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Original Article

Feto-Maternal Outcome in Antepartum Hemorrhage : A Study in A Tertiary Care Hospital

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Abstract

Background: *Antepartum Hemorrhage (APH) is a terrible obstetric emergency associated with maternal and fetal morbidity and mortality worldwide. Objective of this study was to asses the maternal and fetal outcomes as well as to formulate the preventive measures for reducing maternal and fetal complications in patients with APH.*

Materials and methods: *This prospective observational study was conducted at Chattagram Maa-O-Shishu Hospital Medical College, from January to December 2021, on all admitted pregnant women with APH more than 28 weeks gestation. Detailed history, clinical examination, associated conditions, mode of delivery, fetal conditions and investigations were analyzed.*

Results : *A total of 113 APH Cases were reported amongst 5724 pregnant women with its incidence about 2%. The most common cause of APH was placenta previa 80(70.8%) followed by abruptio placenta 28 (24.8%), unexplained 3 (2.7%) and local 2(1.7%) causes. APH was found commonly in patients 72(64%) with age group between 26-30 years, multigravida 95(84%), pregnancy induced hypertension 36 (PIH 32%) previous history of caesarean section 34(30%) and curettage 22(19.2%). Most of the cases 83 (73.5%) were terminated at 34-36 weeks of gestation. There was 1(0.9%) maternal mortality. However, pregnancy complications were remarkably higher, most common maternal complications were postpartum hemorrhage 45(40%) and maternal shock 6 (5.1%). The commonest mode of delivery was caesarean section 83(73.5%) and in 1(0.9%) case peripartum hysterectomy was needed. Perinatal complications were prematurity 94 (83.1%), perinatal asphyxia 51(45%), stillbirth 26(23%) and most common causes of early neonatal death were prematurity and neonatal sepsis.*

Conclusions: *APH is associated with significant maternal and fetal morbidity as well as mortality which could be reduced by regular antenatal care, early detection and early referral to higher centers. Better facilities for caesarean section, availability of blood bank and multidisciplinary approach with a good NICU can improve maternal and fetal outcome of APH patients. The incidence of fetal mortality due to abruptio placenta still remains high.*

Key words: Antepartum hemorrhage; Abruptio placenta; Cesarean section; Blood transfusion; Maternal & Perinatal; Morbidity & mortality; Placenta previa.

INTRODUCTION

Obstetrics haemorrhage remains one of the major causes of maternal death in developing countries and is the cause up to 50% of the estimated 5,00000 maternal death occur globally each year.[1]

Haemorrhage emerges as the major causes of severe maternal morbidity in almost all "near miss" audits in both developed and developing countries.[2] Obstetrics haemorrhage encompasses both antepartum and postpartum haemorrhage. Ante Partum Haemorrhage (APH) complicates 3-5% of pregnancies and is a leading cause of perinatal and maternal mortality worldwide.[3] Up to one-fifth of very preterm babies are born in association with APH and the known association of APH with cerebral palsy can be explained by preterm delivery.[4] APH has always been one of the most serious antepartum complications in obstetrics. Vaginal bleeding at any stage of pregnancy is a matter of great concern for both patient and her Physician. Antepartum hemorrhage is still a grave obstetric emergency contributing to a significant number of maternal and perinatal morbidity and mortality in our country. The prime objective of the study was to asses the maternal and fetal outcomes as well as to formulate the preventive measures for reducing maternal and fetal complications in patients with Ante-partum hemorrhage.

MATERIALS AND METHODS

This prospective observational study was conducted at Chattagram Maa-O-Shishu Hospital Medical College, from January to December 2021, on all admitted pregnant women with APH more than 28 weeks gestation. Detailed history, clinical examination, associated conditions, mode of delivery, fetal conditions and investigations were analyzed.

Inclusion criteria:

All the women with APH completing 28 weeks of gestation with or without medical and obstetrical complications and delivered in our hospital, were included in this study.

Exclusion criteria:

- Patient admitted with APH managed and discharged and had no further follow up.
- Patient with diagnosed and undiagnosed placenta previa without APH.

The patients fulfilling the eligible criteria were followed from admission to discharge, detailed analysis of the medical report of these cases both mother and neonates. The data included demographic details, present and past history, antepartum, intrapartum postpartum complications, fetal outcomes, complications and perinatal mortality. Those neonates admitted in the neonatal unit were also follow up to their discharge or for 7 days which was shorter . Patients requiring transfer to other Department of the hospital were also followed in the same way. Necessary information was collected in a pre-designed data sheet and finally the findings were compiled and analyzes.

RESULTS

During the study period, Total number of pregnant women were 5724 and the number of pregnancies with APH were 113.The overall incidence of APH were 2 % of pregnancies. Majority 80 (70.8%) had Placenta Previa (PP) while 28(24.8%) had Abruptio Placenta (AP) unexplained and local causes were 3(2.7%) and 2(1.8%) respectively (Table I).

Majority of the women 72 (64%) were in the age group of 26-30 years and mean maternal age at presentation was 24.19 years. Most of the patients were multigravida 95 (84%) unbooked cases 63 (55.8%) and had preterm delivery 94 (83.2%) cases (Table II).

Table I Distribution of patients according to causes of APH

Aetiology	Number of cases (n=113)	Percentage (%)
Placenta Previa (PP)	80	70.8%
Abruptio Placenta (AP)	28	24.8%
Unexplained	3	2.7%
Local cause	2	1.8%

Table II Demographic and obstetrics profile of the patients

Variable Age (Yrs)	Placenta Previa (n=80)	Abruptio Placenta (n=28)	Unexplained (n=3)	Local (n=2)	Total (n=113) %
≤20	0	1	0	0	1 (0.0088%)
21-25	18	7			25 (22.1%)
26-30	48	19	3	2	72 (64%)
31-35	9	1	0	0	10 (8.85%)
> 35	5	0	0	0	5 (4.42%)
Gravidity			0	0	
Primigravida	16	2	0	0	18(16%)
Multigravida	64	26	3	2	95 (84%)
Gestational age (Weeks)					
28-33	7	4	0	0	11(9.7%)
34-36	60	21	2	0	83(73.5%)
> 37	13	3	1	2	19(16.8%)
Antenatal visits					
Booked	41	7	2	0	50(44.24%)
Unbooked	39	21	1	2	63(55.8%)

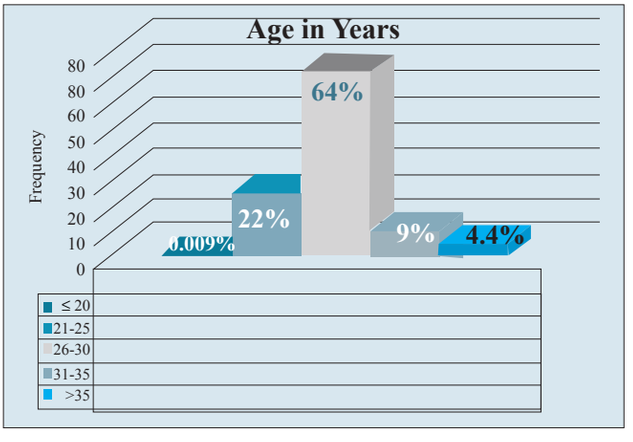

Figure 1 Distribution of Age of respondent

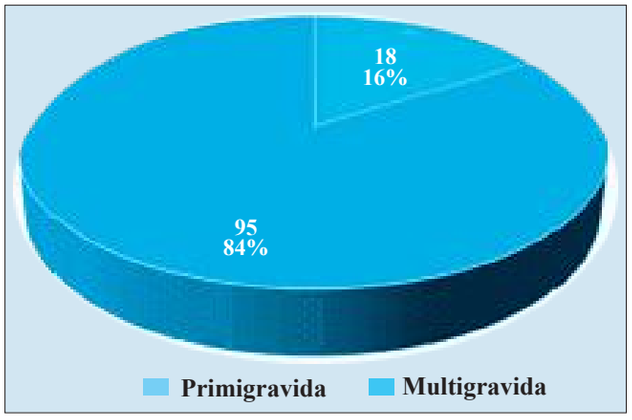

Figure 2 Distribution of Gravidity

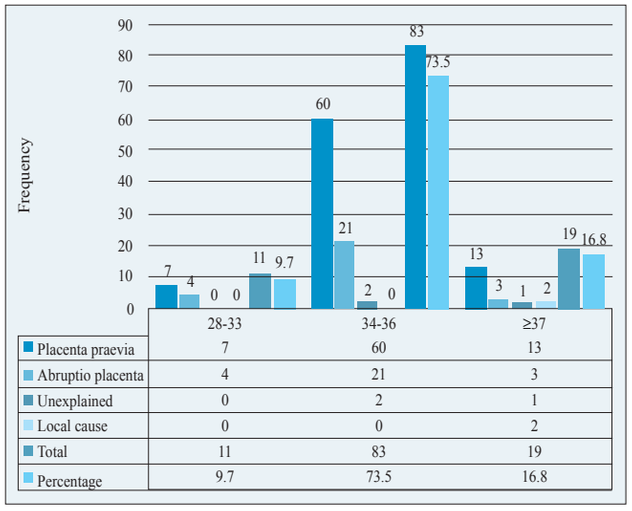

Figure 3 Distribution of Cases according to gestational age in weeks

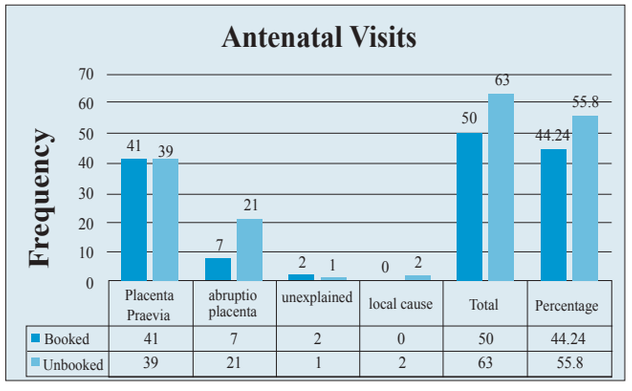

Figure 4 Antenatal visits of respondent

Significant number of patients 34 (30%) had previous history of cesarean section, previous history of Curettage /MR/MVA 22 (19.4%) and placenta previa 1(.9%). Some 9 (8%) patients had multiple pregnancy. These are important risk factors for placenta previa. Important risk factors for Abruptio placenta were PIH 36 (32%) and PROM 5(4.4%) (Table: III).

Table III Associated Risk Factors

Risk Factors	Placenta previa (n=80)	Abruptio placenta (n=28)	Unexplained (n=3)	Local cause (n=2)	Total (n=113) (%)
Previous cesarean section	34	0	0	0	34 (30%)
P/H/O placenta previa	1	0	0	0	1 (0.9%)
P/H/O curettage MR/MVA	22	0	0	0	22 (19.4%)
Multiple pregnancy	9	0	0	0	9 (8%)
PIH	7	26	2	1	36 (32%)
PROM	3	2	0	0	5 (4.4%)
No risk factor	4	0	1	1	6 (5.3%)

Maximum patients of APH delivered by cesarean section 83 (73.5%) as compared to vaginal delivery 30 (26.5%). 68(60.2%) patients of PP group underwent caesarean section whereas 13 (11.5%) patients from AP underwent caesarean section (Table IV).

Table IV Distribution of cases according to mode of delivery

Mode of delivery	Placenta previa	Abruptio placenta	Unexplained	Local cause	Total (%)
Vaginal delivery	12	15	3	0	30 (26.5%)
Cesarean section	68	13	0	2	83 (73.5%)
					113 (100%)

Table V Maternal complications

Complications	Placenta previa (n=80)	Abruptio placenta (n=28)	Unexplained (n=3)	Local causes (n=2)	Total (n=113) (%)
PPH	35	10	0	0	45 (40%)
Maternal shock	6	0	0	0	6 (5.1%)
Wound infection	3	1	0	0	4 (3.5%)
ARF	2	1	0	0	3 (2.6%)
DIC	0	1	0	0	1 (0.9%)
Couvelaire uterus	0	5	0	0	5 (4.4%)
Cesarean hysterectomy	1	0	0	0	1 (0.9%)
Scar dehiscence	4	0	0	0	4 (3.5%)
Sepsis	2	0	0	0	2 (1.8%)
Need for ICU Suport & without ventilator	8	2	0	0	10 (8.8%)
Need for ventilator	5	0	0	0	5 (4.4%)

PPH was the most common maternal complication 45(40%%) followed by Maternal shock 6(5.1%). wound infection 4(3.5%), ARF 3(2.6%), DIC 1(0.9%) Couvelaire uterus 5 (4.4%), Cesarean hysterectomy1(0.9%), scar dehiscence 4 (3.5%), sepsis 2 (1.8%), Need for ICU support 10 (8.8%) Need for Ventilator 5 (4.4%) (Table V).

Table VI Perinatal complications

Complications	Placenta previa (n=80)	Abruptio placenta (n=28)	Unexplained (n=3)	Local cause (n=2)	Total (n=113) (%)
Prematurity	67	25	2	0	94 (83.1%)
Low birth weight (< 2.5 kg)	52	22	0	0	74 (65.5%)
Perinatal Asphyxia	49	2	0	0	51 (45.1%)
RDS	7	0	0	0	7 (6.2%)
NICU admission	28	2	0	0	30 (26.5%)
Still birth	2	24	0	0	26 (23%)
Neonatal sepsis	8	2	0	0	10 (8.84%)
Neonatal jaundice	24	2	0	0	26 (23%)
Early neonatal death (Within 7 days)	6	2	0	0	8 (7.1%)

Most common perinatal complications were prematurity 94(83.1%) followed by low birth weight 74(65.5%), Perinatal asphyxia 51(45.1%), stillbirth 26(23%), neonatal jaundice 26(23%), neonatal sepsis10(8.8%). RDS 7(6.2%), total number of admission in neonatal intensive care unit 30(26.5%) and early neonatal death 8(7.1%)(Table VI). Most common causes of neonatal death were prematurity and neonatal sepsis.

Table VII Maternal and Perinatal mortality

Variables	Placenta previa	Abruptio placenta	Unexplained	Local cause	Total (%)
Maternal mortality	1	0	0	0	1 (0.9%)
Perinatal mortality	8	26	0	0	34 (27.9%)

There was 1(0.9%) maternal mortality and 34(27.9%) perinatal mortality (Table VII).

DISCUSSION

Pregnancy with APH is associated with poor maternal and perinatal outcomes. The incidence of APH in present study was 2% which was comparable to the findings of the studies reported by Kedar K et al. (2%) Wekere F C C et al. (2.2%) and Samal SK et al. (2.9%) respectively.[5,6,7]

Table VIII Comparison of causes of APH with different studies[5-9]

Studies	Placenta previa	Abruptio placenta	Unexplained	Local cause
Kedar K et al.[5]	60%	68%	3%	0
Wekere F C C et al.[6]	57 %	28.2%	1.5%	0
Samal SK et al.[7]	49.5%	42.2%	6.8%	1.5%
Singh P et al.[8]	65%	34%	1%	0
Tyagi P et al.[9]	80%	19%	1%	0
Present study	70.8%	24.8%	2.7%	1.8%

In the present study incidence of various causes of APH was noted. The causes were determined clinically in antenatal period and during the delivery. Incidence of placenta previa was largest 70.8% followed by abruptio placenta 24.8% and few (2.7%) were unexplained and 1.8% local causes. These were almost comparable to other studies 6-9. But study done by Kedar K et al. where incidence of abruptio placenta (68%) was higher than the present study (Table VII).[5] Taylor et al. observed higher incidence of PP in women of Asian origin .[10]

The results of the present study are indicative of increased incidence of placenta previa and abruptio placenta probably because of unbooked cases, low socioeconomic strata, anemia, Asian origin and prevalence of previous caesarean section, D &C ,increased incidence of pregnancy induced hypertension , PROM and multiple pregnancy.

In present study 55.8% patients were unbooked as compared to 44.2% patients who were booked. Out of these unbooked cases PP comprised 34.5% and AP comprised 18.6% where as in unclassified hemorrhage one patients were unbooked. Tyagi P et al9 in their study showed more (46%) number of unbooked cases comprised PP. Kedar K et al. in his study reported more (69.11%) number of AP cases were unbooked.[5] The importance of antenatal visits in prevention of AP has also been stated by Baskette et al. who reported that in their series 3/4th (75%) of cases were unbooked.[11]

Increasing age has been implicated as a predisposing factor in both PP and Abruptio placentae.

The age distribution in our study revealed that 64% of APH cases were aged 26 -30 years which was almost near to study by Tyagi et al. in which 61% APH patients were

in this age group while in the study by Maurya et al. the incidence of placenta previa was higher in 26-30 years age group. Ananth et al. also found increased incidence of placenta previa with advancing maternal age and William et al. also reported increased risk of AP with advancing age.[13-14]

In the present study it was observed that the incidence of APH was more common in multigravida (84%) than in primigravida (16%) The incidence of PP was 5 times higher in multigravida than primigravida. Chakraborty et al. reported that prevalence of APH was higher among multigravidas.[15] Results of present study are consistent with study of cotton et al. who found that 83.2% of their patients with PP were multiparous and 16.78% were nulliparous.[16] Ananth et al. showed that risk of placental abruption increased with high parity.[13]

In our study, preterm (Less than 37 completed weeks) termination of pregnancies was 83.2% of APH patients, amongst these 9.7% were terminated between 28 to 33 weeks in maternal interest which is one of the factors accounting for high perinatal mortality in our study. 59.3% pregnancies with PP and 22.12% patients with AP delivered before 37 weeks. Similar results were appreciated in study by Maurya et al. in which 52% patients delivered before 37 weeks with majority being cases of PP.[12]

In present study 30 % cases of APH with PP had a history of previous LSCS. This is comparable to study of Kedar K et al. and Tyagi P et al. who found that 41.6% cases and 27% cases

of PP respectively in their studies had a history of previous caesarean section.[5,9]

The present study showed that 19.4% cases of PP had a previous history of curettage which is consistent with study of Kedar K et al. and Taylor et al. who found that 11.67% and 30% patients of PP had a previous history of abortion respectively.[5,10]

Incidence of PROM was found to be in 5(4.4%) cases of APH patients in this study. 3 cases (2.65%) in PP group and 2 case (1.76%) in AP group had H/O PROM. Kedar K et al. reported 2 cases (2.94%) in AP group and 1case (1.67%) in PP group had H/O PROM. In their study increased incidence of AP in cases of PROM.[5]

In present study 36 (32%) patients with APH had hypertensive disorders of pregnancy. 26 patients (23%) with abruptio placentae, 7 patients (6.2%) with PP and 2 patient with unexplained and 1 patient with local cause had pregnancy induced hypertension. Kedar K et al. found hypertensive disorders of pregnancy complicating 40 (30.53%) patients with APH.[5] Among these 36 patients (52.94%) with abruptio placentae, 3 patients (5%) with PP and 1 patient with unexplained cause had pregnancy induced hypertension

In our study 73.5% APH cases had LSCS and 26.5% had vaginal delivery. 60.17% cases of PP were delivered by caesarean section and 10.62% delivered vaginally, 11.50% cases of AP had LSCS and 13.27% delivered vaginally, which is similar to study by Tyagi P et al. with 89% APH cases had LSCS and 11% had vaginal delivery. 98.75% cases of PP were delivered by caesarean section and 1.25% delivered vaginally, 47.4%

cases of AP had LSCS and 52.6% delivered vaginally .Maurya et al. also reported 94.3% LSCS rate in APH patients.[9,12]

Table IX showed the comparison of maternal complications of APH reported in different studies by different authors. In our study most common complication was PPH which was similar and almost near to the findings of studies 9,7 (45%, 42,2%,) respectively. But higher than the findings of other study 5,8 (32%, 22%) respectively. In present study, percentage of cesarean section (73.5.%) was higher than the studies 5,8 (65.64%, 63%) lower than the findings of studies 9,7 (89%, 85.3%) respectively. Other complications were Cesarean hysterectomy 1(0.9%) near to the findings of study5 and higher than the study 7,8 (.8%, 1.8%, 7%) respectively, ARF 3(2.6%) higher than the study 5 but lower than the study 8,9 (0 .8 %. 7% 11%) respectively, DIC 1(0.9%) lower than the study 7,8 (2.7% 13%) respectively, Need for ICU 10 (8.8%) higher than the study 7 but lower than the study 9 (6.4%, 25%) respectively and maternal mortality1 (0.9%) near to the study 5 and lower to the study 8,9 (0.8% and 5%, 6%) respectively.

Table IX Comparison of maternal complications with different studies[5,7-9]

Complications	Kedar K et al.[5]	Samal SK et al.[7]	Singh P et al.[8]	Tyagi P et al.[9]	Present study
PPH	32%	42.2	22	45%	45(40%)
Cesarean section	65.64	85.3	63	89%	83(73.5%)
Cesarean hysterectomy	0.8	1.8	0	7%	1(0.9%)
ARF	0.8	0	7	11%	3(2.6%)
DIC	0	2.7	13	0	1(0.9%)
ICU admission	0	6.4	0	25%	10(8.8%)
Maternal mortality	0.8	0	5%	6%	1(0.9%)

Table X showed the comparison of Perinatal complications of APH reported in different studies by different authors. In our study most common (83.1%) complication was Preterm birth which was near to the findings of study8 but higher than the studies 5,7,9(92%, 42, 38.5%, 38%,) respectively. In present study 2nd common complications was LBW (65.5%) which was near to the findings of studies 5,7 (51.1% , 66,5%) respectively.

Table X Comparison of Perinatal complications with different studies[5,7-9]

Complications	Kedar K et al.[5]	Samal SK et al.[7]	Singh P et al.[8]	Tyagi P et al.[9]	Present study
Preterm birth	42	38.5%	92	38%	83.1%
LBW < 25 kg	51.1	66.5%	0	0	65.5%
NICU admission		50.4%	0	32%	26.5%
Perinatal mortality	10.7	11.8%	27	42%	27.9%

Others were NICU admission which was (27.9%) lower than the study 7,9 (50.4%, 32%) respectively and perinatal mortality (27.9%) was near to the study 8, lower than the study 9 but higher than the studies 5,7 (27%, 42%,10.7%, 11.8%) respectively.

CONCLUSION

APH is associated with significant maternal and fetal morbidity as well as mortality which could be reduced by - regular antenatal care, early detection and early referral to higher centers, better facilities for caesarean section, availability of blood transfusion. Multidisciplinary approach with a good NICU can improve maternal and fetal outcome of APH patients.

DISCLOSURE

All the authors declared no competing interest.

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