ORIGINAL ARTICLE

Preterm Deliveries In Women Presenting With Threatened Abortion

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ABSTRACT

Objective *To determine the frequency of preterm deliveries in women presenting with threatened abortion at tertiary care hospital.*

Study design *Cross sectional study.*

Place & Duration of study *Department of Obstetrics and Gynaecology Unit I, Jinnah Postgraduate Medical Center (JPMC) Karachi, from October 2014 to March 2015.*

Methodology *Women between 18 year to 45 year of age diagnosed as cases of threatened abortion, were consecutively selected. Patients with non-obstetric causes of bleeding such as cervicitis, vaginitis, cystitis, trauma, significant cervical dilation, ectopic pregnancy, multiple gestations etc were excluded from the study. The variables assessed were maternal age, gestational age and parity. Preterm delivery and obstetrical factors were expressed as frequency and percentages. Stratification of age, gestational age, parity and obstetrical factors was done. Chi square test was applied to the data and p <0.05 was taken as significant.*

Results *During the study period 105 women were diagnosed as cases with threatened abortion. The mean maternal age was 26.53±6.36 year. Mean gestational age was 29.92±3 weeks while mean parity was 2.30 ±1.18 (range: 1 to 5 children). Frequency of preterm delivery among patients of threatened abortion was 17.14% (n =18). Age was high significant (p = 0.001) effect modifier which decreased more than half from 20.83% in 18-25 year of age to 9.09% in 36-45 year of age. There was no significant difference with variation of gestational age and parity. With any obstetrical condition (pre-eclampsia, eclampsia, HELLP syndrome and placental abruption) much higher frequency of preterm delivery was noted as compared to having none (p = 0.000).*

Conclusions *The frequency of preterm delivery in patients of threatened abortion was more common in younger age and primigravida.*

Key words *Threatened abortion. Preterm delivery. Gestational age. Placental abruption. Pre-eclampsia.*

INTRODUCTION:

Vaginal bleeding is commonly noted in early pregnancy and it is potentially alarming symptom during this period of gestation. Its incidence is reported as 14-27% which is quite high.[1] Threatened abortion or pregnancies which are complicated by vaginal bleeding in first trimester have an increased risk of adverse outcomes.[2,3] In recent literature with singleton pregnancies it has been shown that with early vaginal bleeding there is an increased risk of pre-term premature rupture of membranes (PPROM) as well as preterm birth, pre-eclampsia, intrauterine growth retardation (IUGR) and abruptio placentae. These risks increase with advancing maternal age.[4,5] The survival of preterm newborns is dismal as there is high risk of death in these babies mostly as a consequence of prematurity.[6,7]

In a study by Weis et al where more than 16,000 pregnancies were evaluated there was 14% frequency of vaginal bleeding.[6,8] The authors

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concluded that in pregnancies with any vaginal bleeding there was likelihood of a loss of pregnancy at around 24 weeks of gestation. Other studies also examined the association between vaginal bleeding during first trimester and adverse pregnancy outcomes.[9,10] It is reported that after first trimester bleeding, preterm deliveries can occur in up to 38% of pregnancies.[11,12]

In a study from Pakistani by Karim SA et al it was found that preterm delivery occurred in 14.89% patients who had vaginal bleeding in the first trimester (7 out of 47) and in 33.33% patients who had vaginal bleeding in the second trimester (6 out of 18 with a p value <0.001).[13] In a study from Israel it was found that out of total 123 patients who presented with vaginal bleeding 47 (38.2%) patients had preterm delivery while in the control group rate of preterm delivery was 16.8 % (81 out of 483 patients) which was highly significant (p value <0.001).[14] Significant differences were also noted in terms of parity, number of previous abortions, maternal BMI and the cesarean delivery (CD) rate (41.5% vs 21.3%; p <0.001).[15,16] In a study comparing pregnancy outcome in patients of threatened abortion with use of the progesterone-treated and placebo-treated groups it was found that rate of preterm delivery was 16.9% in intervention group and 19.7% in placebo group.[17] It is therefore mandatory to monitor the threatened abortion cases with proper and regular physical and obstetrical examination along with investigations. This shall prevent the unnecessary maternal and neonatal morbidity and mortality particularly with preterm neonates.

An increased frequency of cases of vaginal bleeding during pregnancy has been reported in modern times. This may be an outcome of life style and other environmental factors. Western studies have shown high rates of adverse neonatal outcomes like intrauterine growth retardation, still birth and preterm deliveries. A high rate of neonatal deaths in pregnancies complicated by vaginal bleeding (threatened abortions) is also documented. Data on this problem from Pakistani population is scantly. This provides a rationale to conduct such a study. The results of this study thus provide the burden and magnitude of the problem related to preterm deliveries with a history of threatened abortion.

METHODOLOGY:

This cross sectional study was carried out in the Department of Obstetrics and Gynaecology JPMC Karachi, from October, 2014 to March 2015. A total of 105 patients of threatened abortion were enrolled and followed. The objective of the study was to find out the frequency of preterm delivery among this cohort of patients. The diagnosis was based upon history, examination and ultrasound scan. Patients with non-obstetric causes of bleeding such as cervicitis, vaginitis, cystitis, trauma, significant cervical dilation, ectopic pregnancy, multiple gestations, twin pregnancies etc were excluded from the study.

Pregnant patients presenting to the obstetrical emergency with bleeding per vagina were enrolled after taking informed consent. They were admitted and monitored. Pulse and blood pressure recording were made half hourly and homeostatic stability was maintained. Data were collected on predesigned proforma. Variables noted were age, gestational age and parity. Findings of ultrasound scan in relation to the gestational age and presence of singleton fetus were recorded.

The patients were treated as per standard obstetrical protocol of threatened abortion. Once stabilized patients were followed in outpatient department after discharge. Further those patients who developed pre-eclampsia, eclampsia, HELLP syndrome, preterm delivery and placental abruption were treated as per protocol of the institution.

Data entry was done on SPSS version 17 and analysis made. Primary outcome variable the preterm delivery was recorded and expressed in frequencies and percentages. Age of the women, gestational age and parity were expressed as mean with standard deviation (Mean ± SD). To evaluate the effect of modifiers on the outcome variable (the maternal age, parity, gestational age and obstetrical factors like pre-eclampsia, eclampsia, HELLP syndrome and placental abruption) the data were stratified followed by application of contingency test; Chi-square (x^2) with a p value <0.05 taken as significant.

RESULTS:

A sample of 105 cases of threatened abortion were enrolled. The mean maternal age was 26.53±6.36 year with a range from 18 year to 43 year. Mean gestational age was 29.92 ±3 weeks (range from 24 weeks to 36 weeks) while mean parity was 2.30±1.18 (range from 1 to 5 children). Age categorization showed that 45.71% (n= 48) women were of age 18 year - 25 year, 43.81% (n= 46) of 26 year to 35 year and 10.48% (n=11) women between 36 year - 45 year (table I). The majority of cases (58% - n= 61) were of gestational age between 24 weeks - 30 weeks while 42% (n= 44) were of gestational age 31-36 weeks.

Table I: Effect of Maternal Age on Frequency of Preterm Delivery In Patients of Threatened Abortion

Maternal age (Year)	Preterm delivery		Total	p-value
	Yes	No		
18 -25	10	38	48	0.001
	20.83%	19.17%	100%	
26 - 35	7	39	46	
	15.21%	84.79%	100%	
36 - 45	1	10	11	
	9.09%	90.91%	100%	
Total	18	87	105	
	17.1%	82.9%	17.1%	

Different obstetrical condition that patients of threatened abortion developed irrespective of outcome variable, is given in table II. Pre-eclampsia, eclampsia and HELLP syndrome were present in 5.7% (n= 6) patients each and placental abruption in 8.6% (n= 9) patients. Preterm delivery among patients of threatened abortion was found in 17.14% (n =18) cases.

Stratified analysis showed that age was highly significant (p=0.001) effect modifier of frequency of preterm delivery in patients of threatened abortion which decreased up to more than half (from 20.83% in 18 year -25 year of age to 9.09% in 36 year - 45 year of age). This is given in table II.

It was found that with increasing parity there was initially increase followed by some decrease in frequency of preterm delivery in patients of threatened abortion. The rate was 16.2% in those having 0-2 children increased to 23.8% in those having 3-4 children while again decreased to 10% in those who had 5 children(p=0.590). An important and highly significant finding of this study was that development of any obstetrical condition like pre-eclampsia, eclampsia, HELLP syndrome and placental abruption in threatened abortion had much higher frequency of preterm delivery as compared to not having any of such obstetrical conditions

DISCUSSION:

Vaginal bleeding during pregnancy in the case of a viable fetus is associated with miscarriage in around 20% cases or more depending upon the severity and related risk factors.[11,13] The first-trimester bleeding may indicate an underlying placental dysfunction. This can manifest later in pregnancy causing adverse outcomes such as increased risk of pre-eclampsia, eclampsia, preterm prelabour rupture of membranes (PPROM), placental abruption and intrauterine growth restriction preterm delivery.[7,10]

The current study was conducted to evaluate the frequency of preterm deliveries specifically in those women who had presented with threatened abortion at our ward. It was noted that 17.14% (n =18) patients of threatened abortion had preterm delivery. This rate was different when compared with that found in other studies.[13] In contrast to aforementioned study in our study all patients were of second trimester. In comparison to a study from Israel the rate of preterm deliveries in threatened abortions in index study is also lower.[18] In that study the rate of preterm delivery in first trimester threatened abortions patients was 38.2% which is much higher. A study from United Kingdom reported a much lower rate of premature delivery among first trimester threatened abortion of only 5.6%.[19] This may be due to highest level of antenatal care.

Three quarters of our patients delivered without developing any obstetrical co morbidity but it is to be kept in mind that common obstetrical conditions associated with preterm delivery in threatened abortions are pre-eclampsia, eclampsia, placental abruption and HELLP syndrome.[9,20] The current study also evaluated these conditions and found that placental abruption was more common in this study. Further, pre-eclampsia, eclampsia and HELLP syndrome each was present in 5.7% patients. Other studies have documented variable rates of these conditions among patients of threatened abortion. The rates of these conditions range from 3-50% in many of the studies.[21]

It was found that maternal age had a significant relationship with frequency of preterm delivery in patients of threatened abortion. Higher the maternal

Table II: Association of Obstetrical Conditions with Occurrence of Preterm delivery in Threatened Abortion

Obstetrical Conditions	Preterm delivery		Total	p-value
	Yes	No		
No obstetrical condition	2	76	78	0.0001
	2.6%	97.4%	100%	
Pre eclampsia	3	3	6	
	50%	50%	100%	
Eclampsia	3	3	6	
	50%	50%	100%	
HELLP syndrome	4	2	6	
	66.7%	33.3%	100%	
Placental abruption	6	3	9	
	66.7%	33.3%	100%	
Total	18	87	105	
	17.1%	82.9%	100%	

age, lower was the incidence of premature delivery. Number of children also affected the outcome of threatened abortion cases such that higher the parity lower was frequency of preterm delivery. It was also noted that frequency of preterm delivery was higher among higher gestational age patients. These three factors represent the fact that younger age women and those having lesser parity have more associated risk factors which make them prone to threatened abortion. This group needs special focus regarding screening, advice and follow-up during the antenatal visits. Having thorough information about the outcome of ongoing pregnancies following first trimester bleeding is relevant, to both women and their obstetricians in order to plan antenatal care and consider clinical interventions in pregnancy.[22]

The efficacy and safety of the various treatment options generally guide in making decisions to prevent loss of these pregnancies. The current study suggests strict vigilance and thorough antenatal check-up of all pregnant women especially those who are of younger age and primigravida.

CONCLUSIONS:

Preterm delivery in patients of threatened abortion was not found in first trimester. It was commonly seen in younger age and primigravida. Obstetrical causes had significant association with premature birth.

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