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Original Research Article

Clinical study on risk factors, management pattern and outcome of patients with secondary post-partum hemorrhage admitted in BSMMU

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ABSTRACT

Background: Secondary postpartum hemorrhage (PPH) is a life-threatening obstetric condition. The percentage of secondary PPH is thought to be higher in developing countries. This is an important cause of maternal morbidity and mortality. Most of the patients had no identifiable risk factors and PPH cannot always be preventable. The particular cause of the hemorrhage must be investigated and treated after basic resuscitation. This study aims to evaluate risk factors, management pattern and outcome of patients with secondary PPH.
Methods: This cross-sectional study was conducted in the department of obstetrics and gynaecology, BSMMU, total patients were 42 who fulfilled the selection criteria, from March 2012 to August 2012 and data were interpreted with statistical analysis.
Results: Among 42 patients, 54.77% presented with identifiable risk factors, with multiple pregnancy (14.2%) and prolonged rupture of membranes (9.52%) being the most common. The leading causes were infection (54.29%) and retained placental tissue (28.57%). Most patients (59.52%) were managed medically using uterotonic drugs and antibiotics, while 23.8% required surgical evacuation of retained tissue. Blood transfusion was needed in 80.95% of cases. Favorable outcomes were observed in 97.61% of patients, with only one case of complications and no maternal deaths.
Conclusions: Medical and surgical interventions for secondary PPH are effective. Prevention and early detection require strengthening of antenatal care, hygiene during childbirth and post-partum monitoring.

Keywords: Secondary postpartum hemorrhage, Risk factors, Infection, Management, Clinical outcomes

INTRODUCTION

Postpartum hemorrhage (PPH) is a life-threatening obstetric emergency that requires immediate treatment to reduce maternal morbidity and mortality. Secondary PPH occurs in about 1% of women, in associated with primary PPH and retained placenta, but it may cause significant maternal morbidity.[1]

The development of secondary PPH is multifactorial and is due to associated risk factors including uterine atony, retained placental tissue, genital tract injuries, and

infection.[2] A leading cause of infections have been identified as associated with suboptimal delivery practices or poor hygiene during childbirth, especially in resource constrained environments.[3] The reasons for a secondary PPH are related to either due to an infection of the uterus or due to retention of a small part of placenta in uterus. If part of placenta which remains in the uterus, breakdowns slowly over time and cause a uterine infection.[4]

Women presented with secondary PPH usually during second and third postpartum weeks. By this time most of them are discharged from hospital following Vaginal or abdominal delivery.[5] However, delays in identifying hemorrhage, delays in transport to appropriate center and in receiving the recommended treatment contributes to maternal morbidity.

Women who are already compromised during pregnancy by anaemia and intercurrent illness are more likely have the serious deterioration of condition and also predispose to subsequent puerperal infection.[6] Major morbidity associated with transfusion hazards (viral infection), in extreme haemorrhage sterility result from hysterectomy.

Depending on diverse etiology of secondary PPH, management relies on identifying the cause and tailoring appropriate treatment.[7] Administration of oxytocin with or without ergometrine is the initial treatment. Prostaglandins have been advocated.[8] Antibiotics are commonly given to treat infection is also a mainstay of treatment. Surgical measures are like bilateral ligation of uterine arteries, ligation of ovarian arteries and ligation of internal iliac arteries. Hysterectomy is used as last measure to save the life of the patient. Optimum care during delivery and in postpartum period is necessary to reduce the high incidence of this PPH.

Objectives

The objective of this study was to evaluate the risk factors, management pattern and outcome of patients with secondary PPH.

METHODS

This descriptive cross- sectional study was conducted in the department of obstetrics and gynaecology, Bangabandhu Sheikh Mujib medical university (BSMMU), Shahbagh, Dhaka during March 2012 to August 2012. Total of 42 women with secondary PPH were enrolled consecutively for the study fulfilling the selection criteria. Among them 35 patients were admitted as a case of secondary PPH after home or institutional delivery and seven admitted patients developed secondary PPH following delivery before discharge from BSMMU.

Inclusion criteria

Patients who developed secondary PPH following delivery among admitted cases before discharge from BSMMU (7), patients who admitted as a case of secondary PPH after home or institutional delivery (35) and cases of both vaginal delivery and caesarean section were included.

Exclusion criteria

Patient unwilling to give informed consent were excluded.

Data collection

This descriptive cross-sectional study conducted at the department of obstetrics and gynaecology of BSMMU Dhaka, during March 2012 to August 2012. Consecutively, 42 women with secondary PPH were enrolled based on inclusion criteria. Data was collected through structured interviews, clinical examinations, and review of medical records. A pre tested questionnaire was used to document relevant socio demographic, obstetric history and clinical findings. Data collected on laboratory and imaging results, management details and outcomes.

Ethical consideration

This study was approved by the research and training monitoring department (RTMD), Bangladesh college of physicians and surgeons (BCPS). All participants gave written informed consent. The study involved ethical guidelines for research in human participants and procedures that kept the confidentiality of patient information through the study. There were no financial or other conflicts of interest.

Statistical analysis

Data was analyzed using SPSS version 15. Data was summarized using descriptive statistics, such as frequency, percentage, mean, and standard deviation. Association between variables was assessed using inferential statistics like chi square tests. All analyses were deemed significant with a $p<0.05$.

RESULTS

Table 1 shows that 45.23% patients had no risk factors and among risk factors multiple pregnancy in 14.2%, Prolonged rupture of membrane in 9.52%, anemia H/O APH, H/O primary PPH in7.14%, Prolong labour and Instrumental delivery in 4.76% cases.

Table 2 shows that 50% patients had no past history of surgery in uterus and 30.95% with H/O cesarean section, 16.66 % with H/O MR, D and C.

Table 3 shows cause among patients with secondary PPH are infection in 19 (54.29%) patients, retained placental tissue in 10 (28.57%) cases, uterine atony in 4 (11.4%) cases and injury in lower genital tract in 2 (5.71%) cases and causes among patients who developed PPH during hospital stay and before discharge are uterine atony in 3

(42.85%) patients, infection in 3 (42.85%) cases and injury in lower genital tract in 1 (14.29%) case.

Table 1: Frequency of distribution of risk factors among the respondents, (n=42).

Relevant risk factors	N	Percentage (%)
Anemia	3	7.14
H/O APH	3	7.14
Multiple pregnancy	6	14.2
Prolonged rupture of membrane	4	9.52
Prolong labour	2	4.76
Instrumental delivery	2	4.76
H/O primary PPH	3	7.14
Coagulopathy	0	0
No risk factors	19	45.23

Table 2: Distribution of relevant past surgical history regarding secondary PPH among the respondents, (n=42).

Past surgical history	N	Percentage (%)
No past history of surgery in uterus	21	50
H/O MR, D and C	7	16.66
H/O cesarean section	13	30.95
H/O myomectomy	1	2.38

Table 3: Distribution of causes among the patients admitted with secondary PPH, (n=42).

Variables	N	Percentage (%)
Causes among patients admitted with secondary, (n=35)		
Uterine atony	4	11.4
Infection	19	54.29
Retained placental tissue	10	28.57
Injury in lower genital tract	2	5.71
Causes among patients who developed secondary PPH during hospital stay and before discharge, (n=7)		
Uterine atony	3	42.85
Infection	3	42.85
Injury in lower genital tract	1	14.29

Table 4: Clinical presentation and distribution in need of blood transfusion for secondary PPH patients, (n=42).

Clinical presentation	N	Percentage (%)
PPH without shock	39	92.85
PPH with shock	3	7.14
Need of blood transfusion required	34	80.95
No required	8	19.05

Table 4 shows that most of the patients 39 (92.85%) were presented without shock and 34 (80.95%) patients needed blood transfusion.

Table 5: Distribution of specific management of secondary PPH, (n=42).

Medical management	N	Percentage (%)
Uterotonic drugs and antibiotics	25	59.52
Surgical		
Evacuation of placental tissue	10	23.8
Exploration of uterus	1	2.38
Repair of genital tract injury	3	7.14
Balloon catheter	2	2.38
B Lynch suture	0	0
Uterine artery ligation	0	0
Hysterectomy	1	2.38

Table 5 shows that most of the patients 25 (59.52%) were managed with medical treatment. Surgical interventions included evacuation of placental tissue (23.8%), repair of genital tract injuries (7.14%), uterine exploration (2.38%), balloon catheter insertion (2.38%), and hysterectomy (2.38%). No cases required uterine artery ligation or B-lynch sutures.

Table 6: Clinical outcome of secondary PPH patient, (n=42).

Outcome	N	Percentage (%)
Improved	41	97.61
Improved with complication	1	2.38
Death	0	0

Table 6 shows that most of the patients (97.61%) improved without any complications while one patient (2.38%) experienced complications but recovered. There were no reported maternal deaths in the study.

DISCUSSION

A well designed descriptive cross-sectional study was conducted in obstetrics and gynaecology department of BSMMU, duration of this study was six months from March 2012 to August 2012. Total 42 participants who fulfill the inclusion and exclusion criteria were included in this study, who developed secondary PPH after vaginal delivery or LSCS or instrumental delivery and patients who were admitted as cases of secondary PPH after home or other instrumental delivery.

Risk factors of postpartum haemorrhage were present in 23 (54.77%) patients, among them 6 (14.2%) with multiple pregnancy, 4 (9.52%) had H/O prolonged rupture of membrane, 3 (7.14%) had anemia, 3 (7.14%) had H/O

APH. Rest of 19 (45.23%) patients had no risk factor. Walker and co-worker conducted a retrospective cohort study on singleton and multiple pregnancies in Canada show multiple pregnancies were associated with postpartum haemorrhage.[9]

Among the participant 21 (50%) patient were without any past history of surgery in uterus, 13 (30.95%) patients were with H/O previous cesarean section, 7(16.66%) had H/O MR or D and C and 1 (2.38%) had H/O myomectomy. The Japanese study demonstrated excessive blood loss at postpartum in women with previous cesarean section.[10]

Regarding causes among patients admitted with secondary PPH, infection in 19 (54.29%) patients, retained placental tissue in 10 (28.57%) cases, uterine atony in 4 (11.4%) patients and injury in lower genital tract in 1 (14.29%) patient.

Patients who developed secondary PPH during hospital stay before discharge, causes were atony in 3(42.85%) cases, infection in 3 (42.85%) cases, and injury in lower genital tract in 1 (14.29%) patient. Study from Hoveyda shows almost all patients with secondary PPH underwent USG and found 68.4% presented with retained bits of placenta and sepsis.[6]

In our study, medical management was effective in 59.52% of cases and uterotonics and antibiotics were the most common interventions performed. These findings are consistent with Royal college of obstetricians and gynaecologists (RCOG) guidelines, which recommend a stepwise approach starting first with medical treatment.[11] Surgical interventions were required in 40.48%, most frequently due to retained placental tissue and/or significant genital tract injury. While surgical evacuation is proven to be a preferred method, it also relates to the resource constraints of our setting as it is not the only option in our setting, as in higher resource regions, uterine artery embolization is used.[12]

The study showed that 80.95% patients required blood transfusion due to anemia and hypovolemia of fatal nature in delayed diagnosis. This proportion is higher than that reported by Bateman et al who found a need for transfusion in approximately 65% of secondary PPH cases in high-resource settings.

The great majority of our patients had favorable clinical outcome, 97.61% recovered without problem. A study by Chantry et al reveals that most of secondary PPH cases have a good prognosis with prompt intervention.[14] One patient in our cohort required hysterectomy due to uncontrolled bleeding. Although hysterectomy is a last resort, Doumouchtsis et al have documented its importance in refractory cases.[15]

These findings have important implications for improving secondary PPH management in resource poor settings. The clean delivery practice and proper postnatal care is very important for the prevention of infection. Promoting antenatal care may also be helpful in addressing risk factors, for example anemia and the prolonged membrane rupture. In our study we highlight the importance of enhanced capacity building in obstetric units to manage secondary PPH effectively including ensuring the availability of blood products, medications and surgical expertise.

Limitations

Limitations of our study include its small sample size and single center design limiting generalizability of the findings. Furthermore, lack of long term follow up does not permit assessment of reproductive outcome or recurrence rates. The findings were validated by future multicenter studies with larger sample sizes, to assure that the results can be implemented in practice guidelines.

CONCLUSION

PPH remains a leading cause of maternal mortality and severe morbidity. The percentage of secondary PPH is higher in developing countries due to many home deliveries without septic precaution by untrained birth attendants. This results in massive hemorrhage, delayed diagnosis, and hospital admission, causing serious morbidity and even death. Although predisposing factors are not well understood, it is difficult to predict which patients will experience secondary PPH. However, with effective management, maternal morbidity has been markedly reduced.

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