significant (p>0.98). Weiss et al[6] also stated that heavy bleeding was associated with intrauterine growth restriction (OR 2.6). The reason for this complication is that multiple episodes of placental bleeding lead to uteroplacental insufficiency causing intrauterine growth restriction.

In our study we found premature rupture of membranes was present in 8.6% cases in study group and 3.1% cases in control group. The difference was statistically not significant (p>0.05).

Our findings are similar to that of study by Agrawal et al[5], who stated that premature rupture of membranes was more common in patients with first trimester bleeding. The difference was statistically significant (p<0.05). Yang et al[2] also observed premature rupture of membranes was more common in threatened abortion.

Premature rupture of membranes may be explained as disruption of chorioamniotic plane by adjacent hemorrhage which makes the membrane more susceptible to rupture by increased free radical production within placental membrane.

In our study antepartum hemorrhage was more in study group as compared to control group (14.8% v/s 4.1%). The difference was statistically significant (p<0.05). Similarly Wijesiriwardana et al[7] assessed that women with threatened abortion were more likely to have Antepartum hemorrhage. Similar study by Agrawal et al[6] stated significantly higher incidence of low lying placenta (p=0.02). Thus it seems that first trimester bleeding is associated with increased risk of low lying placenta.

We found that in our study the percentage of normal vaginal delivery in cases of study group was less in comparison to control group (72.8% v/s 84.4%). The percentage of cesarean section was more in study group

than control group (26% v/s 15.6%). Incidence of instrumental delivery was 1.2% in study group while no case was reported in control group. The difference was statistically significant (p<0.001).

Our findings were similar to findings of Wijesiriwadana et al[7] who assessed cesarean section were more likely in first trimester vaginal bleeding patients. Patients with first trimester bleeding are high risk pregnancy having increase risk of PIH and IUGR were more often associated with placenta previa and abruption so patient landed up in cesarean.

The percentage of live birth with healthy outcome was less in study group than control group (91.4 % v/s 96.9%). The percentage of still birth and neonatal mortality were more in study group than control. The difference was statistically significant (p<0.001).

Our findings were similar to that of Jauniaux et al[8] who stated that risk of perinatal death was increased in study group (OR >2).Also similar findings were noticed by Nagy et al[9] who observed that frequency of still birth and perinatal mortality was increased in hematoma group but this difference was statistically not significant (p =0.6, p=0.2). Increased perinatal mortality may be attributed to IUGR, prematurity, respiratory distress syndrome and birth asphyxia.

CONCLUSION

In conclusion, considering the results of our study first trimester vaginal bleeding can be a predicting factor for adverse outcome of mother and infant. It is necessary to increase the knowledge of pregnant women in this regard for close observation. Also, because the clinical intervention of attentive obstetrician has important role in not only the continuation of pregnancy but also decreasing fetal complications in these high risk pregnancies.

Psychological support in the form of frequent discussions and sympathetic counseling can be crucial to the successful evaluation and treatment of the anxious pregnant patient. It is important that there is continued education of doctors and pregnant patient to recognize that first trimester bleeding did not always result in an undesired result.

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