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Maternal and Perinatal Outcome in Women with Threatened Miscarriage in the First Trimester

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ABSTRACT

Objective: To determine the frequency of Maternal out come in women with threatened miscarriage in first trimester. To assess Intrauterine growth retardation (IUGR) , low birth weight condition and still birth in delivered babies

Study Design: Cross sectional study.

Place and Duration of Study: This study was conducted on the booked pregnant women between the age of 18 to 40 years in Lady Dufferin Hospital Karachi during July 2012 to December2012.

Materials and Methods: Pregnant women with any parity present in labour room in active phase of labor with previous history of vaginal bleeding before 12th week of gestation were subjected to the questionnaire. The questionnaire was consisted of socio demographic variables that includes age, occupation, education and antenatal visits. The independent variables congenital malformation, high maternal age and previous history of miscarriage were assessed. The dependent variables were asked the maternal and fetal outcome that can occur during pregnancy.

Results: Average age of the women was 26.83±4.71 years (95%CI: 26.09 to 27.58). Preterm labour was observed in 12.1% women and rapture of membranes (ROM) in 6.4% cases. Still birth was observed in 22.9%, low birth weight in 11.5% and IUGR was observed in 10.2% cases.

Conclusion: The results of our study are comparable with the previous literature. Such as previous history of miscarriage, advanced maternal and fetal out comes such as pre-term labour, ROM, still birth in 22.9%, low birth weight and IUGR have been previously identified and reported both many national and international studies, though with acceptable differences in proportions.

Key Words: Threatened miscarriage, Intrauterine growth retardation (IUGR), low birth weight condition, still birth, Rupture of membrane.

INTRODUCTION

First trimester vaginal bleeding is the common complication which effects 20% of all pregnancies occurring in about a fifth of cases [1,2,3]. The diagnosis of threatened miscarriage is made as a result of history of vaginal bleeding, and the finding of a closed cervix on vaginal examination and documented fetal cardiac activity on ultrasound [1,4] The bleeding is perhaps of placental origin which comes from placental disruption or as a result of vascular disturbance at the site of implantation, or because of a union of deciduas capsularis and deciduas vera [5], which may manifest late in pregnancy. Threatened abortion indicates a high risk pregnancy and, as such, demands more serious prenatal care [6] and identification of factors leading to it such as high maternal age10% , previous history of miscarriage 23% and congenital malformation3.23% [1,7,8.] Congenital anomalies are evident in 2% to 3 % of all live births, but this number increases to 6% by five years of age when more anomalies are diagnosed.[8] Threatened miscarriage causing adverse outcomes such as increased risk of pre-eclampsia 5.7%, eclampsia 0.1%, preterm delivery 11.9% , preterm pre-labour

rupture of membranes (PPROM) 0.7%, elective cesarean 4.7%, emergency cesarean 4.2%, placental abruption 0.6%, intrauterine growth restriction 8.32%, low birth weight 9.6%, perinatal mortality 1.79%, perinatal morbidity 2.96% 1,6,10.Similarly it was reported that the incidence of placental abruption and placenta praevia 11 and premature rupture of the membranes 12 were higher among patients with threatened miscarriage as compared to non threatened group, The desired and expected outcome of every wanted pregnancy is a normal, functioning infant with a good intellectual potential . Fulfillment of this hope depends on numerous hereditary and environmental factors[13,14]. Recent research has indicated the importance of various prenatal circumstances and pregnancy outcome[15,16]. About, 90-96% pregnancies with both fetal cardiac activity and vaginal bleeding at 7-11 weeks do not miscarry. The higher success rate is associated with bleeding at the later end of the gestational age range[17].Threatened miscarriage in first trimester is associated with increase fetal and maternal risk and poor obstetrical outcome in comparison, with normal pregnancies[18], Many studies suggest that first-trimester vaginal bleeding is associated with a worse

outcome.[19,20] Moreover, when pregnant women have bleeding, it may cause stress and anxiety for the mother-to-be about the outcome of pregnancy. So, it is necessary to be diagnosed and managed to prevent maternal or fetal mortalities and morbidities [21]. So there is a need for more frequent antenatal care and fetal surveillance as well as uncomplicated deliveries in tertiary care centers and monitoring of growth and development of newborns in serial follow up visits to offer on time medical care, treatments or educational services [22,23.] The International scientific Literature regarding maternal and perinatal outcome in women with threatened miscarriage in the first trimester relatively limited and very limited locally. So the study was planned to estimate the magnitude of feto maternal out come. So to amend the management protocol.

MATERIALS AND METHODS

Study Design: Cross sectional study by using Purposive non probability sampling technique.
Setting: Lady Dufferin Hospital Karachi.
Duration of Study: Six month from July 2012 to December 2012
Sample Size: Sample size of 157.

Sample Selection:
Inclusion criteria: All the booked pregnant women between the age of 18 to 40 years with any parity presented in labour room in active phase of labor with previous history of vaginal bleeding before 12th week of gestation.
Exclusion criteria: Following pregnant women were excluded from the study. Women with known incompetent cervical OS., Non-viable pregnancy, Twin pregnancy, Hydatidifom mole, Renal failure, Chronic hypertension, Diabetes mellitus.
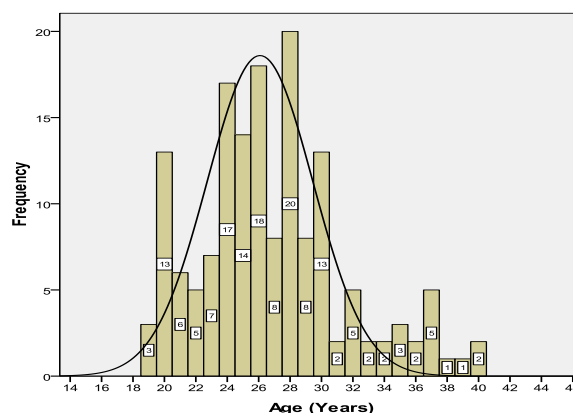
Data Collection Procedure:
All patients fulfilling the inclusion criteria being admitted for labour and giving a history of threatened miscarriage during first trimester were subjected to the questionnaire. The questionnaire was interviewed by the researcher herself. The questionnaire was consisted of socio demographic variables that includes age, occupation, education and antenatal visit. The independent variables congenital malformation, high maternal age and previous history of miscarriage were assessed. The dependent variables were asked the maternal and fetal outcome that can occur during pregnancy.

Data Analysis Procedure:
Data analysis was performed through SPSS version 16, frequency and percentage were computed for working status, education, maternal and fetal outcomes. Mean and standard deviation were computed for age, gestational age, parity and gravid. Stratification was done with regard to age, parity and working status to
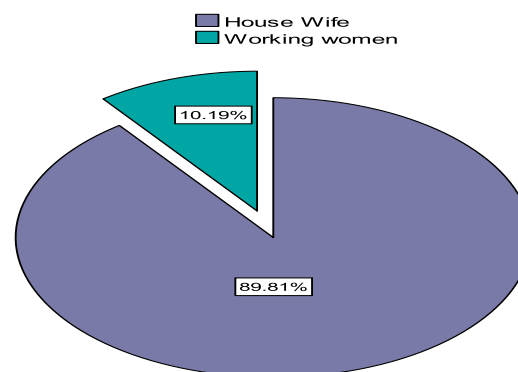
observe the effect on maternal and fetal outcomes. All the outcome variables were categorical so chi-square test was applied to compare proportion difference. $P \leq 0.05$ was considered significant.
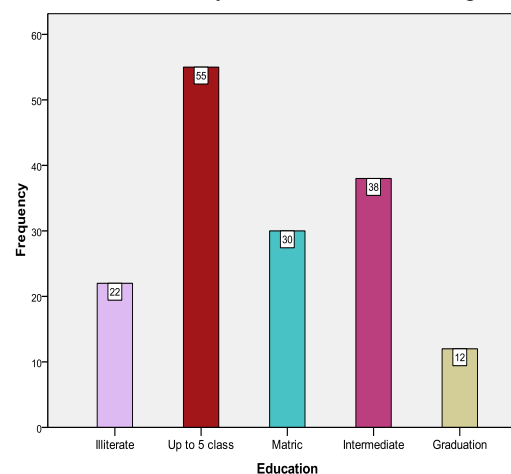
RESULTS

Figure No.1:Bistogram of age distribution

Average age of the women was 26.83 ± 4.71 years (95%CI: 26.09 to 27.58).

Figure No.2: Frequency of working status of the women

Study finding reveled that the majority 89.81% were house wife and only 10.19% were working women.
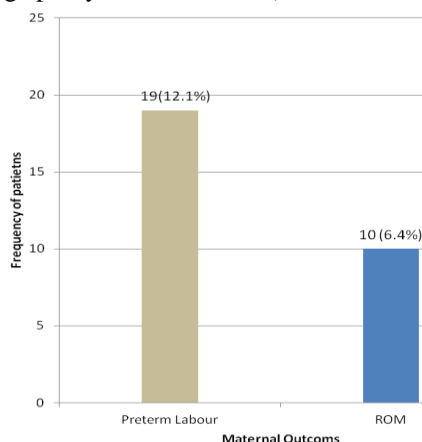

Figure No.3: Educational status of the women

Out of 157 women 14% were illiterate, 35% were up to 5 classes and 19% were matric.

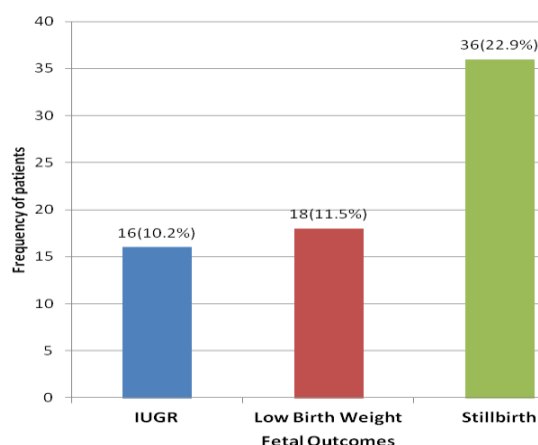**Table No 1: Descriptive statistics of characteristics of patients**

Variables	Mean ± SD	95%CI	Median (IQR)	Max-Min
Age (Years)	26.83±4.71	26.09 to 27.58	26(5)	40-19
Gestational Age (Weeks)	37.82±5.46	37.45 to 38.18	38(2)	40-30
Gravida	1.72±0.79	1.59 to 1.86	2(1)	3-1
Parity	1.54±0.59	1.45 to 1.64	1(1)	3-1

Average gestational age (Weeks) was 37.82±5.46 (95%CI 37.45 to 38.18), Average Gravida was 1.72±0.79 (95%CI 1.59 to 1.86)
Average parity was 1.54±0.59 (95%CI 1.45 to 1.64)

Figure No.4: Frequency of maternal out come in women with threatened miscarriage in first trimester

In our study Preterm labour was observed in 12.1% women and repture of membranes (ROM) was observed in 6.4% cases

Figure No.5: Frequency of fetal out comes in women with threatened miscarriage in first trimester

The frequency of fetal outcome was (44.6%) with highest frequency of still birth which was 22.9%, fallowed by low birth weight in 11.5% and last by IUGR which was observed in 10.2% cases.

Table No: 2. Frequency of maternal and fetal outcome with respect to age groups

Variables	Age Groups (Years)		P-Values
	< 30 n=119	≥30 n=38	
Maternal Outcomes			
Preterm Labour	15(12.6%)	4(10.5%)	0.73
ROM	7(5.9%)	3(7.9%)	0.65
Fetal Outcomes			
IUGR	13(10.9%)	3(7.9%)	0.76
Low Birth Weight	12(10.1%)	6(15.8%)	0.38
Still Birth	27(22.7%)	9(23.7%)	0.89

There was no any Significant difference in maternal and fetal outcomes amongst women was not observed between age groups for

Table No: 3. Frequency of maternal and fetal outcome with respect to age parity

Variables	Parity			P-Values
	Primipara n=80	1-2 n=69	>4 n=8	
Maternal Outcomes				
Preterm Labour	11(13.8%)	7(10.1%)	1(12.5%)	0.79
ROM	6(7.5%)	4(5.8%)	0(0%)	0.68
Fetal Outcomes				
IUGR	9(11.3%)	6(8.7%)	1(12.5%)	0.85
Low Birth Weight	5(6.3%)	10(14.5%)	3(37.5%)	0.017*
Still Birth	21(26.3%)	14(20.3%)	1(12.5%)	0.53

*Significant

Similarly significant difference was also not found among parity for all parameter except rate of low birth weight which was high in the women whose parity was above 4.

Table No.4:.Frequency of maternal and fetal outcome with respect to working status

Variables	Working Status		P-Values
	Housewife n=141	Working Women n=16	
Maternal Outcomes			
Preterm Labour	18(12.8%)	1(6.3%)	0.69
ROM	9(6.4%)	1(6.3%)	0.98
Fetal Outcomes			
IUGR	15(10.6%)	1(6.3%)	0.58
Low Birth Weight	15(10.6%)	3(18.8%)	0.39
Still Birth	32(22.7%)	4(25%)	0.76

Maternal and fetal outcome were also not significantly different between working and housewife

DISCUSSION

A total of 157 pregnant women were recruited in study. The frequency of maternal out come in women with threatened miscarriage in first trimester was (18.5%) with pre-term labour in 12.1% and ROM in 6.4%. The frequency of fetal outcome was (44.6%) with still birth in 22.9%, low birth weight in 11.5% and IUGR was observed in 10.2% cases. No confounder was found to effect either parity or age on the factors and outcomes related to threatened miscarriage.

The study undertook a systematic review to explore the effects of threatened miscarriage in the first trimester on maternal and perinatal outcomes. The fourteen studies met the inclusion criteria. Women with threatened miscarriage had a significantly higher incidence of antepartum haemorrhage due to placenta praevia [odds ratio (OR) 1.62, 95% CI 1.19, 2.22] or antepartum haemorrhage of unknown origin (OR 2.47, 95% CI 1.52, 4.02) when compared with those without first-trimester bleeding. [2]

They were more likely to experience PPROM (OR 1.78, 95% CI 1.28, 2.48), preterm delivery (OR 2.05, 95% CI 1.76, 2.4) and to have babies with intrauterine growth restriction (OR 1.54, 95% CI 1.18, 2.00). First-trimester bleeding was associated with significantly higher rates of perinatal mortality (OR 2.15, 95% CI 1.41, 3.27) and low-birth weight babies (OR 1.83, 95% CI 1.48, 2.28). We also found most of these maternal and fetal outcomes such as pre-term labour in 12.1%, ROM in 6.4%, still birth in 22.9%, low birth weight in 11.5% and IUGR was observed in 10.2% cases, related to threatened miscarriage in our study. Threatened miscarriage in the first trimester is associated with increased incidence of adverse maternal and perinatal outcome.[2]

To investigate prospectively the risk of adverse pregnancy outcome in women presenting with first-trimester threatened miscarriage, a prospective case control study was performed on 600 subjects, 150 women presenting with bleeding in the first trimester and 450 asymptomatic age-matched controls. Women presenting with threatened miscarriage were more likely to deliver prematurely, 52.9% in cases and 4.7% in control group (relative risk 3.6, 95% confidence interval [CI] 2.4-4.8).[3]

They were also more likely to have PPROM, 27.5% in cases compared with 6.4% in control (relative risk 4.2, 95% CI 2.6-6.9) and placental abruption, 5.7% in cases compared with 1.5% in control respectively (relative risk 3.6, 95% CI 1.2-11.3), and LBW, 14.9% in cases compared with 7.1% in control respectively (relative risk 2.1, 95% CI 1.1-3.8), low lying placenta18.2% in cases as 1.1% in control , mean birth weight was less in cases 2866.25 ± 130.3g . We also found similar results

with comparable proportions the frequency of maternal out come in women with threatened miscarriage in first trimester was (18.5%) with pre-term labour in 12.1% and ROM in 6.4%. The frequency of fetal outcome was (44.6%) with still birth in 22.9%, low birth weight in 11.5% and IUGR was observed in 10.2% cases. [3]

To assess pregnancy outcomes in women with threatened miscarriage in the first trimester. This was a retrospective cohort study based on data extracted from the Aberdeen Maternity and Neonatal Databank. . [1]

The results found that compared with the control group (n = 31,633), women with threatened miscarriage (n = 7,627) were more likely to have antepartum haemorrhage of unknown origin (odds ratio [OR] 1.83, 95% confidence interval [CI] 1.73-2.01). Elective cesarean (OR 1.30, 95% CI 1.14-1.48) and manual removal of placenta (OR 1.40, 95% CI 1.21-1.62) were performed more frequently in these women, who also had a higher risk of preterm delivery (OR 1.56, 95% CI 1.43-1.71) and malpresentation (OR 1.26, 95% CI 1.13-1.40)[1]. To evaluate the pregnancy outcome in pregnancies with threatened abortion (miscarriage). A prospective cohort study was performed on 1000 pregnant women. There were no differences between the 2 groups with regard to Preeclampsia, small for gestational age (SGA), and cesarean deliveries. Neonatal weight was lower in case group as compared to control group (3046.4+/-560.8 g vs. 3317.6+/-432 g, P=0.001). This was also supported by our study, the frequency of maternal out come in women with threatened miscarriage in first trimester was (18.5%) with pre-term labour in 12.1% and ROM in 6.4%. The frequency of fetal outcome was (44.6%) with still birth in 22.9%, low birth weight in 11.5% and IUGR was observed in 10.2% cases. Therefore threatened abortion indicates a high risk pregnancy and, as such, demands more serious prenatal care.[6]

CONCLUSION

In our study the maternal out come after delivery showed preterm labor and rupture of membrane very important maternal complication.

In the fetal outcome three conditions, low birth weight, still birth and intrauterine growth retardation were found.

The results of our study are comparable with the previous literature, maternal and fetal out comes such as pre-term labour, ROM, still birth in, low birth weight and IUGR have been previously identified and reported in various national and international studies, though with acceptable differences in proportions. Further studies are recommended to be conducted with large sample size to reach the firm conclusion.

REFERENCES

1. Wijesiriwardana A, Bhattacharya S, Shetty A, Smith N, Bhattacharya S. Obstetric outcome in

women with threatened miscarriage in the first trimester. Obstet Gynecol 2006;107:557-62.

2. Saraswat L, Bhattacharya S, Maheshwari A, Bhattacharya S. Maternal and perinatal outcome in women with threatened miscarriage in the first trimester: a systemic review. BJOG 2010;117: 245-57.

3. Davari-Tanha F, Shariat M, Kaveh M, Ebrahimi M, Jalalvand S. Threatened abortion: a risk factor for poor pregnancy outcome. Acta Med Iran 2008;46: 314-20.

4. Cunningham FG, Leveno KJ, Bloom SL, Hauth JC, Gilsstrap LC, Wenstrom KD, editors. Clinical diagnosis of threatened miscarriage. 23rd ed. Williams's obstetrics; 2010.p.215-224.

5. Chohan A. Puberty, menstruation, and ovulation. In: Fundamentals of Gynaecology. Lahore: MAR Publications; 2000: p. 15-20.

6. Dadkhah F, Kashanian M, Eliasi G. A comparison between the pregnancy outcome in women both with or without threatened abortion. Early Hum Dev 2010; 86: 193-6.

7. Hammoud AO, Merhi ZO, Diamond M, Baumann P. Recurrent pregnancy loss and obstetric outcome. Int J Gyneacol Obstet 2007;96:28–9.

8. Sípek A, Gregor V, Horacek J, Masatova D, Seetnicova K. The incidence of birth defects in Czech Republic in 2002. Ceska Gynekol 2004; 69:202–10.

9. Maconochie N, Doyle P, Prior S, Simmons R. Risk factor for first trimester miscarriage result from UK. Population based case control study. BJOG 2007; 114: 170-86.

10. Bhattacharya S, Townend J, Shetty A, Campbell D, Bhattacharya S. Does miscarriage in an initial pregnancy lead to adverse obstetric and perinatal outcomes in the next continuing pregnancy? Br J Obste Gynaecol 2008; 115: 1623–9.

11. Sheiner E, Levy A, Katz M, Mazor M. Pregnancy outcome following recurrent spontaneous abortions. Eur J Obstet Gynecol Reprod. Biol 2005;118:61-65.

12. Buchmayer SM, Spare´n P, Cnattingius S. Previous pregnancy loss: risks related to severity of preterm delivery. Am J Obstet Gynecol 2004;191: 1225-1231.

13. Singh R, Al-Sudani O. Major Congenital Anomalies at birth in Benghazi, Libyan Arab Jamahiriya,1995. East Mediterr Health J 2000; 6:65–75.

14. Rankin J. Congenital anomalies in the British Isles. In: Nicolopoulou-Stamati, P; Hens, L; Howard, CV, editors. Congenital Diseases and the Environment. Dordrecht, The Netherlands: Springer; 2007.p.359–77.

15. Tootoonchi P. Easily Identifiable Congenital Anomalie:Prevalence and Risk Factors. Acta Med Iran 2003;41:15–9.

16. Bianchi F, Calzolari E, Ciulli L, Cordier S, Gualandi F, Pierini A, et al. Environment and genetics in the etiology of cleft lip and cleft palate with reference to the role of folic acid. Epidemiol Prev 2000;24:21–7.

17. Tongsong T, Srisomboon J, Wanapirak C. et al. Pregnancy outcome with threatened abortion with demonstrable fetal cardiac activity: A cohort study. J obstet Gynecol (Tokyo 1995) 1995; 21: 331-5.

18. Saraswat L, Bhattacharya S, Maheshwari A, Bhattacharya S.Maternal and perinatal outcome in women with threatened miscarriage in the first trimester: a systematic review. BJOG 2010;117:245–57.

19. Verma SK, Premi HK, Gupta TV, Thakur S, Gupta KB, Randhawa I. Perinatal outcome of pregnancies complicated by threatened abortion. J Indian Med Assoc 1994;92(11):364-365.

20. Sipilä P, Hartikainen-Sorri AL, Oja H, Von Wendt L. Perinatal outcome of pregnancies complicated by vaginal bleeding. Br J Obstet Gynaecol 1992; 99(12):959-963.

21. Mulik V, Bethel J, Bhal K. A retrospective population based study of primigravid women on the potential effect of threatened miscarriage on obstetric outcome. J Obstet Gynaecol. 2004;24(3): 249-253.

22. Forrester MB, Merz RD. First-year mortality rates for selected birth defects, Hawaii, 1986–1999. Am J Med Genetics Part A 2003;119:311–8.

23. Agha MM, Williams JI, Marrett L, To T, Dodds L. Determinants of survival in children with congenital abnormalities: A longterm population-based cohort study. Birth Defect Research Part A. Clin Molecul Teratol 2006;76:46–54.

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