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Pregnancy Outcome in First Trimester Bleed

KEYWORDS: Threatened abortion, Bleeding, pregnancy outcome.

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ABSTRACT *Threatened miscarriage is a common complication of pregnancy occurring in 15-25%[1-10] of ongoing pregnancies. Several studies have reported an association between first trimester bleed and abnormal pregnancy outcome including preterm deliveries, fetal growth restriction and low birth weight but the majority of these reports are retrospective.In the present study cases of threatened miscarriage have been examined from early in the first trimester and followed up prospectively until the end of pregnancy. This prospective cohort study was done in the Department Of Obstetrics And Gynecology, Government Kasturibha Gandhi Hospital, Chennai from Jan 2011- Dec 2012. Total no of patients were 400, among which 200 pregnant women in the threatened miscarriage group and 200 controls. All women in the study group were followed prospectively from their first visit until delivery .Threatened abortion is associated with an increased risk of pregnancy related complications like placental abruption, preterm labour, low birth weight babies, premature rupture of membranes. Our study concludes that the majority of women with first trimester bleeding have pregnancy outcomes comparable to those without such bleeding. It is evident that they face a higher relative risk of some adverse obstetric and neonatal outcomes.*

INTRODUCTION

The urge for Motherhood is unique. The term 'Safe-Motherhood 'is nowadays a slogan, not only in relation to mother but also in relation to fetus. Uterine Bleed in early pregnancy represents a definite threat to developing embryo and constitutes a source of anxiety to both the patient and the clinician. Vaginal bleeding during first trimester has been estimated to occur in 15-25%[1-10] of all pregnant women.

A spectrum of causes for first trimester bleed has been identified ranging from threatened abortion, complete abortion, Incomplete abortion, Missed abortion, Gestational Trophoblastic disease, Ectopic Gestation. In first trimester pregnancies complicated by bleed less than 50% progress normally beyond 20 weeks of gestation, 10-15% will be ectopic pregnancy, 0.2% will be a hydatidiform mole and 30% miscarry and approximately 5% of women elect to terminate the pregnancy. About 15% of pregnancies are complicated by threatened miscarriage[5].

Threatened abortion is a clinically descriptive term that applies to women who are at less than 20 weeks of gestation with a viable pregnancy and have vaginal spotting or bleeding, a closed cervical os and possibly mild uterine cramping. It has been shown to be associated with an increased risk of poor obstetric outcomes such as preterm labour[2], Low birth weight[23] and premature rupture of membranes[23].

The outcome of ongoing pregnancies after first trimester bleeding is of relevance to women and obstetricians for planning antenatal care and clinical interventions in pregnancy. The Prognosis of threatened abortion is very unpredictable whatever method of treatment is employed either in hospital or at home. Our objective is to study the maternal as well as perinatal complications so that they can be managed in the best possible way with reduction in morbidity and mortality.

AIM OF THE STUDY: To assess the Pregnancy outcome in women with threatened miscarriage in first trimester.

OBJECTIVE: To compare the pregnancy outcome in women with threatened first trimester bleed and without threatened first trimester bleed out of the hospital attendance and domiciliary management.

MATERIALS AND METHODS: In the present study, cases of threatened miscarriage have been examined from early in first trimester and followed up prospectively until the end of pregnancy. Pregnant women who seek hospital assessment for vaginal bleed less than 12 weeks of gestation are the subjects for study with a view to evaluate the outcome of pregnancy following close antenatal, intranatal and postnatal supervision.

This prospective cohort study was done in the Department of Obstetrics And Gynecology, Institute of Social Obstetrics, Government Kasturibha Gandhi hospital, Triplicane Chennai in the year Jan2011- Dec 2012. The cases were selected from the inpatient department. Participants with significant vaginal bleed in the first trimester were recruited. 200 cases were selected as study group. After informed consent women were recruited into the study.

The control group consisted of age matched women who booked for antenatal care in the hospital during the same time period. They were identified & consecutively matched for maternal age from the obstetric ultrasound database. The characteristics of all the patients related to their age

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, gravidity, period of gestation, ultrasonic results, duration of bleed , duration of hospital stay, treatment modalities and outcome were determined and data were collected through self administered structured questionnaire. Outcome data were obtained from the hospital notes and confirmed by telephone follow up wherever necessary. Potential confounding factors were identified and adjustment was made in the statistical model.

The potential confounding factors included maternal age, gravidity and previous recurrent abortion, previous preterm delivery, previous induced abortion, previous term delivery, previous pregnancy with a chromosomal abnormality, previous pregnancy with a genetic abnormality and use of assisted reproduction technology. The sample population was limited to primigravida and second gravida to minimize the potential confounding effect of parity.

Women presenting with complete and incomplete abortions were excluded. Women presenting with missed miscarriages were excluded. Women opting for termination and women with multiple pregnancies were excluded from the study group. Women with fetal malformations or hydatidiform Moles were excluded. Women who had a second trimester miscarriage were also excluded. Women with congenital uterine anomaly, large leiomyoma distorting the uterine cavity or known thrombophilia were excluded from the study group. Women seeking hospital assessment for vaginal bleed less than 12 weeks of gestation were included .Those women should not be on any drugs for hematological problems. There should be no history of similar complaints in previous pregnancy.

RESULTS AND ANALYSIS

In this study 200 cases were taken into consideration which was collected from inpatient department of Govt. Kasturiba Gandhi Hospital, Chennai. Pregnant women seeking hospital assessment for vaginal bleed less than 12 weeks of gestation are considered for study.

TABLE –I

Total number of cases and control subjects studied in the present study.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Case	200	50.0	50.0	50.0
Control	200	50.0	50.0	100.0
Total	400	100.0	100.0	

Table-I shows the total number of cases and control subjects in the present study to be 400 with cases being 200 and control subjects being 200 and their valid percentage being 50%respectively.

TABLE-II
GROUP STATISTICS

Group	N	Mean	Std Deviation	STD Error Mean
AGE Case	200	23.37	3.20	.23
Control	200	24.22	3.95	.28

TABLE-III
Independent samples Test

	Levene's test for equality of variances		t-test for equality of means						
	F	**Sig.**	**t**	**Df**	**Sig. (2-tailed)**	**Mean Difference**	**Std.Error difference**	95%Confidence Interval of the difference	
								Lower	Upper
AGE									
Equal variances assumed	**13.930**	**.000**	**-2.379**	**398**	**.018**	**-.86**	**.36**	**-1.56**	**-.15**
Equal variances not assumed			**-2.379**	**381.486**	**.018**	**-.86**	**.36**	**-1.56**	**-.15**

TABLE-IV Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
1.GROUP*TY_GRAV	400	100.0%	0	.0%	400	100.0%
2.GROUP*PRE ABORTION	400	100.0%	0	.0%	400	100.0%
3.GROUP*PRE ECLAMPSIA	400	100.0%	0	.0%	400	100.0%
4.GROUP*ECLAMPSIA	400	100.0%	0	.0%	400	100.0%
5.GROUP*PROM	400	100.0%	0	.0%	400	100.0%
6.GROUP*ABR	400	100.0%	0	.0%	400	100.0%
PLACENTA	400	100.0%	0	.0%	400	100.0%
7.GROUP*LLP	400	100.0%	0	.0%	400	100.0%
8.GROUP*Preg outcome	400	100.0%	0	.0%	400	100.0%
9.GROUP*MOD OF DEL	400	100.0%	0	.0%	400	100.0%
10.GROUP*MAN REMOVAL	400	100.0%	0	.0%	400	100.0%
11.GROUP*PPH	400	100.0%	0	.0%	400	100.0%
12.GROUP*B_WT	400	100.0%	0	.0%	400	100.0%

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TABLE-V
Incidence of Preeclampsia

			PREECLAMPSIA		TOTAL
			YES	NO	
GROUP	Case	Count	10	190	200
		%within GROUP	5.0%	95.0%	100.0%
	Control	Count	15	185	200
		%within GROUP	7.5%	92.5%	100.0%
TOTAL		Count	25	375	400
		%within GROUP	6.3%	93.8%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact. Sig. (2-sided)	Exact .Sig. (1-sided)
Pearson Chi-Square	1.067[b]	1	.302		
Continuity Correction	.683	1	.409		
Likelihood Ratio	1.073	1	.300		
Fisher's Exact Test				**.409**	**.205**
Linear-by-Linear Association	1.064	1	.302		
N of valid Cases	400				

a. Computed only for a 2×2 table
b .0 cells (.0%) have expected count less than 5.The minimum expected count is 12.50.

Table-V shows the incidence of preeclampsia in the study group. It has been found that 10 patients (5.0%) in the study group and 15 patients (7.5%) in the control group had signs and symptoms of preeclampsia in the antenatal period. No statistically significant difference was detected regarding the incidence of preeclampsia [P.409] in this study.

TABLE-VI
Incidence of Eclampsia

			ECLAMPSIA		TOTAL
			YES	NO	
GROUP	Case	Count	1	199	200
		%within GROUP	.5%	99.5%	100.0%
	Control	Count	3	197	200
		%within GROUP	1.5%	98.5%	100.0%

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)	Exact. Sig. (2-sided)	Exact. Sig. (1-sided)
Pearson Chi-square	1.010[b]	1	.315		
Continuity Correction	.253	1	.615		
Likelihood Ratio	1.057	1	.304		
Fisher's Exact Test				**.623**	**.312**
Linear-by-Linear Association	1.008	1	.315		
N of valid cases	400				

a. Computed only for a 2×2 table

b. 2 cells (50.0%) have expected count less than 5.The minimum expected count is 2.00

Table-VI shows the incidence of Eclampsia in the study group. It has been observed that 1 patient [.5%] in the case group and 3 patients [1.55%] in the control group had Eclampsia in the antenatal period. No statistically significant difference [P.615] was observed regarding the incidence of Eclampsia in this study.

TABLE-VII
Incidence of Abruptio Placenta

YES NO			ABR PLACENTA		TOTAL
GROUP	Case	Count	12	188	200
		%within GROUP	6.0%	94.0%	100.0%
	Control	Count	1	199	200
		%within GROUP	.5%	99.5%	100.0%
TOTAL		Count	13	387	400
		%within GROUP	3.3%	96.8%	100.0%

	Value	Df	Asymp. Sig. (2-sided)	Exact. Sig. (2-sided)	Exact. Sig. (1-sided)
Pearson Chi-square	9.620[b]	1	.002		
Continuity Correction[a]	7.951	1	.005		
Likelihood Ratio	11.284	1	.001		
Fisher's Exact Test				**.003**	**.001**
Linear-by-Linear Association	9.596	1	.002		
N of valid cases	400				

Table-VII shows the incidence of Abruptio Placenta in the

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study group. It has been observed 12 patients (6.0%) in the case group and 1 patient in the control group(5%) has Abruptio placenta .A statistically significant difference [P.005] was noted between the study and control group in the study.

TABLE-VIII
Incidence of PROM (Premature Rupture of Membranes)

			PROM		TOTAL
			YES	NO	
GROUP	Case	Count	13	187	200
		%within GROUP	6.5%	93.5%	100.0%
	Control	Count	2	198	200
		%within GROUP	1.0%	99.0%	100.0%
TOTAL		Count	15	385	400
		%within GROUP	3.8%	96.3%	100.0%

Chi-Square Test

	Value	df	Asymp. Sig. (2-sided)	Exact. Sig. (2-sided)	Exact. Sig. (1-sided)
Pearson Chi-square	8.381[b]	1	.004		
Continuity Correction[a]	6.926	1	.008		
Likelihood Ratio	9.329	1	.002		
Fisher's Exact Test					
Linear-by-Linear Association	8.360	1	.004	**.006**	**.003**
N of valid cases	400				

Table-VIII shows the incidence of Premature Rupture of Membranes in the study group. It has been observed 13 Patients (6.5%) in the case group and 2 patients in the control group (1%) had PROM.A statistically significant difference was [P.008] noted between the study group and control group.

TABLE-IX
Incidence of Low lying Placenta

			LLP		TOTAL
			YES	NO	
GROUP	Case	Count	6	194	200
		%within GROUP	3.0%	97.0%	100.0%
	Control	Count	2	198	200
		%within GROUP	1.0%	99.0%	100.0%
TOTAL		Count	8	392	400
		%within GROUP	2.0%	98.0%	100.0%

	Value	df	Asymp. Sig. (2-sided)	Exact. Sig. (2-sided)	Exact. Sig. (1-sided)
Pearson Chi-square	2.041[b]	1	.153		
Continuity Correction[a]	1.148	1	.284		
Likelihood Ratio	2.134	1	.144		
Fisher's Exact Test				**.284**	**.142**
Linear-by-Linear Association	2.036	1	.154		
N of valid cases	400				

Table-IX shows the incidence of low lying placenta in the study group. It has been observed 6 patients (3.0%) in the case group and 2 patients (1.0%) in the control group had low lying placenta. No statistically significant difference [P.284] was noted between the study and control group in the study.

TABLE-X
Pregnancy outcome in the study group

			Preg outcome		TOTAL
			Preterm	Term	
GROUP	Case	Count	32	168	200
		%within GROUP	16.0%	84.0%	100.0%
	Control	Count	18	182	200
		%within GROUP	9.0%	91.0%	100.0%
TOTAL		Count	50	350	400
		%within GROUP	12.5%	87.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact. Sig. (2-sided)	Exact. Sig. (1-sided)
Pearson Chi-square	4.480[b]	1	.034		
Continuity Correction[a]	3.863	1	.049		
Likelihood Ratio	4.533	1	.033		
Fisher's Exact Test				**.049**	**.024**
Linear-by-Linear Association	4.469	1	.035		
N of valid cases	400				

Table-X shows the incidence of pregnancy outcome in the study group. It has been found that 32 patients (16.0%) in the case group and 18 patients (9.0%) in the control group had preterm delivery. It has been observed that 168 patients (84.0%) in the case group and 182 patients (91.0%) in the control group had term deliveries. A statistically significant difference was noted between the study and control in the number of preterm deliveries in the present study.

TABLE-XI
Mode of delivery in the study group

			MOD OF DEL		TOTAL
			LSCS	Normal	
GROUP	Case	Count	72	128	200
		%within GROUP	36.0%	64.0%	100.0%
	Control	Count	88	112	200
		%within GROUP	44.0%	56.0%	100.0%
TOTAL		Count	160	240	400
		%within GROUP	40.0%	60.0%	100.0%

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Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact. Sig. (2-sided)	Exact. Sig. (1-sided)
Pearson Chi-square	2.667[b]	1	.102		
Continuity Correction[a]	2.344	1	.126		
Likelihood Ratio	2.670	1	102		
Fisher's Exact Test				**.126**	**.063**
Linear-by-Linear Association	2.660	1	.103		
N of valid cases	400				

Table XI compares the incidence of mode of delivery in the study group. It has been observed that 72 patients (36%) in the case group and 88 patients (44%) in the control group got delivered by caesarean section and 128 patients (64.0%) in the case group and 112 patients (56%) in the control group delivered by labour natural. No significant difference (P.126) in the incidence of type of delivery was noted in this study.

TABLE XII
Incidence of manual removal of placenta

			MAN REMOVAL		TOTAL
			YES	NO	
GROUP	Case	Count	23	177	200
		%within GROUP	11.5%	88.5%	100.0%
	Control	Count	15	185	200
		%within GROUP	7.5%	92.5%	100.0%
TOTAL		Count	38	362	400
		%within GROUP	9.5%	90.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact. Sig. (2-sided)	Exact. Sig. (1-sided)
Pearson Chi-square	1.861[b]	1	.173		
Continuity Correction[a]	1.425	1	.233		
Likelihood Ratio	1.874	1	.171		
Fisher's Exact Test				**.232**	**.116**
Linear-by-Linear Association	1.856	1	.173		
N of valid cases	400				

Table XII shows the incidence of manual removal of placenta in the study group. It has been found that 23 patients (11.5%) in the study group and 15 patients (7.5%) in the control group had manual removal of placenta done in the post partum period. A statistically significant difference (P.233) was not observed in the incidence of manual removal of placenta in this study.

TABLE XIII
Incidence of Postpartum Hemorrhage

			PPH		TOTAL
			YES	NO	
GROUP	Case	Count	11	189	200
		%within GROUP	5.5%	94.5%	100.0%
	Control	Count	7	193	200
		%within GROUP	3.5%	96.5%	100.0%
TOTAL		Count	18	382	400
		%within GROUP	4.5%	95.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact. Sig. (2-sided)	Exact. Sig. (1-sided)
Pearson Chi-square	.931[b]	1	.335		
Continuity Correction[a]	.524	1	.469		
Likelihood Ratio	.938	1	.333		
Fisher's Exact Test					
Linear-by-Linear Association	.928	1	.335	**.470**	**.235**
N of valid cases	400				

Table XIII shows the incidence of postpartum hemorrhage in the study group. It has been observed that 11 patients (5.5%) in the study group and 7 patients (3.5%) in the control group had significant postpartum hemorrhage. A Statistically significant difference (P.469) was not noted in the incidence of postpartum hemorrhage in this study.

TABLE XIV
Incidence of low birth weight

			B WT		TOTAL
			LBW	Normal	
GROUP	Case	Count	36	164	200
		%within GROUP	18.0%	82.0%	100.0%
	Control	Count	8	192	200
		%within GROUP	4.0%	96.0%	100.0%
TOTAL		Count	44	356	400
		%within GROUP	11.0%	89.0%	100.0%

Table XIV shows the incidence of Low Birth Weight of babies in the study group. It has been observed that 36 patients (18%) in the study group and 8 patients (4.0%) in the control group delivered babies with low birth weight (<2500gm).A statistically significant difference was noted between the study and control group in this study.

Complication	Case	Control	Odds ratio	95% CI	p - value
LBW	18	4	5.3	2.3-12.7	0.0001
Manual removal	11.5	7.5	1.6	0.8-3.4	0.233
PROM	6.5	1	6.9	1.5-44.8	0.008
Abrupt-placenta	6	0.5	12.7	1.7-264.3	0.005
PPH	5.5	3.5	1.6	0.6-4.7	0.469
Preeclampsia	5	7.5	0.7	0.3-1.6	0.409
LLP	3	1	3.1	0.6-22.2	0.284
Eclampsia	0.5	1.5	0.3	0.01-3.58	0.615

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DISCUSSION

It is already known that First- Trimester Vaginal bleeding affects upto 15-25%[1-10] of all pregnancies and reported to lead to spontaneous miscarriage in 50% of affected women and 50% of them continued their pregnancy[34-35]. These data showed that threatened miscarriage is not only associated with miscarriage but also associated with adverse pregnancy outcome. Results from this study confirm findings from other authors that threatened abortion is associated with an increased risk of certain pregnancy related complications namely preterm labour[2], low lying placenta [22,23], placenta praevia[15-23], abruptio placenta[22-23], delivery of low birth weight babies[23], premature rupture of membranes[2,11,23].

Generally high incidence of abortion and complications in threatened miscarriage indicate the necessity of proper programming in care and cure and also educating high risk women. Results of this study support other evidence to indicate that in some patients first trimester vaginal bleeding may indicate underlying placental dysfunction which may manifest in later pregnancy by a variety of adverse outcomes that have also been related to placental dysfunction[23].

In one study by John vidaver/Robert H (2003) an increased risk of pre-eclampsia, preterm delivery,placental abruption and caesarean delivery was observed for patients who reported light bleeding. For patients who reported heavy vaginal bleeding during first trimester they observed increased risk of IUGR, preterm delivery, PROM, Placental abruption and caesarean delivery. In our study increased risk of preterm delivery, PROM[33], Abruptio placenta and LBW was observed in patients with first trimester bleed[23]3.

In 1993,Verma et al[16] reported that pregnancy induced hypertension was significantly more common in subjects with threatened abortions and viable preganancy compared with subjects without vaginal bleeding (6%Vs.4.7% respectively; $p<0.05$). We don't find any significant association between vaginal bleed and preeclampsia.

Table V shows out of 200 cases with threatened miscarriage 5% of cases had signs and symptoms of preeclampsia as compared with 7.5% in the control group. Table VIII shows that out of 200 patients 6.5% of patients with threatened miscarriage had premature rupture of membranes as compared to 1% in the control group.

So our findings corroborate other studies that suggested an associated between threatened abortion and PROM[33]. Although the cause is unclear it is hypothesized that disruption of the chorionic-amniotic plane by adjacent hemorrhage may make the membrane more susceptible to rupture.

Alternatively the prolonged presence of blood may act as a nidus for intrauterine infection. Table VII shows that of 200 cases with first trimester bleed 6.0% of cases had Abruptio placenta has compared with 0.5% control. A statistically significant association between vaginal bleeding and Abruptio placenta was found.

Das et al. Dhaliwal LK[22] reported an increase risk for a low lying placenta among women with threatened miscarriage but found no difference in placenta location compared with control subjects by 36 weeks of gestation. Our data shows that in Table IX that out of 200 cases with first trimester bleed only 3% had low lying placenta. No significant association could be demonstrated between threatened miscarriage and placenta praevia.

Batzofin et al[2] and William et al[5] reported that patients with threatened miscarriage had double the risk of preterm delivery compared with patients without bleeding. The study of Williams et al[5] was limited to first trimester bleeding. Batzofin et al[2] included patients with bleeding upto 20 weeks. Strobino and Pantel silverman[4] failed to show as association between preterm delivery with light vaginal bleeding in the first trimester of pregnancy. In a meta analysis Saraswat et al[33] reported more incidence of PPROM and preterm delivery in study group. In our study statistically significant association between study and control subject was noted (P.0.049).Table X shows that out of 200 cases with threatened miscarriage 32 cases had preterm delivery and that is around 16.0% as compared with 9.0% in the control group.

Currently there is no information in the literature regarding threatened abortion and caesarean delivery[33]. Table XI shows that out of 200 cases with first trimester bleed 36.0% were delivered by caesarean section as compared with 44.0% in the control group. No significant association could be demonstrated between patient with vaginal bleed in first trimester and caesarean delivery in our study. Saraswat et al.[33] performed a systematic review and demonstrated that first trimester bleeding has no effect on the mode of delivery.But F Davari- Tanha et al[36] reported statistical association between threatened abortion and the risk for caesarean delivery.

Hertz JB. Heisenberg (1985)[3] reported that retention of placenta was associated with threatened miscarriage and the rate of manual removal was 14% . They postulated that adhesive scarring between the uterine wall and the placenta at the site of bleed might be responsible for the increased incidence of retention of placenta in women with threatened miscarriage. Table XII shows that out of 200 patients with first bleed 11.5% of cases had manual removal of placenta done as compared to 7.5% of control subjects. No statistically significant association between the case and control could be demonstrated in our study. Table XIII shows that out of 200 patients with first trimester bleed 5.5% of patients had post partum hemorrhage as compared to 3.5% of control. No significant association could be found between case and control in post partum hemorrhage.

Haddow et al[29] reported an increased risk for low birth weight (<2500gm) in pregnancies that were complicated by vaginal bleeding. Table XV shows that out of 200 patients 18% of patients with threatened miscarriage delivered babies with birth weight of <2500 gm as compared with 4% of patients in control. A statistically significant association between patients with first trimester bleed and low birth weight could be demonstrated in our study.

SUMMARY AND CONCLUSION

From our study it is reassuring that the majority of women with first trimester bleeding has pregnancy outcomes comparable to those without such bleeding it is evident that they face a higher relative risk of some adverse obstetric and neonatal outcomes. This information is helpful in terms of counseling women and alerting clinicians to early signs of these complications.

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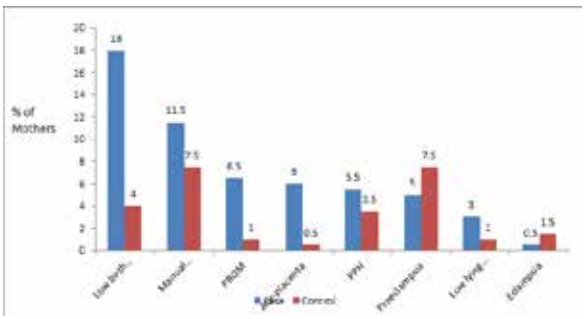
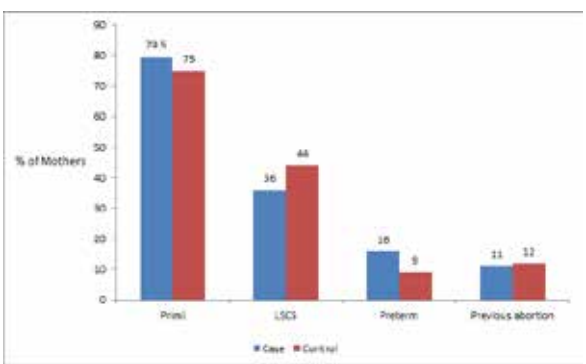
A continuing support and sympathetic attitude and follow up care are important to patients. This includes a tactful explanation about the pathological process and favorable prognosis when the pregnancy is viable. It is observed that early and comprehensive prenatal care can decrease risk of threatened abortion to some extent. So increased antenatal surveillance might identify women within this group who are at increased risk. Knowledge of this increased risk may also facilitate decision making regarding management, mode, place and time of delivery which will inevitably improve pregnancy outcome.

PREGNANCY OUTCOME



PROFILE



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