


Research Article

The Clinical Presentation and Management of Postpartum Haemorrhage: A Single Center Experience

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Abstract

Postpartum haemorrhage (PPH) is a potentially life threatening complication of each child delivery. PPH is one of the leading causes of maternal mortality and morbidity in the developing countries. This hospital based observational study was conducted among 100 patients with postpartum haemorrhage (PPH) to assess the clinical presentation and management of PPH. The mean(\pm SD) age of the study patients was 25 \pm 5.40 years; most of the patients were multiparous, delivered at term that took place at home but had no previous medical disease, while a small proportion of the study patients had history of proper antenatal care (ANC). It was observed that PPH frequently developed following vaginal delivery had various risk factors and most of which were primary PPH. The uterine atony was the major causes (52%) of PPH, followed by genital tract trauma (18%), retained placenta (16%) and retained bits of placental tissue/membrane (8%). Regarding management; oxytocics was used in 71% patients, 100% study patients required blood transfusion, of them 44% cases were treated by conservative medical management, 51% cases were managed by minor surgical procedure and 5% cases needed major surgical procedure. Only 6% study cases developed various complications like- sepsis, transfusion reaction, renal failure and shock. Therefore, all pregnant women should have proper ante natal care (ANC) and better maternal outcome could be ensured by proper management at appropriate time.

Keywords: Clinical Presentation; Management; Maternal Mortality; Postpartum Haemorrhage (PPH)

Introduction

Postpartum haemorrhage (PPH) remains one of the major causes of maternal deaths in both developing and developed countries worldwide; over 125000 women die of postpartum haemorrhage (PPH) each year [1]. Postpartum haemorrhage (PPH) is a potentially life threatening complication of both vaginal and caesarean deliveries [2]. PPH is best diagnosed clinically as excessive bleeding that makes the patients symptomatic (pallor, weakness, palpitation, restlessness, confusion, syncope) and result in sign of hypovolemia (hypotension, tachycardia, oliguria, low oxygen saturation) [2]. A timely accurate diagnosis of PPH is important to initiate intervention and improve outcome [1-2]. Postpartum haemorrhage (PPH) can be divided into two types: primary PPH that occurs within 24 hours after delivery and secondary PPH that occurs 24 hours to 6 weeks after delivery [1-2]. According to World Health Organization (WHO), definition of primary

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PPH is the loss of 500 ml or more blood from the genital tract within 24 hours after birth of a baby [3]. Postpartum haemorrhage (PPH) is a leading cause of maternal death worldwide; the average maternal mortality rate from PPH is 25% [4]. In Bangladesh about 31% of maternal death occurs due to PPH [5]. The most common cause of immediate severe PPH (that is occurring within 24 hours of delivery) is uterine atony (failure of the uterus to properly contract after delivery); retained placenta, vaginal or cervical lacerations and uterine rupture or inversion also contribute to PPH [6]. Delayed PPH (occurring more than 24 hours after childbirth) often results from infection, sub-involution or retained placental fragments [6]. Factors that are thought to increase the risk of PPH are- over distension (multiple pregnancy, macrosomia/polyhydramious), prolonged labour, induced or augmented labour, grand multiparity (more than 4), instrumental delivery, pre-eclampsia, problems with placenta (retained placenta, placenta previa), previous PPH, maternal bleeding disorder etc [7]. Complication from PPH includes anaemia and hypovolumic shock; blood transfusion may be necessary and transfusion associated risks are not uncommon [8]. In severe cases haemorrhagic shock may lead to anterior pituitary ischemia with delay or failure of lactation (i.e. postpartum pituitary necrosis), acute renal failure, disseminated intravascular coagulation (DIC) or death may also occur [8]. The use of prophylactic oxytocics in active management of the third stage of labour reduces risk of PPH by 60% [9]. Together with the prevention, active management and treatment of anemia and skilled birth attendance at all deliveries can prevent PPH in thousands of women worldwide each year. This study was undertaken to assess the clinical presentation and management of postpartum haemorrhage (PPH) at a tertiary care hospital in Bangladesh. This study helps to draw attention necessary for the prevention and management of postpartum haemorrhage (PPH).

Materials and Methods

This prospective observational study was conducted at Department of Obstetrics and Gynaecology, Dhaka Medical College Hospital (DMCH), Dhaka, Bangladesh. The study protocol was approved by the institutional review board (IRB), DMCH, Dhaka, Bangladesh. A total of 100 patients with PPH were enrolled according to the selection criteria. Patients admitted in DMCH with gestational age more than 28 weeks and developed PPH (both primary and secondary) following delivery (by normal vaginal delivery or caesarean section) were included. Patients with gestational age less than 28 weeks were excluded from the study. Informed written consent was obtained from each study patient prior to enrollment. Relevant physical and clinical examinations of each patient were performed then presentation, causes, risk factors, management and outcome of PPH were assessed accordingly. All necessary information of each patient was collected from hospital records. Collected data were cross-

checked and compiled. Statistical analysis was performed by using computer based soft-ware Statistical Package for Social Science (SPSS).

Results and Observations

This study was intended to assess the clinical profile and management among 100 cases of PPH. The mean age of the study patients was 25±5.40 years (Table- 1). Most of the patients (36%) fall in the age group of 25 to 30 years, while lowest number of patients (2%) belongs to the 35 to 40 years age group. On the other hand, second lowest percentage (24%) belongs to the age group 15 to 20 years (Table- 1). Most of the patients were house wife (65%) and 35% patients were service holder (Table- 1). In this study; most of the patients (58%) were multiparous with an average of 2-4 child and only 14% have 1 child, while 28% had >4 child (Table-1). It was observed that, most of the study patients delivered at term, 76% of them were in between 37-40 weeks, 14% beyond 40 weeks and 10% in between 34-36 weeks (Table-1). In this study only a small proportion of the patients (19%) consulted qualified persons such as doctors, nurses and family welfare visitors (FWV) while most of the patients (81%) had negative answer regarding antenatal care (ANC) (Table- 1).

Among the 100 PPH patients; 14% patients had different medical disease, of them 10% women had hypertension, 2% women had diabetes mellitus and 2% women had jaundice during pregnancy, but 86% study patients had no medical disease (Figure- 1).

Table 1: Basic data of the study population (N= 100)

Variables	Frequency (n)	Percentage (%)
Age (mean±SD)	25±5.40 years	
Age group (in year)		
15-20	24	24
20-25	22	22
25-30	36	36
30-35	16	16
35-40	2	2
Occupational status		
House wife	65	65
Service holder	35	35
Parity		
1	14	14
02-Apr	58	58
>4	28	28
Gestational age (in weeks)		
34-36	10	10
37-40	76	76
40+	14	14
Antenatal care (ANC) during their most recent pregnancy		
Consulted	19	19
Not consulted	81	81

Data analysis revealed that, most to the deliveries (80%) took place at home. Percentage of PPH (20%) was low among hospital deliveries due to routine use of active management at third stage of labour in hospitals (Figure- 2).

Out of 100 study patients; 84% patient had PPH following vaginal delivery, 8% patients developed PPH after lower uterine caesarean section (LUCS) delivery and 6% PPH was due to instrumental delivery. Only 1 patient underwent subtotal hysterectomy following ruptured uterus and 1 patient developed PPH during caesarean section due to placenta accrete and after failure of conservative management caesarean hysterectomy was performed as a life saving measure (Table- 2).

We observed that most of the patients (55%) had no detectable risk factors. On risk factors analysis; 10% study patients had pre-eclampsia or eclampsia, 2% had multiple pregnancies, 6% had ante partum haemorrhage (APH), 2% had hepatitis/Jaundice, 1% had multiple fibroid, 13% had prolonged/obstructed labour, 2% had instrumental delivery and 9% of the patient had prolonged third stage of labour (Table- 3).

Medical diseases of the study patients (N=100)

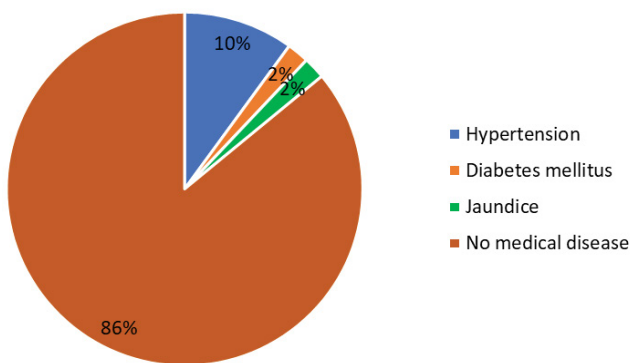


Figure 1: Distribution of different medical diseases among the study patients (N= 100)

Place of delivery

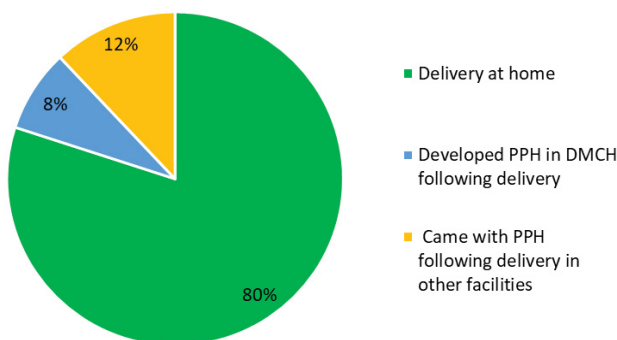


Figure 2: Distribution of the study cases by place of delivery (N= 100)

Table 2: Distribution of the study patients by mode of delivery (N= 100)

Mode of delivery	Number of patients (n)	Percentage (%)
Vaginal delivery	84	84
Instrumental delivery	6	6
LUCS	8	8
Caesarean hysterectomy	1	1
Subtotal hysterectomy following rupture of the uterus	1	1
Total	100	100

Table 3: Different risk factors among the study patients (N=100)

Risk factors	Frequency (n)	Percentage (%)
Pre-eclampsia/eclampsia	10	10
Multiple pregnancy	2	2
Ante partum haemorrhage (APH)	6	6
Hepatitis/Jaundice	2	2
Multiple fibroid	1	1
Prolonged/Obstructed labour	13	13
Instrumental delivery	2	2
Prolonged 3 rd stage of labour	9	9
No risk factors	55	55
Total	100	100

In this study, primary postpartum haemorrhage (PPH) was found in 92% cases and secondary postpartum haemorrhage (PPH) was only in 8% study cases (Figure- 3).

Among the study patients oxytocics was used in 71% patients; of them only oxytocin was used in 12.70% patients, oxytocin+ ergometrine was used in 40.80% patients, oxytocin+ misoprostol was used in 16.90% patients and oxytocin+ ergometrine+ misoprostol was used in 29.60% patients (Figure- 4).

We found that uterine atony was the major causes [52 (52%) cases] of PPH, followed by genital tract trauma in 18 (18%) cases, retained placenta in 16 (16%) cases and retained bits of placental tissue/membrane in 8 (8%) cases. Uterine rupture was found in 2 (2%) cases. One patient was found with placenta accrete and another one was found uterine inversion during caesarean section. While, 2 patients were diagnosed as coagulation failure as evidenced by marked raise of prothrombin time and serum fibrin degradation product (FDP) (Table-4).

Regarding clinical presentations; most of the patients (90%) were presented with primary PPH and 8% cases were secondary PPH. One (1%) patient presented PPH with shock and 1% patient presented PPH with renal failure (Table- 5).

Types of postpartum haemorrhage

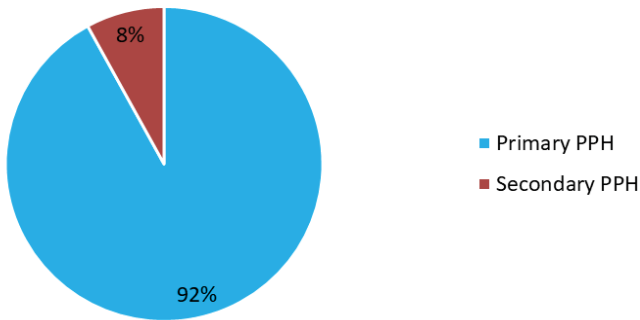


Figure 3: Distribution of study patients by type of postpartum haemorrhage (N= 100)

Use of oxytocics in management of PPH (n= 71)

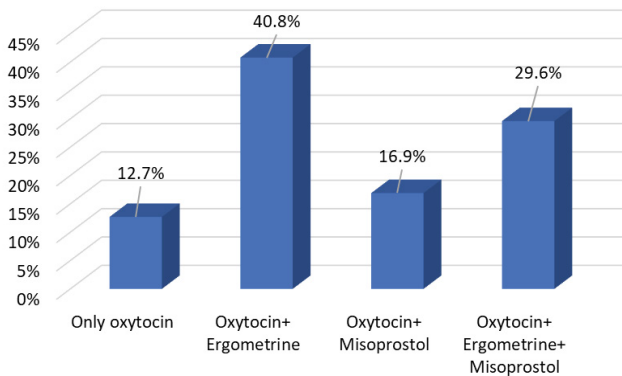


Figure 4: Use of oxytocics in management of PPH (N=71)

Table 4: Various causes of PPH among the study patients (N=100).

Causes of PPH	Frequency (n)	Percentage (%)
Uterine atony	52	52
Genital tract trauma	18	18
Retained placenta	16	16
Retained bits of placental tissue/ membrane	8	8
Uterine rupture	2	2
Placenta accrete	1	1
Uterine inversion	1	1
Coagulation disorder	2	2
Total	100	100

Among 100 study patients, blood transfusion was required in 90 (90%) cases. Out of 90 patients; 10 (20%) patients required 1 unit blood transfusion, 40 (44.44%) patients required 2 units blood transfusion, 30 (33.33%) patients required 3 units blood transfusion and 10 (20%) patients required massive blood transfusion (>4 units) (Table- 6).

In this study among the 100 PPH cases; 44 (44%) cases

were treated by conservative medical management, 51 (51%) cases were managed by minor surgical procedure and only 5 (5%) cases needed major surgical intervention (Table- 7).

Analyzing the outcomes of the study patients following PPH management revealed that most of the patients (94%) were discharged without any complication. Only 6% of cases developed various complications; of them 1 patient developed sepsis, 2 patients had transfusion reaction, 1 patient developed renal failure and 2 patients had died- 1 due to cardiac arrest following hazards of general anesthesia (G/A) and another 1 was died due to irreversible shock following PPH (Table- 8).

Table 5: Clinical presentations of the study patients (N=100)

Clinical presentations	Frequency (n)	Percentage (%)
Primary PPH	90	90
Secondary PPH	8	8
PPH with Shock	1	1
PPH with renal failure	1	1
Total	100	100

Table 6: Number of patients required blood transfusion (n= 90)

Number of unit needed	Frequency (n)	Percentage (%)
1 unit	10	11.11
2 units	40	44.44
3 units	30	33.33
>4 units or massive transfusion	10	11.11

Table 7: Mode of treatment of PPH among the study patients (N= 100)

Management/procedure	Frequency (n)	Percentage (%)
Conservative/medical treatment	44	44
Minor surgical management	51	51
Intrauterine inflation of balloon Catheter	9	9
Exploration of uterus	8	8
Manual removal of placenta	16	16
Repair of the perineal tear	10	10
Repair of the cervical tear	8	8
Major surgical management	5	5
B-lynch brace suture	1	1
Bilateral uterine arteries ligation	1	1
Repair of ruptured uterus	1	1
Subtotal hysterectomy following ruptured uterus	1	1
Caesarean hysterectomy	1	1

Table 8: Number of patient developed complications following PPH management

Complications	Frequency (n)	Percentage (%)
Sepsis	1	1
Transfusion reaction	2	2
Anesthetics complication (cardiac arrest)	1	1
Renal failure	1	1
Irreversible shock	1	1

Discussion

Postpartum haemorrhage (PPH) is associated with increased risk of maternal mortality. This study was conducted to assess the clinical presentation and management of PPH among hospitalized patients. This prospective observational study was conducted at Obstetrics and Gynaecology Department of Dhaka Medical College Hospital (DMCH), Dhaka, Bangladesh which is one of the largest tertiary care hospitals in the country where a large number of patients particularly from lower socio-economic condition seek admission for management. The duration of the study was one year. A total of 100 patients were randomly selected who admitted in the obstetric ward, DMCH with postpartum haemorrhage (PPH). This study observed the current situation of PPH at a tertiary care hospital in Bangladesh. The results of this study might help to build up the public awareness as well as proper management of PPH and reduce maternal mortality in Bangladesh. It also helps our decision makers and healthcare providers to take necessary steps.

The mean age of the study patients was 25±4.50 years where around 24% were within 20 years old. Majority of the patients (36%) were in between 25-30 years. Only 2% were aged above 35 years. These results were consistent with related previous studies [10-11]. In this study, only 14% of the patients were primigravida and majority (58%) of the patients had 2-4 child and 28% were grandmultipara. One previous study showed 58% were multiparous which was similar with this study [10]. Regarding the antenatal care; only 19 (19%) had history of regular and proper antenatal care (ANC), rest 81 (81%) study patients had no history of took any antenatal care at all. A previous study showed 26% had history of antenatal care and 74% had no antenatal care which was similar to this current study [10].

In this study we found that, most of the deliveries took place at home (80%). Previous studies showed 50% home deliveries and 30% hospital deliveries developed PPH [10, 12-13]. Which were not similar to our study, it was reported that PPH following home delivery is higher [12-14]. The low percentage of PPH among hospital deliveries could be due to active management of third stage of labour.

This present study showed that PPH developed following 84% of vaginal delivery, 8% of caesarean (LUCS) deliveries

and 6% of instrumental delivery. Another related study found; 64.63% cases of PPH occurred after vaginal delivery, 23.17% cases of PPH occurred after instrumental delivery and 12.20% cases of PPH occurred after caesarean section [15]. These findings were almost similar to our study, therefore it could be documented that percentage of PPH following vaginal delivery was more than caesarean delivery.

This study showed that, association of some maternal risk factors related with postpartum haemorrhage (PPH). We found; 13% of the study patients had prolonged labour, 10% had pre-eclampsia and eclampsia, prolonged 3rd stage of labour in 9% of study cases, 6% had ante partum haemorrhage (APH) and 2% had multiple pregnancies. In this series; another study showed 15% had pre-eclampsia and eclampsia, 2.5% had multiple pregnancies, 7.5% had ante partum haemorrhage (APH), prolonged 3rd stage of labour was in 8% of cases which were nearly similar with this current study [16].

In this study majority of the study patients were admitted in hospital with primary PPH (92%), only 8% was admitted with secondary PPH. This result was comparable with a couple of previous studies [14-15].

Data analysis revealed that, the most common causes of PPH were- uterine atony (52%) followed by genital tract trauma (18%), retained placenta (16%) and retained bits of placenta tissue/membrane (8%). These observations were supported by previous studies [12-14]. In this study 90 patients required blood transfusion. Among them 80 patients needed 1-3 units blood transfusion and 10 patients required massive (>4 units) blood transfusion. This finding was supported by similar previous studies [13-14]. Present study showed that among 100 PPH cases; 44 (44%) cases were managed by conservative medical treatment, 51 (51%) cases were managed by minor surgical procedure and only 5 (5%) cases needed major surgical intervention. These results were in a line of similar previous studies [10, 17-18].

In this present study most of the patients (94%) were discharged without any complications. Only 6 (6%) of the study cases were developed various complications like-shock (1%), sepsis (1%), transfusion reaction (2%), renal failure (1%) and cardiac arrest following GA (1%). Two (2%) patients had died out of 100 study patients, among them one patient had died following cardiac arrest due to hazards of general anesthesia (G/A) and another one had died due to irreversible shock following massive haemorrhage. These findings were consistent with a related previous study [11].

Conclusion

This study demonstrated that, 92% patients present with primary PPH and 55 % of the patients had no detectable risk factors. Regarding management; medical treatment and surgical management were found almost equal; 44% patients

were managed by conservative medical treatment and 56% patients required surgical intervention. Therefore it has been revealed that without any risk factors patient may develop PPH, both surgical and conservative medical management have equal important role. Better maternal outcome could be ensured by proper management of PPH at proper time. All patients with risk factors, their delivery should be conducted in a well-equipped hospital.

Limitation of the study

It was a single center study with a relatively small sample size that doesn't reflect the actual situation in the total population of the country.

Recommendation

All pregnant women should include in ante natal care (ANC) coverage to screen out the risk and ensure safe delivery. Each and every delivery should be conducted by trained persons as because proper conducted delivery can significantly reduce PPH. Further large scale population based studies should be done.

Conflicts of interest

All authors declared that they have no conflict of interest regarding this publication.

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