



Fetomaternal Outcome in Antepartum Hemorrhage; A Cross Sectional Study at Feto-Tertiary Care Hospital of Sindh, Pakistan

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ABSTRACT

Introduction: Antepartum hemorrhage is the bleeding from the genital tract following the completion of 28 weeks of pregnancy till full term. It is an obstetrical emergency and a leading cause of maternal and perinatal death and morbidity.

Objectives: This study was conducted to determine the frequency of maternal and fetal complications in women with antepartum hemorrhage.

Methods: It was a cross sectional study held at the Department of Gynecology and Obstetrics unit IV, Liaquat University of Medical and Health Sciences, Jamshoro between 2017 and 2019. This study enrolled 158 women with a history of antepartum hemorrhage using non- probability consecutive sampling. The fetal and maternal outcomes of the patients were recorded. Maternal outcomes were assessed according to age, gravidity and gestational week. Data was analyzed in SPSS 20.

Results: The average age of the women was 25.77±4.15 years. Anemia was the most common maternal outcome 102(64.6%) followed by disseminated intravascular coagulation (DIC) 24(15.2%), shock 12(7.6%), postpartum hemorrhage (PPH) 11(7%) and maternal mortality 5 (3.1%). Preterm birth and low APGAR score were the most frequently fetal outcomes that were observed in 69 (43.7%) and 50 (31.6%) cases, respectively. There was significant association of DIC with gravidity and gestational age. Anemia was significantly associated with gestational age more frequently among mothers with <37 weeks of gestational age.

Conclusion: In conclusion, anemia was the most frequently encountered complication of antepartum hemorrhage, followed by DIC and shock. Multigravidity was a significant etiological factor in antepartum hemorrhage.

Key Words: Antepartum hemorrhage, Fetal outcome, Frequency, Gestational age, Gravidity, Maternal outcome

INTRODUCTION

Antepartum hemorrhage is defined as bleeding from the genital tract following the completion of 28 weeks of pregnancy till full term. It is an obstetrical emergency and a leading cause of maternal and perinatal death and morbidity, with reported maternal mortality of 5.3%.¹ It complicates about 2-5 % of pregnancies. Common causes leading to this obstetric emergency are placenta previa and abruptio placentae, others are vasa previa or local genital tract pathology.²

Placenta previa is one of the most common etiology, accounting for one-third of all causes for antepartum hemorrhage due to the implantation of placenta in lower uterine segment.³

Whereas, abruptio placentae occurs in about 0.5-1 % of pregnancies accounting for 20- 25% of antepartum hemorrhage. It is a significant obstetric complication that is related to higher fetal and maternal morbidity and mortality worldwide, but particularly in developing countries. Risk factors include maternal age, cigarette smoking, hypertension, diabetes mellitus, grand multiparity, multiple gestation, previous caesarean section or abruptio placentae, premature rupture of membranes, thrombophilia, polyhydramnios and abdominal trauma.^{4,5}

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In a previous studies complications of antepartum hemorrhage reported were low APGAR score, anemia, preterm birth, still birth, neonatal intensive care unit (NICU) admission, disseminated intravascular coagulation (DIC), hypovolemic shock, intrauterine death and postpartum hemorrhage (PPH).^{2,3,4,5,6}

Therefore, present study was conducted to determine the frequency of maternal and fetal complications in women with antepartum hemorrhage in our population so that effective strategies may be developed to reduce the complications in the target population.

MATERIAL AND METHODS

It was a cross sectional study held at the Gynaecology and Obstetrics Department, Liaquat University of Medical and Health Sciences, Jamshoro between 2017 and 2019, after approval from Ethical Review Committee (REU No. 31344).

Antepartum hemorrhage was defined as history of per vaginal bleeding from gestational age 28 weeks and onwards varying from spotting or more with use of two or more pads. Patients were recruited by non-probability consecutive sampling. Inclusion criteria of the study subjects were pregnant women between 16-45 years of age, gestational period between 28-42 weeks confirmed by dating scan, gravida one or more with history of antepartum hemorrhage from spotting to passage of clots.

Pregnant women less than 28 weeks gestational period who had vaginal bleeding, per vaginal bleeding due to fibroid polyps, cervical polyps or cervical carcinoma, or known coagulopathy diseases such as hemophilia, protein C and S deficiency, or factor V and VII deficiency were excluded from the study.

Sample size calculation on OpenEpi calculator (<https://www.openepi.com>) was performed with prevalence of 5.3% (1), using confidence interval of 95% and $\alpha = 0.05$, the sample size of this study stood to be 78; that was increased to $n=158$ to increase the power of study.

The predesigned proforma was used to register the entire study population. Complete history was obtained and thorough clinical examination and relevant investigation performed. SPSS version 20 was used to analyze the data. The mean and standard deviation of quantitative variables such as age and gestational age were calculated. Frequency and percentages were calculated for qualitative variables such as maternal outcomes (shock, anemia, DIC, PPH and maternal mortality); and fetal outcomes (Preterm birth, Apgar score, neonatal intensive care unit (NICU) admission, stillbirth, and intrauterine death). To determine the effect of stratification on outcome, a chi-square test was used. A p-value of less than 0.05 was considered significant.

RESULTS

A total of 158 women with history of antepartum hemorrhage were included in this study. The average age of the women was 25.77 ± 4.15 years whereas gestational age was 36.58 ± 3.24 weeks (Table 1). Anemia was the most common maternal outcome 102(64.6%) followed by DIC 24(15.2%), shock 12(7.6%), PPH 11(7%) and maternal mortality 5(3.1%) (Table 2, Figure 1). Preterm birth and low APGAR score were the most frequently fetal outcomes that were observed in 69 (43.7%) and 50 (31.6%) cases, respectively (Table 3; Figure 2). NICU admission was observed in 45 (28.5%) cases, still birth was observed in 31(19.6%) cases and IUD was observed in 10(6.3%). Stratification analysis of maternal outcome with respect to age, gravidity and gestational age are shown in Table 4. There was significant association of DIC with gravidity and gestational age. Anemia was significantly associated with gestational age with more frequently among mothers with <37 weeks of gestational age.

DISCUSSION

Antepartum hemorrhage is a serious obstetric emergency and the evaluation of outcomes and risk factors are necessary in population to plan strategies to overcome this serious issue in order to reduce the burden of death and morbidity. To determine the frequency of maternal and fetal complications in women with antepartum hemorrhage, this study enrolled 158 women aged 16-45 years with a history of antepartum hemorrhage ranging from spotting to clot passage.

The average age of the women in this study was 25.77 ± 4.15 years, which is consistent with the result reported by Das et al.⁷ In a study from a tertiary care hospital in Sindh, Abbasi et al.⁸ also reported a mean age of 26 years. Maternal mortality was observed in 5 (3.1%) cases; Gorodeski et al.⁹ reported 0.46% maternal mortality in antepartum hemorrhage, while Pedowitz¹⁰ reported 0.9%. Cotton et al.¹¹ discovered no mortality in cases of antepartum hemorrhage. PPH was detected in 7% of antepartum hemorrhage cases in our study; Crane et al.¹² reported a 19% prevalence of PPH in antepartum hemorrhage.

We found that majority of women in our study population were multigravida, confirming the importance of endometrial damage caused by repeated childbirth as a risk factor for uteroplacental bleeding during pregnancy. According to Chakraborty et al.¹³, the prevalence of antepartum hemorrhage was higher in multigravidas. The present study's findings are consistent with those of Cotton et al.¹¹, who observed that 83.2% of their patients were multiparous. According to Crenshaw et al.¹⁴, 90% of patients with antepartum hemorrhage were multigravida. Ananth et al.¹⁵ demonstrated that high parity increased the risk of antepartum hemorrhage.

Anemia was the most frequently encountered complication in antepartum hemorrhage, occurring in 64.6% of cases, followed by DIC in 15.2% of cases and shock in 7.6% of cases. Other studies corroborate our findings; according to Shrestha et al.¹⁶, maternal complications included hypovolemic shock (23.8%), anemia (14.3%), PPH (9.5%), and DIC (1.5%). Sheikh et al.¹⁷ reported shock (6.6%), blood transfusion due to anemia (76.4%), PPH (19%) and DIC (1.19%).

Preterm delivery occurred in 43.7% of women with antepartum hemorrhage in the study; this finding is consistent with the findings of Silver et al.¹⁸ and Cotton et al.¹¹, who reported 71% and 77.5%, respectively preterm birth, showing association between prematurity and antepartum hemorrhage. Prematurity was the major neonatal problem among newborns to mothers with antepartum hemorrhage in our study. Thus, the quality of neonatal resuscitation and other NICU services is a critical component of the continuum of care for preventing early neonatal death. In our study, NICU admissions were observed in 28.5%, IUD was 6.3% and still births were observed in 19.6% cases. Robbins et al.¹⁹ report an incidence of 18.44%; by comparison, Arora et al.²⁰ and Khosla et al.²¹ reported significantly higher perinatal mortality rates of 61.5% and 53.5%, respectively. In present study 31.6% babies had low APGAR score; the result of present study are comparable to other studies in literature.^{20,22}

CONCLUSION

One of the primary goals of proper antepartum hemorrhage management is to reduce maternal mortality and morbidity. According to the current study, anemia is the most common maternal complication of antepartum hemorrhage, followed by DIC and shock. Multigravidity was a significant etiological factor in antepartum hemorrhage. There is a need for targeted efforts to address antepartum hemorrhage risk factors. Introduction of injectable iron at the rural level has the potential to significantly reduce anemia complications during pregnancy. The National Anemia Prevention Program should be modified to include injectable iron at the rural level. Raising awareness about antenatal care and postnatal care among all females through various government campaigns and programs will go a long way toward reducing maternal and perinatal morbidity and mortality associated with antepartum hemorrhage.

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Table 1: Distribution of patients according to variables

Variables (n=158)		Mean/Frequency (%)
Age (years)	Mean $\pm$ SD	25.77 $\pm$ 4.15
	≤ 25	84 (53.2)
	> 25	74 (46.8)
Gestational Age (weeks)	Mean $\pm$ SD	36.58 $\pm$ 3.24
	≤ 37	69 (43.7)
	> 37	89 (56.3)
Gravidity	1-2	42 (26.6)
	≥ 3	116 (73.4)

Table 2: Maternal outcome in antepartum hemorrhage

Variables	Frequency n=158	Percentage
Anemia	102	64.6
DIC	24	15.2
Shock	12	7.6
PPH	11	7
Maternal Mortality	05	3.1
No complications	04	2.5

DIC: Disseminated intravascular coagulation; PPH: Postpartum hemorrhage

Table 3: Fetal outcome in the patients with antepartum hemorrhage

Variables	Frequency	Percentage
Preterm	69	43.7
Low Apgar Score	50	31.6
NICU Admission	45	28.5
Still Birth	31	19.6
IUD	10	6.3

IUD: Intrauterine death; NICU: Neonatal intensive care unit

Table 4: Distribution of maternal complications according to age, gravidity and gestational age

Maternal Outcome		Age (years)		P-Value	Gravidity		P-Value	Gestational age (weeks)		P-Value
		≤ 25 n=84	>25 n=74		1-2 n=42	≥3 n=116		≤37 n=69	>37 n=89	
Anemia		55(65.5)	47(63.5)	0.797	31(73.8)	71(61.2)	0.143	51 (74)	51 (57.3)	0.030
Normal Hb		29 (34.5)	27 (36.5)		11 (26.2)	45 (38.8)		18 (26)	38 (42.7)	
DIC		13 (15.5)	11(14.9)	0.915	15 (35.7)	09 (7.8)	<0.0001	18 (26)	06 (6.7)	0.0008
Normal coagulation profile		71 (84.5)	63 (85.1)		27 (64.3)	107 (92.2)		51 (74)	83 (93.3)	
Hypotension/Shock		07 (8.3)	05 (6.8)	0.709	04 (9.5)	08 (6.9)	0.734	07 (10.1)	05 (5.6)	0.287
Normal blood pressure		77 (91.7)	69 (93.2)		38 (90.5)	108 (93.1)		62 (89.9)	84 (94.4)	
PPH	Yes	05 (6)	06 (8.1)	0.595	05 (11.9)	06 (5.2)	0.142	04 (5.8)	07 (7.9)	0.757
	No	79 (94)	68 (91.9)		37 (88.1)	110 (94.8)		65 (94.2)	82 (92.1)	
Maternal Mortality	Yes	02 (2.4)	03 (4)	0.665	03 (7.1)	02 (1.7)	0.117	04 (5.8)	01 (1.1)	0.168
	No	82 (97.6)	71 (96)		39 (92.9)	114 (98.3)		65 (94.2)	88 (98.9)	

DIC: Disseminated intravascular coagulation; Hb: Hemoglobin, PPH: Postpartum hemorrhage

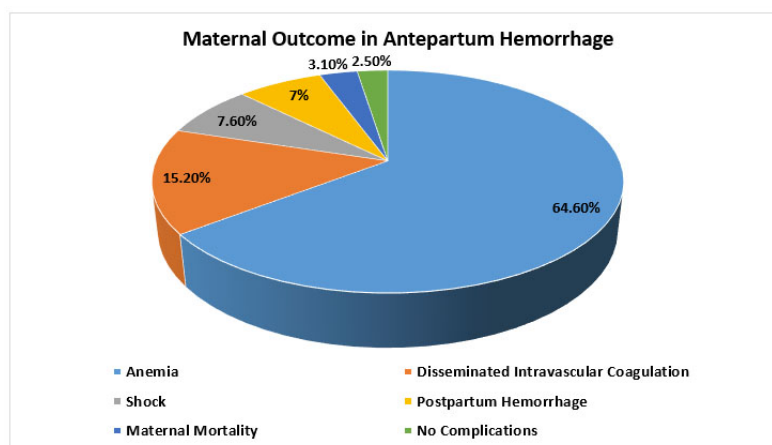


Figure 1: Maternal outcome in antepartum hemorrhage.

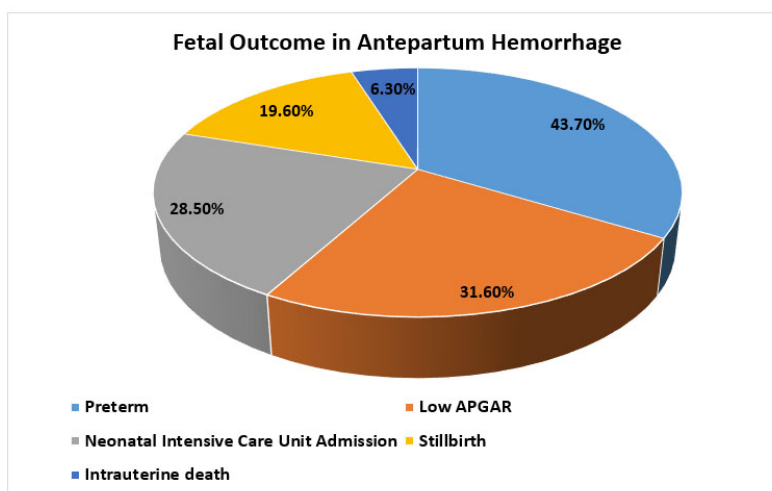


Figure 2: Fetal outcome in the patients with antepartum hemorrhage.