Journal of Current and Advance Medical Research
January 2022, Vol. 9, No. 1, pp. 36-41
http://www.banglajol.info/index.php/JCAMR
ISSN (Print) 2313-447X
ISSN (Online) 2413-323X
NLM Catalog ID 101673828
DOI: https://doi.org/10.3329/jcamr.v9i1.59743

ORIGINAL ARTICLE

Evaluation of Maternal and Neonatal Outcomes in Pregnant Women with Placenta Previa and Placenta Accreta

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[**Received on:** 1 October 2021; **Accepted on:** 20 December 2021; **Published on:** 1 January 2022]

Abstract

Background: Placenta praevia is a disorder that happens during pregnancy when the placenta is abnormally placed in the lower uterine segment, which at times covers the cervix. Placenta previa may be associated with placenta accreta (PA) or one of its more advanced forms as (placenta increta and percreta). **Objective:** The purpose of the present study was to evaluate the maternal and neonatal outcomes in patients with placenta previa and placenta accrete. **Methodology:** This prospective descriptive study was carried out at Different privet chamber in Dhaka City, during study period from January 2018 to December 2019. Among 75 cases (45 had placenta previa and 30 had placenta accrete) diagnosed preoperatively by ultrasound or postoperatively with or without PA. Maternal and neonatal outcomes were evaluated. All intraoperative and postoperative data were reported. The obtained data was analyzed by means of SPSS software (version 23.0) and $p<0.05$ was taken as the significant level. **Results:** Cesarean hysterectomy, Urinary tract injuries, EBL, Patients receiving mean transfusion , mean Operative time, Admission to maternity HDU, Admission to ICU and mean Postoperative hospital stay (days) statistically significant ($p<0.05$), however age, parity and gestational age was not statistically these were significant ($p>0.05$) between two groups. IUFD was found 1(3.3%) in placenta accrete group but not found in placenta previa group. Neonatal death was found 1(3.3%) in placenta accrete group but not found in placenta previa group. **Conclusion:** The incidence of both PP and PA is very high in present locality due to increase CS rate. Admission to maternity HDU, admission to ICU and mean Postoperative hospital stay (days) were significantly difference between women with placenta previa (PP) and placenta accreta (PA). [*Journal of Current and Advance Medical Research, January 2022;9(1):36-41*]

Keywords: Placenta previa; placenta accrete; Outcome

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Conflict of interest: There is no financial conflict of interest relevant to this paper to disclose.
Funding agency: This research project was not funded by any group or any institution.
Contribution to authors: Laizu IA, Banu LA, contributed from the protocol preparation, data collection up to report writing. Manuscript writing was performed by Fayz FA have revised the manuscript.
How to cite this article: Laizu IA, Banu LA, Fayz FA. Evaluation of Maternal and Neonatal Outcomes in Pregnant Women with Placenta Previa and Placenta Accreta. J Curr Adv Med Res 2022;9(1):52-55

Introduction

Placenta praevia is a disorder that happens during pregnancy when the placenta is abnormally placed in the lower uterine segment, which at times covers the cervix. The incidence of placenta praevia is 3-5 per 1000 pregnancies worldwide and is still rising because of increasing caesarean section rates[1]. The greatest risk of placenta praevia is bleeding. Bleeding often occurs as the lower part of the uterus begins to stretch and lengthen in preparation for delivery. When the cervix begins to efface and dilate, the attachment of the placenta to the uterine wall is detached, resulting in bleeding[2]. Placenta previa may be associated with placenta accreta (PA) or one of its more advanced forms as (placenta increta and percreta).

Clinically, PA becomes problematic during delivery when the placenta does not completely separate from the uterus and is followed by massive obstetric hemorrhage, leading to disseminated intravascular coagulopathy; the need for hysterectomy; surgical injury to the ureters, bladder, bowel, or neurovascular structures; adult respiratory distress syndrome; acute transfusion reaction; electrolyte imbalance; and renal failure[3]. Major degree placenta is a serious health issue and is associated with high fetal-maternal morbidity and mortality[4]. Massive obstetrical haemorrhage in placenta previa is associated with severe maternal morbidity and mortality worldwide accounting for 30.0% maternal deaths in Asia[5].

There are several neonatal complications associated with placenta previa that are often related to prematurity[6]. To prevent serious feto-maternal complications, proper treatment of established haemorrhage should be undertaken, which is poorly existent in low-income countries. Furthermore, in countries there is a paucity of researches to generate clinical evidence. The aim of present study was to determine the feto-maternal outcomes in women with major placenta previa and and placenta accreta (PA).

Methodology

This prospective descriptive study was carried out at Different privet chamber in Dhaka City, during study period from January 2018 to December 2019. Among 75 cases (45 had placenta previa and 30 had placenta accrete) diagnosed preoperatively by ultrasound or postoperatively with or without PA. All cases were evaluated as regards history and examination, ultrasound report to knew if there is abnormal placentation as placenta accreta and its degree, hemoglobin and platelets levels before delivery. The ultrasound finding criteria for confirmation of placenta previa was placental insertion totally or partially into the lower segment of the uterus. The color Doppler criteria suggestive of placenta accreta include: diffuse or focal lacunar flow, vascular lakes with turbulent flow, hypervascularity of serosa–bladder interface and markedly dilated vessels over peripheral sub placental zone. Maternal outcomes was define type of cesarean section, amount of blood loss during the procedure, need for blood transfusion and type and amount of blood products, presence of abnormal placentation (accreta and increta or percreta), injury to nearby structures as bladder and colon or ureter and vascular injury, hysterectomy if done: total or subtotal, the need for additional surgical step as (uterine artery ligation, intra uterine balloon insertion, transverse B-Lynch, radiological intervention (IIAE) or cases with placenta left in situ. Post-operative hemoglobin, post-partum hemorrhage, pelvic hematoma, ICU admission, need for blood transfusion, need for second operation, DVT or pulmonary embolism, post-operative infection, maternal mortality and duration of hospital stay were recorded. Neonatal outcomes were define gestational age at time of delivery, birth weight, Apgar score at 1 minute and after 5 minutes, the need for assisted ventilation, congenital anomalies, NICU admission and neonatal mortality were recorded. Data were processed using Statistical Package of Social Sciences version 23.0 (SPSS version 23.0 Inc., Chicago, IL, USA). Quantitative data were expressed as mean±standard deviation (SD) as appropriate. Qualitative data was expressed as frequency (numbers) and percentages. A probability value (p-value) less than 0.05 was considered statistically significant.

Results

A total number of 75 cases were recruited for this study of which 45 cases were included in the placenta previa group and the rest of 30 cases were included in the placenta accreta group. Regarding maternal outcome, history of previous CS was found 22(48.8%) in placenta previa group and 27(90.0%) in placenta accrete group. Emergency surgery was found 24(53.3%) in placenta previa group and 8(26.7%) in placenta accrete group. Elective surgery was 21(46.7%) and 22(73.3%) in placenta previa and accrete group respectively. Caesarean hysterectomy was 2(4.4%) in placenta previa group and 23(76.7%) in placenta accrete group. Urinary tract injuries was 2(4.4%) and

9(30.0%) in placenta previa group and placenta accrete group. Mean estimated blood loss (EBL) was 785.7±234.8 mL in placenta previa group and 2157.5±1557.5 mL in placenta accrete group. Mean receiving transfusion was 1.3±2.12 and 6.5±4.2 in placenta previa and placenta accrete group respectively. Mean operative time was 56.8±25.5 minutes in placenta previa group and 137.5±48.6 minutes in placenta accrete group. Admission to maternity HDU was 5(11.1%) and 21(70.0%) in placenta previa and placenta accrete group respectively. Mean admission to ICU was 1(2.2%) in placenta previa group and 13(43.3%) in placenta accrete group. Mean postoperative hospital stay was 4.3±0.6 days in placenta previa group and 6.9±2.8 days in placenta accrete group, these were statistically significant ($p<0.05$), however age, parity and gestational age was not statistically significant ($p>0.05$) between two groups (Table 1).

Table 1: Comparison of Maternal Outcome in Women Having Placenta Previa (PP) and Placenta Accreta (PA)

Parameters	Placenta Previa	Placenta Accreta	P value
Age (Years) Mean±SD	30.7±7.05	31.5±4.3	0.542^{ns}
Parity (Mean±SD)	1.8±0.6	1.7±0.4	0.426^{ns}
History of Previous CS	22(48.8%)	27(90.0%)	
Type of C/S			
• Emergency Surgery	24(53.3%)	8(26.7%)	0.001^{s}
• Elective Surgery	21(46.7%)	22(73.3%)	0.001^{s}
Gestational age in weeks (mean±SD)	36.2±2.6	36.8±2.4	0.316^{ns}
Cesarean Hysterectomy	2(4.4%)	23(76.7%)	0.001^{s}
Urinary Tract Injuries	2(4.4%)	9(30.0)	0.003^{s}
Estimated Blood Loss (mL) mean±SD	785.7±234.8	2157.5±1557.5	0.001^{s}
Patients receiving transfusion (mean±SD)	1.3±2.12	6.5±4.2	0.001^{s}
Operative time in minutes (mean±SD)	56.8±25.5	137.5±48.6	0.001^{s}
Admission to maternity HDU	5(11.1%)	21(70%)	0.001^{s}
Admission to ICU	1(2.2%)	13(43.3%)	0.001^{s}
Postoperative hospital stay (days)	4.3±0.6	6.9±2.8	0.001^{s}

s=significant; ns=not significant; P value reached from unpaired t-test & Chi square test

Regarding neonatal outcome, mean birth weight was found 2.7±0.30 kg in placenta previa group and 2.8±0.25 kg in placenta accrete group. At 1 minute APGAR score ≥7 was found 38(84.4%) and 26(86.7%) in placenta previa and placenta accrete group respectively.

At 2 minute APGAR score ≥7 was found 42(93.3%) in placenta previa group and 29(96.7%) in placenta accrete group. Small for gestational age (SGA) was 5(11.1%) and 2(6.7%) in placenta previa and placenta accrete group respectively. IUFD was found 1(3.3%) in placenta accrete group but not found in placenta previa group.

Neonatal death was found 1(3.3%) in placenta accrete group but not found in placenta previa group. The difference was not statistically significant ($p>0.05$) compared between two groups (Table 2).

Table 2: Comparison of Neonatal Outcome in Women Having Placenta Previa (PP) and Placenta Accreta (PA)

Variable	Placenta previa	Placenta accrete	P value
Birth weight (mean ± SD)	2.7±0.30	2.8±0.25	0.136^{ns}
APGAR Score			
At 1 minute			
• < 7	7(15.6%)	4(13.3%)	0.533
• ≥ 7	38(84.4%)	26(86.7%)	
At 5 minute			
• < 7	3(6.7%)	1(3.3%)	0.473
• ≥ 7	42(93.3%)	29(96.7%)	
SGA	5(11.1%)	2(6.7%)	0.413
IUFD		1(3.3%)	0.400
Neonatal death		1(3.3%)	0.400

P value reached from unpaired t-test & Chi square test; IUFD=intrauterine Fetal Death; SGA=Small for gestational age

Discussion

Maternal and fetal morbidity and mortality from placenta previa and placenta accrete characterize a challenge to the obstetricians. Morbidly adherent placenta has emerged as significant complication of placenta previa owing to increased number of caesarean section. Among 75 cases (45 had placenta previa and 30 had placenta accrete) diagnosed preoperatively by ultrasound or postoperatively with or without PA. The aim of the study to evaluate the maternal and neonatal outcomes in patients with placenta previa and placenta accrete.

In this study observed that history of previous CS was found 22(48.8%) in placenta previa group and 27(90.0%) in placenta accrete group. Emergency surgery was found 24(53.3%) in placenta previa group and 8(26.7%) in placenta accrete group. Elective surgery was 21(46.7%) and 22(73.3%) in placenta previa and accrete group respectively. Caesarean hysterectomy was 2(4.4%) in placenta previa group and 23(76.7%) in placenta accrete group. Urinary tract injuries was 2(4.4%) and 9(30.0%) in placenta previa group and placenta accrete group. Mean EBL was 785.7±234.8 mL in placenta previa group and 2157.5±1557.5 mL in placenta accrete group. Mean receiving transfusion was 1.3±2.12 and 6.5±4.2 in placenta previa and placenta accrete group respectively. Mean operative time was 56.8±25.5 minutes in placenta previa group and 137.5±48.6 minutes in placenta accrete group. Admission to maternity HDU was 5(11.1%) and 21(70.0%) in placenta previa and placenta accrete group respectively. Mean admission to ICU was 1(2.2%) in placenta previa group and 13(43.3%) in placenta accrete group. Mean postoperative hospital stay was 4.3±0.6 days in placenta previa group and 6.9±2.8 days in placenta accrete group, these were statistically significant ($p<0.05$), however age, parity and gestational age was not statistically significant ($p>0.05$) between two groups.

Zakherah et al.[3] reported uterine artery ligation was carried out 300 cases (60.7%) of cases while cesarean hysterectomy was performed in 56 cases (11.3%). Bladder injury occurred in 58 cases (11.7%), ureteric injury occurred in 6 cases (1.2%), colon injury occurred in 1case (0.2%) and vascular injury occurred in 2 cases (0.4%). Maternal mortality was 4 cases (0.8%). The mean gestational age was 34.73 ± 2.8 weeks. In the Zakherah et al[3] study 468 cases (94.7%) received blood transfusion intra operatively, there were some cases needed up to 15 units of blood. The present findings were similar to that of Warshak et al[7] who reported that approximately 75% of patients required blood transfusion with a mean of 5.4±2.1 units of RBCs. Thus, blood transfusion should be anticipated, and massive transfusion is not rare in these obstetric disasters. Shellhaas et al[8] study who reported that surgical complications such as cystotomy, ureteric and vascular injury are more with PA.[8] Additionally, these results were coincided with Alanwar et al[9] who reported the incidence of urinary tract injuries during CS with morbid adherence placenta was 21.7% (Bladder 11.7%, Ureter 4.7%, and bladder with ureter 5.3%). In rare cases, the placenta could invade beyond the abdominal viscera and reach the anterior abdominal wall[10]. In the Zakherah et al[3] study, the placenta left in situ in 3 cases of PA.

All cases needed blood transfusions up to 10 units and one of them ended by post-operative uterine sepsis and ended by hysterectomy. Also these cases needed additional management in the form of uterine artery ligation, and massive antibiotic therapy, this is in contrast to Sentilhes et al[8] who reported that conservative management with leaving placenta in situ is an option and may decrease blood loss and other perioperative morbidity in select patients[11]. Balayla and Bondarenko[12] reported clinical or pathologic diagnosis of mal-placentation has been made, important maternal outcomes include significant hemorrhage, the need for emergency hysterectomy, and a mildly increased risk of mortality compared with age-matched controls without mal-placentation. It appears that blood transfusions may be required in anywhere from 20 % to 70 % of cases. Similar numbers are reported for post-delivery hysterectomy. One study reports the need for postpartum uterine curettage to be as high as 54.0% among those who did not have a cesarean hysterectomy[13]. Kassem et al[14] observed patients with PA are older and have higher parity. It has been observed also that 96.0% patients with PA in this study has a history of previous cesarean section with a mean number of 2.8, compared with 47.4% of patients with a mean number of one cesarean section in the absence of PA. This difference is statistically significant (level 2+ evidence). The median estimated blood loss as a result of PA in our study was 2,000 mL (mean approximately 3,000 mL), with a loss of ≥2,000 mL in 72.0% and a loss of ≥5,000 mL in 20.0%. In addition, the median PRBCs transfusion required was 6 units (mean 7.7 units, with 28.0% receiving ≥10 units). Wright et al[15] reported a median blood loss of 3,000 mL and a median PRBCs transfusion requirement of 5 units in 77 patients undergoing hysterectomy for PA.

In current study observed that the mean birth weight was found 2.7±0.30 kg in placenta previa group and 2.8±0.25 kg in placenta accrete group. At 1 minute APGAR score more than or equal to 7 was found 38(84.4%) and 26(86.7%) in placenta previa and placenta accrete group respectively. At 2 minute APGAR score more than or equal to 7 was found 42(93.3%) cases in placenta previa group and 29(96.7%) cases in placenta accrete group. Small for gestational age (SGA) was 5(11.1%) cases and 2(6.7%) cases in placenta previa and placenta accrete group respectively. Intrauterine fetal death (IUFD) was found 1(3.3%) in placenta accrete group but not found in placenta previa group. Neonatal death was found 1(3.3%) in placenta accrete group but not found in placenta previa group. The difference was not statistically significant ($p>0.05$) compared between two groups.

Kassem et al[14] observed waiting from 34.7 weeks (34 weeks +5 days) until 36.2 weeks (36 weeks +1.4 days) resulted in an increased mean neonatal weight of 600 g and a reduction in neonatal intensive care unit admissions from 66.7% to 22.2% (level 2+ evidence). Therefore, waiting until 36 weeks could decrease neonatal morbidity in our population (grade C recommendation). However, the obstetrician must weigh the risks of neonatal prematurity against the benefits of a planned delivery. Regarding the relationship between PP and fetal growth, there were two cases of fetal growth restriction. Fetal compromise in both cases could be explained by associated maternal medical disorders. Another four cases (3.3%) were diagnosed as small for gestational age. The reported rate of fetal growth restriction/small for gestational age in the literature ranges from 3% to 5% cases[16]. Therefore, it has no clear evidence to implicate PP as a cause of fetal growth restriction/small for gestational age. However, we observed that the mean birth weight of neonates in all groups was between the 10th and 50th percentiles according to Hadlock fetal growth charts[17], so these babies were only relatively smaller (level 2 evidence). They found no significant difference in neonatal outcome in PP with or without PA (level 2+ evidence).

Neonatal morbidity in this study was also significant. About half of the patients were delivered before 37 weeks and more than 28% of newborns were admitted to the neonatal intensive care unit. It was also observed a low 1-minute Apgar score. However, the 5-minute Apgar score was improved, and only 4.1% had a score 7. Morbidity was more marked before 34 weeks. It had been also noted that there was a progressive decrease in neonatal morbidity in the form of improving Apgar scores and fewer admissions to the neonatal intensive care unit as gestation advanced. In an attempt to avoid emergent surgery for PA, some institutions justify elective surgery at 34–35 weeks,[18] Zakherah et al[3] reported that the mean birth weight for neonates of all cases was 2758.8±554.09 gm. Ninety-one babies (18.4%) required assisted ventilation and 109(22.1%) babies required admission to NICU.

Finally, the neonatal mortality rate was 3.6% of cases. Balayla and Bondarenko[12] also observed placenta accreta is most strongly associated with preterm birth, low-birth weight, small for gestational age and reduced 5-min Apgar scores. The results are mixed on whether the need for NICU admission and steroid administration and the increased risk of perinatal mortality are clinically significant, independent outcomes.

Conclusion

In conclusion, the incidence of both PP and PA is very high in present locality due to increase CS rate. History of previous CS, emergency surgery, cesarean hysterectomy, urinary tract injuries, patients receiving transfusion, operative time (minutes) mean, admission to maternity HDU, admission to ICU and mean Postoperative hospital stay (days) were significantly difference between women with placenta previa (PP) and placenta accreta (PA).

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