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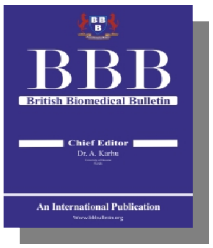

Original

Maternal and Perinatal Outcome in Rural Indian Women with Placenta Previa

Santu Maiti*[1], Priyankar Kanrar[2], Chaitali Karmakar[3] and Suman Bagdi[4]

[1]*Senior Resident, Dept of OBG, Chittaranjan Seva Sadan, Kolkata, India*
[2]*RMO&CT, Dept of OBG, Burdwan Medical College, India*
[3]*Senior Resident, Dept of OBG, Vivekananda Institute of Medical Sciences, India*
[4]*Junior Resident, Dept of OBG, Medical College & Hospital, Kolkata, India*

A R T I C L E I N F O

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Corresponding author: Senior Resident, Dept of OBG, Chittaranjan Seva Sadan, Kolkata, India.
E-mail address: drmsantu00@gmail.com

A B S T R A C T

Objective: The present study was to find out maternal and perinatal outcome of pregnancy with placenta previa among rural Indian women. **Method:** This was an observational case control study conducted over one year. 115 women with placenta previa were taken as cases and 230 women without placenta previa were taken as control. **Results:** Women with placenta previa are more likely to have abnormal presentation (OR 4.86; 95% CI: 2.12-11.12), preterm delivery (OR 11.54; 95% CI: 5.89-22.59), cesarean delivery (OR 13.68; 95% CI: 7.67-24.41), post partum haemorrhage (OR 8.36; 95% CI: 4.04-17.27), obstetrical hysterectomy (OR 19.44; 95% CI: 2.43-155.45) and post partum blood transfusion (OR 10.65; 95% CI: 3.91-29.96). Newborns of mothers with placenta previa are more likely to have lower birth weight ($p<0.001$), low APGAR score (<7) at one minute (OR 2.78; 95% CI: 1.43-5.44), low APGAR score (<7) at five minute (OR 3.03; 95% CI: 1.12-8.19) and increased NICU admission (OR 4.56; 95% CI: 1.97-15.50). **Conclusion:** Poor maternal and perinatal outcome are associated with placenta previa.

Introduction

Placenta previa is one of the leading causes of obstetric hemorrhage. It is associated with significant maternal and perinatal morbidity as well as mortality, especially in developing countries like India. Even with the significant advancement in the diagnostic approaches including ultrasonographic localization of placental position in the early weeks of pregnancy, it remains as a major cause of obstetric emergencies[1]. Its incidence varies between 2.7 to 12.2 per 1000 pregnancy depending on the region[2]. Though exact etiology remains a matter of investigation, a number of risk factors of placenta previa have been found to be associated including advanced maternal age, multiparity, uterine anomalies, previous cesarean delivery, previous abortion, smoking and cocaine use during pregnancy and Asian ethnicity[3-7]. Antepartum, intrapartum and postpartum hemorrhage, need for blood transfusion and obstetrical hysterectomy are the major maternal complications[8,9] of placenta previa where as preterm birth, low birth weight, low APGAR score as well as increased rate of neonatal intensive care unit (NICU) admission are notable neonatal complications[10,11]. There are lacunas in the studies from India regarding the pregnancy outcome of placenta previa. This study has been conducted to found maternal and perinatal outcome of pregnancy with placenta previa among Indian women.

Materials and Methods

This observational case control study was conducted over a time period of one year in tertiary medical hospital in India. Total one hundred and fifteen (115) women delivered in this hospital with singleton pregnancy along with placenta previa were included in the study group as cases. Placenta previa was defined as ultrasonographic detection of placenta previa before delivery or by clinical examination during caesarean section or vaginal delivery. Two hundred and thirty (230) women with singleton pregnancy delivered vaginally or by caesarean section during the above period were included in the control group. For each case two controls were chosen. Data were collected regarding delivery data (presentation of fetus, mode of delivery and gestational age at delivery), neonatal data (birth weight, APGAR score at 1 and 5 minute and NICU admission) and maternal complications (post partum hemorrhage, need for post partum blood transfusion and peri-partum hysterectomy).Women having medical or surgical illness and with intrauterine fetal death were excluded from the study. Statistical analysis was done by SPSS (version 18). Categorical data were analyzed by Chi square test and continuous data was analyzed by Mann–Whitney U test.

Results

Maternal outcome

Among total 345 women included in this study, 115 women were taken as cases with placenta previa and rest (230) were controls. The maternal outcome was compared between two groups (Table 1). In 40.86% (47/115) cases with placenta previa, pregnancy was terminated before term (37 weeks) compared to only 5.65% in controls (OR 11.54; 95% CI: 5.89-22.59). Abnormal presentation like breech, transverse lie and oblique lie were more common among cases (OR 4.86; 95% CI: 2.12-11.12). Mothers with placenta previa were more likely to be delivered by cesarean delivery (OR 13.68; 95% CI: 7.67-24.41). Post partum haemorrhage was more common among cases compared to controls (OR 8.36; 95% CI: 4.04-17.27). Most of the cases were managed conservatively with medical management but obstetrical hysterectomy

was needed in nine cases compared to only one mother in control group (OR 19.44; 95% CI: 2.43-155.45). Post partum blood transfusion was also more common among women with placenta previa (OR 10.65; 95% CI: 3.91-29.96). (See table 1.)

Perinatal outcome

Perinatal outcome of placenta previa is shown in Table 2. Newborns of mothers with placenta previa were more likely to have lower birth weight ($p<0.001$). Low APGAR score (<7) at one minute was comparatively higher in newborns of mothers with placenta previa (OR 2.78; 95% CI: 1.43-5.44). Similarly low APGAR score at five minute was found to be more associated with the same (OR 3.03; 95% CI: 1.12-8.19). NICU admission rate was also very high among the newborns of mothers with placenta previa (OR 4.56; 95% CI: 1.97-15.50). (See table 2.)

Discussion

Our study has shown that mothers with placenta previa have clearly higher rate of preterm delivery. Zlatnik *et al*.[12] have also parallel experiences. Increased rate of abnormal fetal presentation in this group may be a cause. The study of Tuzović *et al*.[4] also supports this. Moreover most (84.34%, 97/115) of these mothers with placenta previa were delivered by cesarean section. Increased rate of cesarean delivery in placenta previa have already been demonstrated by other studies[12,13]. Post partum haemorrhage has been found as important complication associated with placenta previa in this study as mentioned by Sheiner *et al*.[13] previously. Placental implantation in lower segment and increased need for operative interference may have role behind this. Cases were six more than eight times likely to have this experience compared to the control group. A significant higher rate of obstetrical hysterectomy has been found associated with placenta previa, though rates were found to be lower than previous studies[14,15]. We also found increased rate of post partum blood transfusion among the women with placenta previa. This can be explained by increased incidence of postpartum haemorrhage, cesarean section and hysterectomy among these mothers.

We have also found poor neonatal outcome in the placenta previa group. This may be partially explained by the increase rate of preterm delivery among these women. Birth weights of the newborns were also significantly lower in this group. This has also been mentioned by Tuzović *et al*.[4] Lower APGAR score both at one and five minutes were found to be more among newborn in the placenta previa group. Similar lower five minute APGAR score in newborns of mothers with placenta previa was also demonstrated by Nørgaard *et al*.[16] though Tuzović *et al*.[4] have not found any significant difference in term newborn with placenta previa. More than fourfold increased rate of NICU admission was also found among the newborns in placenta previa group. Increased low birth weight and low APGAR scores in this group may be the underlying cause. Balayla *et al*.[17] have similar findings and have mentioned possibility of iatrogenic cause behind this.

Conclusion

Our study has demonstrated some of the major maternal and neonatal complications associated with placenta previa. It is a potential life threatening condition to both mother and baby. Thorough antenatal care and planned delivery in well equipped centre may improve outcome in future.

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Table 1. Maternal outcome of placenta previa

Parameters	No of women (%)		P value	Unadjusted odd ratio
	Cases (n=115)	Control (n=230)		
Preterm Delivery (37 wks) Yes No	47 (40.86) 68 (59.14)	13 (5.65) 217 (94.35)	<0.001	11.54 (5.89-22.59)
Abnormal Presentation Yes No	19 (16.52) 96 (83.48)	9 (3.91) 221(96.09)	<0.001	4.86 (2.12-11.12)
Mode of Delivery Vaginal Cesarean	18 (15.66) 97 (84.34)	165(71.74) 65(28.26)	<0.001	13.68 (7.67-24.41)
PPH Yes No	34(29.56) 81(70.44)	11(4.78) 219(95.22)	<0.001	8.36 (4.04-17.27)
Hysterectomy Yes No	9 (7.82) 106 (92.18)	1 (0.44) 229 (99.56)	0.005	19.44 (2.43-155.45)
Blood Transfusion Yes No	22 (19.13) 93 (80.87)	5 (2.17) 225 (97.83)	<0.001	10.65 (3.91-29.96)

Table 2. Perinatal outcome of placenta previa

Parameters	No of women (%)		P value	Unadjusted odd ratio
	Cases (n=115)	Control (n=230)		
Birth Weight (grams) Mean	2.325±0.583	2.721±0.327	<0.001	-
APGAR score at 1 minute <7 ≥7	22 (19.13) 93 (80.87)	18 (7.82) 212 (92.18)	0.002	2.78 (1.43-5.44)
APGAR score at 5 minute <7 ≥7	10 (8.69) 105 (91.31)	7 (71.74) 223 (96.96)	0.028	3.03 (1.12-8.19)
NICU admission Yes No	18 (15.65) 97 (84.35)	11 (3.91) 219 (96.09)	<0.001	8.36 (4.04-17.27)