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PLACENTA PREVIA: AN OUTCOME BASED CROSS SECTIONAL STUDY IN ANTENATAL WOMEN PRESENTING IN TERTIARY CARE HOSPITAL

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Abstract

Introduction: Placenta previa is one of the main causes of antepartum hemorrhage and is an important cause of maternal and perinatal morbidity & mortality worldwide.

Objective: To find the frequency of adverse maternal and neonatal outcomes in pregnant women, with placenta previa, presenting in a tertiary care hospital.

Methodology: This cross-sectional descriptive, case was done at Obstetrics & Gynecology Department, Central Park Medical College, Lahore from 1st January 2019 to 31st December 2019. A total 171 patients were included with ultrasound evidence of placenta previa and/or placenta accreta. Demographic characteristics and other required information recorded in proforma. Maternal outcomes in terms of primary PPH and neonatal outcomes in terms of NICU admission were noted.

Results: The patients mean age was 29.71±2.94 years & mean Duration of pregnancy was 36.44±1.36 weeks. There were 43(25.1%) women with no C-section, 105(61.4%) had 1-2 C-sections and 23(13.5%) had 3 or more C-sections. There were 146(85.4%) women with history of painless vaginal bleeding. In this study there were 58(33.9%) women had PPH and 25(14.6%) women with placenta Accreta. Peripartum Hysterectomy was done in 24 (14%) patients. There were 66(38.6%) babies admitted in NICU. There was no significant association between PPH and age groups as the p-value was not significant (P-values=0.19).

Conclusion: The frequency of adverse maternal & neonatal outcomes in pregnant women, with placenta previa was very high in this study so it is concluded that the presence of placenta previa increases adverse maternal & neonatal outcomes when delivered

Keywords: Maternal Outcome, Neonatal Outcome, Placenta Previa

Introduction

Placenta previa is a placenta that covers the internal os, wholly or partly and persists beyond 16 weeks of gestation[1]. It can be identified antenatally with the help of ultrasonography and, in rare cases, magnetic resonance imaging[2]. Although it has a low incidence (varying from 4 to 8 per 1000 pregnancies), it poses threats to both the mother and the foetus[3,4]. Antepartum hemorrhage associated with placenta previa accounts for maternal morbidity, including the requirement of massive blood transfusions and/or obstetrical hysterectomy. It also accounts for almost 30% of maternal deaths in Asia[5]. Placenta previa is linked with several fetal/neonatal adverse events. In a systematic review, pregnancies complicated with placenta previa were found to have 5 times higher rates of prematurity, admission to NICU and perinatal death, largely due to peripartum haemorrhage[6,7]. Unlike the developed world where early diagnosis, better management and readily available transfusion facilities have improved the outcome, placenta previa continues to contribute massively to maternal & fetal morbidity or mortality in developing and third-world countries, mostly due to underutilization and/or non-availability of these facilities[8,9,10]. One international study conducted on placenta previa in which the frequency of placenta accrete is 26%, obstetric hysterectomy 15%, no maternal death, stillbirth 13% and 20% admission in NICU. In another study conducted on placenta previa showed frequency of obstetric hysterectomy 4.7%, primary PPH 12.7%, placenta accreta 4.7%, NICU admission 30.2%[11].

The rationale of the study is to find the frequency of adverse maternal & fetal outcomes in pregnant women with complete placenta previa. It's known that placenta previa is associated with different feto-maternal complications. I want to conduct this study in our population as a few local studies are available related to the frequency of adverse maternal and fetal outcomes and there are discrepancies in the percentages of these studies. We wanted to know about complications related to placenta previa; so that the severity of the issue may be assessed and actions made to decrease maternal and fetal morbidity and death from these complications.

Methodology

This cross-sectional descriptive study was conducted in the Obstetrics & Gynecology Department, Central Park Medical College, Lahore**.** 171 sample size was calculated at 95% confidence level & 5.0% margin of error by taking expected frequency of PPH is 12.7%. Pregnant women between 18-40 years of age with placenta previa, with singleton pregnancy and patients with sure of dates calculated by LMP were included in the study. Women with placenta previa before 30th week of gestation, pregnant females with clinical evidence of placenta abruption i-e tense tender abdomen & painful vaginal bleeding, Pregnant women with placenta previa, having medical disorders i.e. hypertension, diabetes, cardiac disease, thyroid disorder were excluded. Informed consent was obtained, from all the patients, explaining the purpose and process of the study. Age, duration of pregnancy, history of previous caesarean sections & vaginal bleeding was collected, at the time of admission. Maternal outcome was taken as primary PPH with blood loss of >1000ml from the genital tract within 24 hours after lower segment caesarean section with associated symptoms (dizziness, palpitations, tachycardia, sweating & fall of systolic B.P from 80-100mmhg & calculated by soaked swabs & full kidney disk= 500ml) and placenta accreta was considered to be present if there's ultrasonographical evidence of thinning of myometrium overlying the placenta and was noted as Yes/No. Peripartum hysterectomy was recorded as Yes/No, if the patient undergoes hysterectomy during the peripartum period (first 24 hours postoperatively) due to PPH. Neonatal outcome Admission to NICU **(**decision of was taken by the neonatologist) was noted as Yes/No. Perinatal death was taken as death of the neonate within 10 days after delivery.

Data was analysed using Statistical Package for Social Sciences (SPSS) V 25. Parity, history of painless vaginal bleeding, placenta accreta, peripartum hysterectomy, and admission to NICU was presented as frequencies and percentages. Age, amount of blood loss, duration of pregnancy, no of previous c sections will be presented with mean ± standard deviation. Chi-square test was used to compare the maternal complications & fatal outcome in stratified groups. P-value ≤ 0.05 was considered as significant.

Results:

Among 171 participants; The mean age of the women was 29.71±2.94 years. The mean Duration of pregnancy was 36.44±1.36. Table: 1 There were 92(53%) women with 1 parity, 11(6.4%) with 2 parity, 27(15.8%) with 3 parity, 19(11.1%) with 4 parity, 19(11.1%) with parity 5 and 3(1.8%) with parity 6.

Table: 1 Descriptive of Age & Duration of Pregnancy

Age	Mean + SD	29.71+2.94
Duration of Pregnancy	Mean + SD	36.44+1.36

There were 85(49.7%) women who were admitted from ER/Labor room while 86(50.3%) were admitted through OPD. There were 43(25.1%) women with no C-section, 105(61.4%) had 1-2 C-sections and 23(13.5%) had 3 or more C-sections. Table: 2

Table: 2 Frequency of Admission source of women

Admission source of Women	ER/ Labour Room	85(49.7%)
	OPD	86(50.3%)
Previous C-Section	None	43(25.1%)
	1-2	105(61.4%)
	3 or above	23(13.5%)

There were 146(85.4%) women with history of painless vaginal bleeding and 25(14.6%) women had no history of painless vaginal bleeding. In this study there were 58(33.9%) women with PPH and 133(66.1%) without PPH. There were 25(14.6%) women with placenta Accreta and 146(85.4%) without placenta Accreta. There were 24(14%) patients with peripartum Hysterectomy and 147(86%) without peripartum Hysterectomy. There were 66(38.6%) fetus which were admitted in NICU and 105(61.4%) were not admitted in NICU. Table: 3

Table: 3 History of patients

	Yes	**No**
History of painless vaginal bleeding	146(85.4%)	25(14.6%)
PPH	58(33.9%)	133(66.1%)
Placenta Accreta	25(14.6%)	146(85.4%)
Hysterectomy	24(14%)	147(86%)
Fetal admission to NICU	6 (38.6%)	105(61.4%)

There was no significant association between PPH and age groups as the p-value was not significant (p-values=0.19) whereas there was significant association between PPH and Parity, Pregnancy duration, Admission source, and Previous C-section as the p-values were significant (p-values<0.05). There was no significant association between placenta Accreta and all the other variables like age groups Parity, Pregnancy duration, Admission source, and Previous C-section as the p-values were not significant (p-values>0.05). Table: 4 There was no significant association between Peripartum Hysterectomy and all the other study variables like age groups Parity, Pregnancy duration, Admission source, and Previous C-section as the p-values were not significant **(**p-values>0.05).

Table: 4 PPH, Placenta Accreta & Peripartum Hysterectomy relation with effect modifiers

		PPH		**p-value**	**Placenta Accreta**		**p-value**	**Peripartum Hysterectomy**		**p-value**
		Yes	**No**		**Yes**	**No**		**Yes**	**No**	
Age (Years)	**22-28**	12(20.7%)	34(30.1%)	**0.19**	6(24%)	40(27.4%)	**0.72**	6(25%)	40(27.2%)	**0.82**
	29-35	46(79.3%)	79(69.9%)		19(76%)	106(72.6%)		18(75%)	107(72.8%)	

Parity	**01-2**	1(1.7%)	102(90.3%)	**0.00**	18(72%)	85(58.2%)	**0.19**	15(62.5%)	88(59.9%)	**0.8**
	03-5	57(98.3%)	11(9.7%)		7(28%)	61(41.8%)		9(37.5%)	59(40.1%)	
Pregnancy Duration	**33-36**	47(81%)	26(32%)	**0.00**	7(28%)	66(45.2%)	**0.11**	8(33.3%)	65(44.2%)	**0.32**
	37-39	11(19%)	87(77%)		18(72%)	80(54.8%)		16(66.7%)	82(55.8%)	
Admission Source	**ER**	40(69%)	45(39.8%)	**0.00**	10(40%)	75(51.4%)	**0.29**	10(41.7%)	75(51%)	**0.39**
	OPD	18(31%)	68(60.2%)		15(60%)	71(48.6%)		14(58.3%)	72(49%)	
Previous C-Section	**None**	9(15.5%)	34(30.1%)	**0.034**	6(24%)	37(25.3%)	**0.58**	7(29.2%)	36(24.5%)	**0.73**
	01-2	37(63.8%)	68(60.2%)		14(56%)	91(62.3%)		13(54.2%)	92(62.6%)	
	>3	12(20.7%)	11(9.7%)		5(20%)	18(12.3%)		4(16.7%)	19(12.9%)	

Discussion:

Placenta previa is one of the feared complications in obstetrics due to its associated adverse maternal & perinatal outcome. The number of pregnancies and age of the mother have both been found to be key risk factors for placenta previa. According to the findings of study by G.D Maiti 1 et al, 50% of females were more than 30 years of age and 76% were multiparous[12]. Similar are the findings of our study as in our study 73.1% women were above the age of 30 years but only 40% were multiparous. Another study reported that previous obstetric history 36.8% had previous cesarean delivery & 7.4% had previous history of uterine curettage. While in our study the findings were different as in our study 75% women had a history of prior cesarean section. The prevalence of placenta previa at second delivery for females who had their first vaginal birth was 4.4 per 1000 births in a retrospective cohort analysis of 399, 674 women, compared to 8.7 per 1000 births for women who had their first caesarean section[13].

Their study also reported 13 cases of PPH while there were 58(33.9%) cases of PPH. According to Ahmed et al[14] 2015, the rate of placenta previa & accreta was 1.3% & 26.9 %. Hysterectomies in obstetrics were performed at a rate of 15.1 percent. They also reported that among the surviving babies, 17.3% were admitted to NICU, while in our study 38.6% of infants were admitted to NICU, which is almost double as compared to our study. According to a systematic review[15], the prevalence of placenta previa is affected by the number of prior caesarean scars, with rates of 1%, 2.8 percent, and 3.7 percent after 1, 3, and 5 caesarean births[14]. that is comparable to 1.1% rate in a local study from Cameroon[16].

The frequency of placenta accrete in previously done study was 26.9%, that is considered with average range for prevalence. The frequency of placenta accrete varies from 2.0% in women those who have a single prior placenta previa to 39–60% in women who have two or more prior accrete[17,18]. In this study, the frequency of placenta accrete was 14.6 percent, which is significantly lower than in the previous study. In one study that examines the impact of rising primary & secondary delivery rates on the annual incidence of placenta previa, Mogos et al. concluded that if caesarean deliveries continue to increase, the yearly frequency of placenta previa or accrete & feto-maternal complications will rise significantly[19].

There is an increased rate of PPH, ICU hospitalizations due to maternal complications, which can be related to placenta previa. Another study reported that 39.7 % of patients were delivered before 37 weeks & 30.2% of newborns were admitted to the neonatal ICU. In another study, preterm delivery occurred in 67.5% of cases[20]**.** On the other side in our study, 42.7% patients were delivered before 37 weeks and 38.6% of newborns were admitted to the hospital so these findings are almost similar to the findings of our study[21].

Maternal problems associated to placenta previa have been found to be much higher in studies, including severe obstetrical haemorrhage, transfusion of blood, maternal shock, emergency hysterectomy and thrombophlebitis. In a study conducted in Nepal 68% of patients had PPH and cesarean hysterectomy done in 9.4 % of cases[22], while in our study PPH was present in 33.9% of cases and cesarean hysterectomy done in 14% of cases. With increasing gestational age, the chance of haemorrhage rises from 4.7 percent at 35 weeks to 59 percent at 38 weeks[23].

Conclusion:

The frequency of maternal and Neonatal outcomes in pregnant females with placenta previa was very high in this study so it is concluded that the presence of placenta previa increases adverse maternal and newborn outcomes. Furthermore, advancing maternal age, multiparty & prior cesarean sections are independent risk factors for placenta previa.

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