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Original Research Article

Prevalence and Risk of Accidental Haemorrhage among Women Diagnosed with Abruptio Placentae

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Abstract

***Background*:** Accidental haemorrhage (abruptio placentae) is a significant obstetric complication contributing to maternal and perinatal morbidity and mortality. This study aimed to assess the prevalence and risk factors of accidental haemorrhage among women admitted to Dhaka Medical College Hospital. ***Methods*:** A prospective observational study was conducted in the Department of Obstetrics and Gynaecology, Dhaka Medical College Hospital, Dhaka, Bangladesh, from July 2002 to June 2003. This study included 50 cases of accidental haemorrhage among 9,078 obstetric admissions at Dhaka Medical College Hospital. ***Results*:** The incidence of accidental haemorrhage was 0.91%. Most patients were aged 20–29 years (68.0%) and from a low socioeconomic background (76.0%). Parity distribution revealed that 48.0% had parity of four or more. Clinically, 40.0% of patients presented with a pulse rate between 90–110 bpm, and the most common systolic blood pressure was 80 mmHg (40.0%). Anaemia was moderate in 40.0% of patients, and the majority (52.0%) had haemoglobin levels between 51–60%. A significant proportion (40.0%) received no antenatal care. Mixed-type haemorrhage was the most common presentation (50.0%), while Grade II haemorrhage predominated (44.0%). Preeclamptic toxaemia with pregnancy-induced hypertension was identified as the leading risk factor (50.0%). ***Conclusion*:** Accidental haemorrhage remains an important clinical challenge in obstetrics, particularly among multiparous women with low socioeconomic status and inadequate antenatal care. Early detection and comprehensive antenatal screening are essential to reduce morbidity and mitigate risk factors.

Keywords: Antepartum haemorrhage, Accidental haemorrhage, Abruptio placentae, Risk factors.

INTRODUCTION

Vaginal bleeding at any stage of pregnancy is a serious concern for both the patient and her healthcare provider [1]. The most significant causes of heavy obstetric bleeding during the third trimester are placenta previa and placental abruption. One specific form of antepartum hemorrhage (APH) is accidental hemorrhage, which results from the premature detachment of a normally positioned placenta before the delivery of the baby [2]. Typically, the placenta is located on either the anterior or posterior wall of the uterus near the fundus. When the placenta separates prematurely, a condition known as abruptio placentae, it is linked to higher risks of maternal and perinatal illness and death [3].

The underlying causes of these conditions often remain unclear. While indirect trauma may sometimes be identified as a cause, in most cases, the origin is obscure. Several risk factors have been recognized, including maternal age, parity, and socioeconomic status [4, 5]. Additional contributors such as cigarette smoking, a history of placental abruption, premature rupture of membranes, and hypertension have also been associated with an increased risk [6, 9]. Hypertensive disorders during pregnancy are linked to placental separation in approximately 2.5 to 17.9 percent of cases [10].

Certain clinical features, like visible or concealed bleeding, severe blood loss, shock, nulliparity, a closed cervix, absence of labor, and delays in diagnosis or treatment are considered poor prognostic indicators. Maternal mortality rates currently range from 0.5 to 5.0 percent, as reported in various parts of the world.

Most women die from hemorrhage (immediate or delayed), or cardiac or renal failure. A high degree of suspicion, early diagnosis, and definitive therapy should reduce the mortality rate to between 0.5 and 1 percent [10].

In cases of severe abruption, reported fetal mortality rates range from 50 to 80 percent. In about 15 percent of cases, no fetal heartbeat can be detected upon admission to the hospital; in another 50 percent, fetal distress is noted early. Liveborn infants experience a high rate of morbidity due to pre-delivery hypoxia, birth trauma, and the risks associated with prematurity (40–50%) [10].

In our country, antepartum hemorrhage is a serious obstetrical emergency because many patients present with alarming vaginal bleeding without prior antenatal visits or diagnosis. The overall condition of these patients is often so poor that they struggle to cope with this critical situation. Both the mother and fetus are at risk due to this bleeding. In developed countries, early diagnosis is possible, enabling expectant management that improves fetal outcomes without occurring undue maternal risks.

However, maternal and fetal mortality can be significantly reduced through regular antenatal check-ups. Adequate antenatal care allows for the early diagnosis of accidental hemorrhage cases, enabling timely hospitalization and the implementation of appropriate interventions. These may include correcting anemia through blood transfusions, managing hypertension, utilizing conservative treatments to support fetal maturity, and ensuring proper labor management with timely interventions as needed.

In the present study, we aimed to assess the prevalence and risk factors of accidental haemorrhage among women admitted to Dhaka Medical College Hospital.

METHODOLOGY & MATERIALS

This prospective observational study was conducted in the Department of Obstetrics and Gynaecology, Dhaka Medical College Hospital, Dhaka, Bangladesh, from July 2002 to June 2003. In this study, we included 50 cases of accidental haemorrhage who were admitted to Dhaka Medical College Hospital (DMCH) during the study period.

These are the following criteria to be eligible for enrollment as our study participants: a) Patients who were diagnosed as having abruptio placentae; b) Women aged more than 18 years; c) Patients who were admitted at the gestational age of 35-37 weeks; And a) Patients with any bleeding disorders; b) Patients with any history of acute illness (e.g., renal failure, ischemic heart disease, etc.); c) Patients who were unwilling to participate were excluded from our study.

Data Collection Procedure:

The obstetric emergency received a total of 9,078 patients during my study period, among whom 331 had antepartum hemorrhage, including 248 with placenta previa and 83 with accidental hemorrhage. This study includes 50 cases of accidental hemorrhage, measured from July 2002 to June 2003. Informed written consent was taken after an explanation of the study procedure. Data were collected prospectively through patient and attendant interviews, clinical examination, and relevant investigations. The diagnosis of accidental haemorrhage was established based on a history of bleeding, clinical examination, double setup examination at Caesarean section, and, in some cases, ultrasonography. A structured questionnaire was prepared to record various patient parameters.

Evaluation included age, gravidity, socioeconomic status, obstetric history, menstrual history, and details of per vaginal bleeding—such as its nature, relationship to activity, frequency, association with pain, and history of antenatal check-ups. Patients were clinically examined for pulse rate, blood pressure, oedema, and anaemia. Per abdominal examination was performed to assess fetal parameters and aid in the diagnosis of accidental haemorrhage. Relevant investigations included blood group determination, Rh factor testing, and haemoglobin estimation. Ultrasonography was performed in a minority of cases. Management strategies varied between immediate and delayed interventions. Spontaneous vaginal delivery (SVD) was achieved in 34 patients, while Caesarean section was performed in 16 patients. Postnatal follow-up focused on the occurrence of postpartum haemorrhage, infections, and the rate of uterine involution.

Statistical Analysis:

All data were recorded systematically in a pre-formatted data collection form. Quantitative data was expressed as mean and standard deviation, and qualitative data was expressed as frequency distribution and percentage. The data were analyzed using SPSS 16 (Statistical Package for Social Sciences). The Institutional Review Board of Bangabandhu Sheikh Mujib Medical University ethically approved the study.

RESULTS

From July 2002 to June 2003, a total of 9,078 patients were admitted to the obstetric ward at Dhaka Medical College Hospital. Among them, 331 cases were identified as antepartum hemorrhage, and 83 were

classified as accidental hemorrhage. This study focused on and analyzed a subset of 50 cases of accidental hemorrhage. The results of this analysis are presented in the following tables.

Table 1: Incidence of accidental haemorrhage during the period of study

Parameters	Number	Percentage (%)
Total number of patients admitted	9,078	
Antepartum haemorrhage (APH)	331	3.65
Accidental haemorrhage	83	0.91

Table 1 shows the incidence of accidental haemorrhage during the study period. Out of a total of 9,078 patients admitted to the obstetric ward at Dhaka Medical College Hospital, 331 cases (3.65%) were diagnosed with antepartum haemorrhage. Accidental haemorrhage was observed in 83 patients, accounting for 0.91% of all admissions.

Table 2: Sociodemographic profile of our study patients (N=50)

Age (years)	Number	Percentage (%)
<20	6	12.0
20-29	34	68.0
≥30	10	20.0
Socioeconomic status		
Low	38	76.0
Middle	12	24.0

Table 2 summarizes the sociodemographic profile of the 50 patients with accidental haemorrhage. The majority of patients (68.0%) were aged between 20 and 29 years, followed by 20.0% aged 30 years or older, and 12.0% under 20 years. Most patients (76.0%) belonged to a low socioeconomic status, while 24.0% were from a middle socioeconomic status.

Table 3: Baseline characteristics of study participants (N=50)

Parameters	Number	Percentage (%)
Pulse range		
60-90 b/min	15	30.0
90-110 b/min	20	40.0
>110 b/min	15	30.0
Pulse rhythm		
Regular	50	100.0
Blood pressure (mmHg)		
Systolic		
100	13	26.0
90	17	34.0
80	20	40.0
Diastolic		
80	13	26.0
60	17	34.0
50	20	40.0
Anemia		
Mild	15	30.0
Moderate	20	40.0
Severe	15	30.0
Haemoglobin (%)		
<40	1	2.0
40-50	20	40.0
51-60	26	52.0
>60	3	6.0
Antenatal care		
None	20	40.0
Irregular	19	38.0
Regular	11	22.0

Table 3 shows that a pulse rate of 60–90 beats per minute (bpm) was observed in 30.0% of patients, while 40.0% had a pulse rate of 90–110 bpm, and 30.0% had rates exceeding 110 bpm. All patients exhibited a regular pulse rhythm. Systolic blood pressure ranged from 80 to 100 mmHg, with 40.0% of patients recording 80 mmHg, 34.0% at 90 mmHg, and 26.0% at 100 mmHg. Diastolic pressure followed a similar trend: 50 mmHg in 40.0% of patients, 60 mmHg in 34.0%, and 80 mmHg in 26.0%. Anaemia severity was categorized as mild in 30.0% of patients, moderate in 40.0%, and severe in 30.0%. Haemoglobin levels revealed that the majority of them (52.0%) had levels between 51–60%, followed by 40.0% had levels between 40–50%. Regarding antenatal care, most (40.0%) of patients had no antenatal visits.

Table 4: Distribution of study participants by parity, bleeding history, activity, and episodes (N=50)

Parity	**Number**	**Percentage (%)**
0	5	10.0
1	0	0.0
2	8	16.0
3	13	26.0
≥4	24	48.0
H/O of Vaginal Bleeding		
Present	2	4.0
Absent	48	96.0
Activity		
Rest	44	88.0
Working	6	12.0
Bleeding episodes		
Absent	5	10.0
Once	11	22.0
Two times	14	28.0
Three times	13	26.0
More than three times	7	14.0

Table 4 shows that nearly half of the patients (48.0%) had a parity of four or more, followed by 26.0% with parity three, 16.0% with parity two, and 10.0% who were primigravida. A history of vaginal bleeding was reported in only 2 patients (4.0%), while the remaining 48 patients (96.0%) did not report any prior bleeding episodes. Most patients (88.0%) were at rest at the time of the bleeding episode, while 12.0% were engaged in some form of physical activity. Regarding bleeding episodes, most of them (28.0%) experienced two episodes, while 26.0% had three episodes, 22.0% had a single episode, and 10.0% did not experience any bleeding.

Table 5: Type and Grade of Accidental Haemorrhage (N=50)

Type	**Number**	**Percentage (%)**
Revealed	20	40.0
Concealed	5	10.0
Mixed	25	50.0
Grade		
0	11	22.0
I	14	28.0
II	22	44.0
III	3	6.0

Table 5 presents the distribution of accidental haemorrhage types and their grades. Revealed haemorrhage was observed in 40.0% of cases, concealed haemorrhage in 10.0%, and mixed haemorrhage in 50.0%. Regarding the grading of haemorrhage, Grade 0 was observed in 22.0% of patients, Grade I in 28.0%, Grade II in 44.0%, and Grade III in 6.0%.

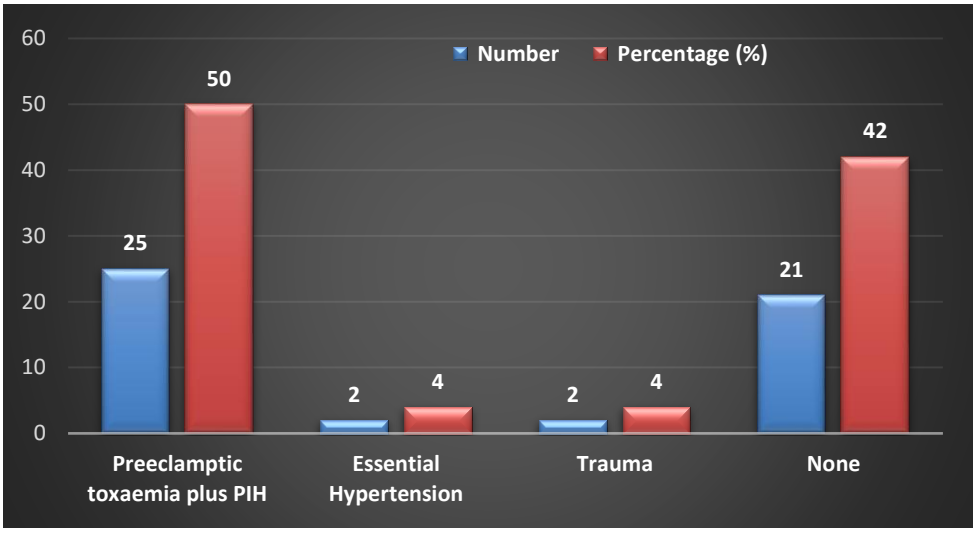

Figure 1: Risk Factors predisposing to accidental haemorrhage (N=50)

Figure 1 illustrates the risk factors identified among the study patients. Preeclamptic toxaemia plus pregnancy-induced hypertension (PIH) was the most common risk factor, observed in 50.0% of cases. Trauma and essential hypertension were each reported in 4.0% of patients, while no identifiable risk factors were found in 42.0% of cases.

DISCUSSION

In the present study, the incidence of accidental haemorrhage was relatively high (0.91%), likely due to the study being conducted at a referral hospital, where predominantly complicated and high-risk cases are admitted. Comparatively, Morgan reported an incidence of 0.7% in his case-control study group [11] while Sheiner observed a lower incidence of 0.3% among all term deliveries in his study [12]. Toivonen, from the Department of Obstetrics and Gynaecology at Kuopio University Hospital, Finland, documented an incidence of 0.57% in a cohort of 22,905 patients. [13] Similarly, Forhad reported an incidence of 0.74% in her study [14]. These variations in incidence likely reflect differences in study populations, healthcare settings, and referral patterns.

In our study, the maternal age ranged from below 20 to over 30 years, highlighting a significantly higher prevalence of accidental haemorrhage in women aged 20–29 years, with a maximum risk of 68%, compared to other studies that reported lower percentages in slightly older age groups. Ananth *et al*. [15], who studied women aged 30–34 years, observed a risk of 29.18%, while Forhad reported 35% in the 26–30 age group [14]. Ashraf reported a 38% risk among individuals aged 26–30 [16] while Saikh observed a slightly lower rate of 28% [17]. Bilkis found a similar risk level at 36% within the same age group [18]. This stark difference suggests that younger maternal age, particularly 20–29 years, may be associated with an increased risk of accidental haemorrhage. Abruption frequency has been shown to rise slightly among younger women, with a relative risk of 1.3 compared to those aged 25–29 years, although no consistent increase is observed with advancing maternal age [15].

Socioeconomic status emerged as another important factor. Among the 50 women studied, 76% were from the low-income group, and the remaining 24% were from a middle-income background. None belonged to the high-income group. This finding suggests a significant association between low socioeconomic status and the risk of accidental haemorrhage, possibly due to limited access to antenatal care and health education.

Regarding the etiology, no definitive cause could be determined in 42% of the cases. However, 50% were associated with preeclamptic toxaemia and pregnancy-induced hypertension (PIH). A few additional cases were linked to essential hypertension and trauma. Other associated conditions included non-vertex fetal presentation, intrauterine growth retardation (IUGR), hydramnios, and advanced maternal age [12].

Logistic regression analysis further revealed that abruptio placentae was significantly associated with multiple risk factors such as a low number of antenatal visits, smoking during pregnancy, hypertension, intravenous drug use, and recent abdominal trauma. Among hypertensive disorders of pregnancy, chronic hypertension superimposed with preeclampsia was found to carry the highest risk of premature placental separation [19].

The present study supports previous findings that parity significantly influences the risk of placental abruption, particularly among younger women. Specifically, the risk appears to increase with higher parity in women under the age of 30. Ananth *et al*. observed that women with parity of three or more had a higher risk of placental abruption compared to nulliparous women [15]. This indicates a strong

interaction between age and parity, where parity exerts a more pronounced effect on placental abruption risk in younger age groups [15].

In our present study, out of 50 cases, 90% of the women were multiparous, and notably, 48% were 5th gravida. These findings are consistent with those reported by Forhad, Ashraf, Saikh, Bilkis, and Brenner, further emphasizing that multiparity is a predominant risk factor for accidental haemorrhage [14,16, 18, 20].

Additionally, maternal age plays a critical role in modulating the risk. While the present study found a higher prevalence among women aged 20–29 years, evidence from broader literature suggests that the risk of accidental haemorrhage increases markedly with advancing maternal age. Women over 40 years of age are reported to have nearly a nine-fold greater risk of placental abruption compared to women under 20 years [21]. This underscores the need to closely monitor pregnancies in both ends of the age spectrum, particularly among older, high-parity women.

These findings underscore the multifactorial nature of accidental haemorrhage, emphasizing the critical roles of maternal age, parity, and socioeconomic status. They highlight the need for early and comprehensive antenatal care, effective maternal health education, and vigilant monitoring, particularly for younger women from low-income backgrounds and older multiparous women.

Limitations of the study

Our study was a single-center study. We took a small sample size due to the short study period. After evaluating those patients, we did not follow up with them in the long term and were unaware of any potential long-term complications that may arise in these patients.

CONCLUSION AND RECOMMENDATIONS

This study highlights the significant burden of accidental haemorrhage among women diagnosed with abruptio placentae at Dhaka Medical College Hospital. Although the incidence was relatively uncommon (0.91% of all obstetric admissions), its impact on maternal health is considerable. The condition most commonly affects women aged 20–29 years from low socioeconomic backgrounds. The majority experienced mixed types of haemorrhage. Importantly, preeclamptic toxaemia with PIH emerged as the most frequent risk factor. These findings underscore the importance of early detection, effective antenatal care, and prompt management to reduce morbidity and improve maternal outcomes.

Further study with a prospective and longitudinal study design, including a larger sample size, needs to be done to validate the findings of our study.

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Conflict of interest: None declared.

Ethical approval: This study was ethically approved.

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