

Early post-partum hemorrhage after spontaneous vaginal delivery: prevention and management done by midwives at butare university teaching hospital

Abstract

Background: Postpartum hemorrhage (PPH) is the leading cause of maternal death in low-income countries and is the primary cause of approximately one-quarter of global maternal deaths. The purpose of this paper is to assess the prevention and management of early postpartum hemorrhage (PPH) after spontaneous vaginal delivery at Butare University Teaching Hospital.

Methods: Quantitative prospective observational study, 31 women in labor from the end of the second stage of labor to the end of early postpartum after spontaneous vaginal delivery during data collection period (From March 20th to April 2, 2015). The participant involved in this Evidence Based Practice was observed after getting and signing consent form. Patient's files, data correction form was used to correct data. All processes were done after getting approval from ethical committee and Butare University Teaching Hospital research committee permission to conduct the project. The data were entered in SPSS version 16 for being analyzed; Microsoft word for text elaboration and Microsoft excel was used for making tables.

Results: Active management of the third stage of labor is considered the "gold standard" strategy for reducing the incidence of PPH. It combines nondrug interventions (controlled cord traction and cord clamping) with the administration of an uterotonic drug. Unfortunately, Oxytocin is used in majority of cases (93.5%; n=29) followed by uterine massage (67.7%; n=21), but the controlled cord traction is the last one with (54.8%; n=17). For management vital signs are taken at 100% (n=6), estimated blood loss done at 66.7% (n=4) differently, establish intravenous access and prevention of shock are done at (83.3%; n=5). Transfusion done at 50% (n=3) and catheterized bladder not done at 83.3% (n=5).

Conclusion: As the main cause of maternal mortality worldwide, PPH prevention interventions need to be prioritized. Increased access to prophylactic uterotonics, regardless of where deliveries occur, should be the primary means of reducing the complication of PPH.

Keywords: pph prevention and management, active management of third stage of labor, misoprostol, oxytocin

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Introduction

Background

Postpartum hemorrhage (PPH) is the most common cause of maternal death in low-income countries and is the primary cause of approximately one quarter of global maternal deaths worldwide.¹ One of the Millennium Development Goals set by the United Nations in 2000 is to reduce maternal mortality by three-quarters by the 2015. If this is to be achieved, maternal deaths related to postpartum hemorrhage must be significantly reduced. In the same line, health workers particularly midwives in developing countries need to have access to appropriate medications and to be trained in relevant procedures. But beyond this, countries need evidence-based guidelines on the safety, quality, and usefulness of the various interventions. These evidence-based guidelines provide the foundation for the strategic policy and program development needed to ensure realistic and sustainable implementation of appropriate interventions.² These will provide the foundation for the strategic policy and program development needed to ensure realistic and sustainable implementation of appropriate interventions.

Postpartum hemorrhage (PPH) is generally defined as blood loss greater than or equal to 500 ml within 24 hours after vaginal delivery, while severe PPH is blood loss greater than or equal to 1000 ml within 24 hours.³ Post-partum hemorrhage remains a major threat to women. Since uterine atony is an important cause of this condition, uterotonic agents to control bleeding are the standard of care worldwide. Yet the risk of dying from post-partum hemorrhage remains 100 times higher in developing countries than in developed countries.³

The primary PPH may result from uterine atony (failure of the uterus to contract properly after delivery), trauma (cervical, vaginal, or perineal lacerations), retained or adherent placental tissue, clotting disorders, and inverted or ruptured uterus. More than one of these can cause postpartum hemorrhage in any given woman.⁴ According to the research done in tertiary care hospital in Pakistan, about Evaluation of compliance and outcomes of a management protocol for massive postpartum hemorrhage, they found that Uterine atony alone was the most common cause of massive PPH in that study (14/26; 54%).⁵ while in short report talk about "Post partum hemorrhage: causes and management", showed that Primary post-partum hemorrhage emerge as the most common type of post-partum hemorrhage and uterine

atony was detected as the most common cause of primary post-partum hemorrhage, which was found in 6 patients among 18 patients who developed early post-partum hemorrhage.⁴

The prevention and management of PPH is based on evidence based practices standard. Effective *preventive* intervention in obstetrics reduce postpartum hemorrhage complications; Active management of the third stage of labor (AMSTL), defined as intramuscular administration of 10 IU of Oxytocin, controlled cord traction (CCT) and fundal massage after delivery of the placenta, substantially reduces the risk of PPH. AMSTL is considered the “gold standard” strategy to reduce the incidence of PPH. It combines nondrug interventions with the administration of an uterotonic drug. The AMSTL preferred uterotonic is oxytocin.⁶

Early recognition is the first key of management of postpartum hemorrhage. After detecting the problem, to call for help and to organize the team is very important.

About management of PPH in the study titled treatment of post-partum hemorrhage with sublingual misoprostol versus oxytocin in women not exposed to oxytocin during labor: a double-blind, randomized, non-inferiority trial showed that misoprostol is more effective in reducing PPH for woman who received prophylactic oxytocin than woman who did not received prophylactic oxytocin.⁷ But in other research concerned treatment of post-partum hemorrhage with sublingual misoprostol versus oxytocin in women receiving prophylactic oxytocin show that misoprostol equivalent to oxytocin when is used to treat PPH for both two groups.⁸ While the study done on use of non-pneumatic anti-shock garment in Nigeria and Egypt found that anti-shock garment can reduce the blood loss and the outcomes of PPH at 50%.⁹

In *Buth*,¹⁰ the management of PPH is based on evidence based medicine related in national protocol and it was similar to all studies found in our study(Protocols & Guidelines, 2012).

The rationale of this project is to assess midwives prevention and management of early post-partum hemorrhage after spontaneous vaginal delivery. In Rwanda, the PPH represented 53% and 25% of the maternal death causes in 2008 and 2010 respectively.¹¹ Early Postpartum hemorrhage represent 36.7% for the maternal mortality rate at Butare University Teaching Hospital clinical settings.¹⁰

The project general aim is to assess the prevention and management of early postpartum hemorrhage (PPH) after spontaneous vaginal delivery at *Buth*¹⁰ based on responsibilities, recognition and assessment of midwife by evaluate the group of mothers who are at risk to develop early PPH after spontaneous vaginal delivery and also to evaluate the prevention and the management done by midwives of early postpartum hemorrhage after spontaneous vaginal delivery and assess the outcomes of the patient treated after early postpartum hemorrhage.

Methods

A descriptive observation cross-sectional study was used to determine the prevention and management of postpartum hemorrhage among of midwives. The study was hospital-based conducted in the study was conducted at Butare University Teaching Hospital. The study involved midwives who had worked in the maternity department for at least 12 months and provided consent to participate in the study. To select the midwives, a proportionate sampling strategy was used. Women in labor from the end of the second stage of labor to the end of early postpartum after spontaneous vaginal delivery during

data collection period From March 20th to April 2, 2015). Women in labor from the end of the second stage of labor to the end of early postpartum after spontaneous vaginal delivery during data collection period From March 20th to April 2, 2015). After getting approval from ethical committee and BUTH research committee permission to conduct the project. Participants were included after explanation of study and their agreement was approved by sign consent form. A well-designed and pretested questionnaire was used to validate the research instruments. The questionnaires were designed in relation to the conceptual framework and research objectives. The data was collected through observations. For the observation, a checklist was used to observe the actual skills that midwives employed during the second and third stage of labour and was filled by the researcher and the research assistant. On average each observation took 30 minutes during the second stage and third stage of labour. For recruitment of participant data collection form was used, consent form translates in Kinyarwanda, Patient’s files, Computer; all processes were done after getting approval from ethical committee and BUTH research committee permission to conduct the project. Participants were included after explanation of study and their agreement was approved by sign consent form. The data were entered in SSPS version 16 for being analyzed, Microsoft word for text elaboration and Microsoft excel was used for making tables.

Statistical analysis using the Statistical Package for Social Sciences was done. Data were edited, coded, and entered. A descriptive analysis was done to determine percentages and means. The results were presented by the use of graphs, pie charts, and tables. Approvals to conduct the study were given by University of Rwanda, college of medicine and health sciences Institute of review board and the authority to undertake the study was sought from, University teaching hospital of Butare Ethics and Research Committee).

Results

In this chapter, the main points that have been highlight are the results, discussion and the findings.

Oxytocin is used in majority of cases (93.5%: n=29) followed by uterine massage (67.7%: n=21), but the controlled cord traction is the last one with (54.8%: n=17) (Table 1).

Table 1 Amstl distribution

Variables	No n (%)	Yes n (%)	Total n (%)
Oxytocin used	2 (6.5%)	29 (93.5%)	31 (100%)
Controlled cord traction	14 (45.2%)	17 (54.8%)	31 (100%)
Uterine massage post delivery	10 (32.3%)	21 (67.7%)	31 (100%)

Oxytocin, controlled cord traction and uterine massage were used at 66.7% (n=4), and not used at 33.3% (n=2) for different women with PPH (Table 2).

Table 2 Amstl for pph distribution

Variables	No n (%)	Yes n (%)	Total n (%)
Oxytocin used	2 (33.3%)	4 (66.7%)	6 (100%)
Controlled cord traction	2 (33.3%)	4 (66.7%)	6 (100%)
Uterine massage post delivery	2 (33.3%)	4 (66.7%)	6 (100%)

PPH founded in multigravida and augmentation of labor at 66.7% (n=4), primigravida at 33.3% (n=2) and antecedent of PPH at 50% (n=3) (Table 3).

Table 3 Obstetrics antecedent distribution

Variables	No n (%)	Yes n (%)	Total n (%)
Primigravida	2 (33.3%)	4 (66.7%)	6 (100%)
Multigravida	2 (33.3%)	4 (66.7%)	6 (100%)
Augmentation of labor	2 (33.3%)	4 (66.7%)	6 (100%)
Antecedent of PPH	3 (50%)	3 (50%)	6 (100%)

Vital signs are taken at 100% (n=6), estimated blood loss done at 66.7% (n=4) differently, establish intravenous access and prevention of shock are done at (83.3%: n= 5). Transfusion done at 50% (n=3) and catheterized bladder not done at 83.3% (n=5) (Table 4).

Table 4 Management of early post-partum hemorrhage distribution

Variables	No n (%)	Yes n (%)	Total n (%)
Vital signs taken	0	6 (100%)	6 (100%)
Estimated blood loss	2 (33.3%)	4 (66.7%)	6 (100%)
Establish intravenous access	1 (16.7%)	5 (83.3%)	6 (100%)
Transfusion	3 (50%)	3 (50%)	6 (100%)
Prevention and treatment of the shock	1(16.7%)	5(83.3%)	6 (100%)
Catheterized Bladder	5(83.3%)	1(16.7%)	6 (100%)

Uterine atony was managed by misoprostol and oxytocin at 33.3% (n=2 who developed uterine atony). Suture of trauma was done at 33.3% (n=2 who had trauma).Tissues was managed (16.7%: n=1 who present tissues). Replace factors was done at (16.7%: n=1 who present thrombin) (Table 5).

Table 5 Treatment according to the cause of pph distribution

Variables	No n (%)	Yes n (%)	Total n (%)
Tone	4 (66.7%)	2 (33.3%)	6 (100%)
Misoprostol	4 (66.7%)	2 (33.3%)	6 (100%)
Oxytocin	4 (66.7%)	2 (33.3%)	6 (100%)
Methergin	6 (100%)	0	6 (100%)
Trauma	4 (66.7%)	2 (33.3%)	6 (100%)
Suture of laceration	4 (66.7%)	2 (33.3%)	6 (100%)
Tissues	5 (83.3%)	1 (16.7%)	6 (100%)
Manual remove	5 (83.3%)	1 (16.7%)	6 (100%)
curage	6 (100%)	0	6 (100%)
Thrombin	5 (83.3%)	1 (16.7%)	6 (100%)
Replace factors	5 (83.3%)	1 (16.7%)	6 (100%)

No death found; long stay was the first out come at 83.3%:(n=5), the following is transfusion and Psychological impact at 50%:(n=3), the last are anemia and hemorrhagic shock at 33.3%:(n=2) (Table 6).

Table 6 Outcomes of pph distribution

Variables	No n (%)	Yes n (%)	Total n (%)
Death	6 (100%)	0	6 (100%)
Long stay	1 (16.7%)	5 (83.3%)	6 (100%)
ICU admission	5 (83.3%)	1 (16.7%)	6 (100%)
Hemorrhagic shock	4 (66.7%)	2 (33.3%)	6 (100%)
Anemia	4 (66.7%)	2 (33.3%)	6 (100%)
Transfusion	3 (50%)	3 (50%)	6 (100%)
Psychological impact	3 (50%)	3 (50%)	6 (100%)

Discussion

This study was conducted at Butare University Teaching Hospital, department of Obstetrics and Gynecology from 20th March to 2nd April 2015.

In our study we found that in prevention, oxytocin is not used for all women, only 93.5%:(n=29) were received oxytocin while 6.5%:(n=2) are not received (Table 1). Concerning controlled cord traction only 54.8%:(n=17) has been done and 45.2% (n=14) were not. Uterine massage was performed in 67.7%:(n=21), but 32.3%:(n=10) were not done (Table 1). Comparing those findings to other study conducted in developing country in Uganda, they found that there is a greater benefit of oxytocin than sublingual misoprostol,¹² which is similar to our findings. Even if the uterine massage has play a crucial role in reducing the PPH at 45% in study done at Pakistan,⁵ but at Butu, it is used at 67.7%:(n=21).

AMSTL for PPH distribution was done at 66.7%:(n=4) Table 2 which are not different from the findings in the study done in low resources countries about AMSTL is effective, the findings was shown that oxytocin prophylaxis in intramuscular route with controlled cord traction reduced post-partum hemorrhage risk by 66%.⁶

In obstetrics antecedent distribution, Multigravida and augmentation of labor are at risk to develop PPH at 66.7%:(n=4) because of uterine atony, which is similar with a study done in Pakistan found that uterine atony alone was the most common cause of massive PPH at (14/26; 54%),⁵ but the other study show that oxytocin during labour was associated with a significantly higher risk of severe PPH.³

In management of early postpartum hemorrhage we found that vital signs are taken at 100%:(n=6) Table 4. Estimated blood loss is done differently at 66.7%(n=4), while 2 (33.3%), blood loss is not estimated which is similar with the study done about Safety and Efficacy of Misoprostol versus Oxytocin for the Prevention of Postpartum Hemorrhage show that to estimated blood loss is important thing in management of PPH but is done differently there is no standards.¹³ Establishing intravenous access and preventing the shock were done at 83.3%:(n=5) which is different from the study in Egypt and Nigeria ,where the prevention is done by the Non-Pneumatic Anti-shock Garment which reduces PPH at 50%.⁹ Also, 2013 recommends that to empty the bladder is important in managing PPH but at BUTH catheterize bladder was done at lower level 16.7%:(n=1). For managing uterine atony, misoprostol and ocytocine are combined at 33.3%:(n=2) which is no different from the study where they show that misoprostol is significantly decreases hemorrhage in PPH management,¹³ But the other study done show that misoprostol is equivalent to oxytocin when is used to treat PPH.⁸

Trauma is founded at 33.3%(n=2), tissues and thrombin are at 16.7% (n=1) but management were done at 100%(n=6) which is similar with the.⁴

PPH is known as the first cause of maternal morbidity and mortality, but it can be prevented and managed in order to reach good outcome.¹⁴ In this study, for outcomes there is no death, the first outcome is the long stay which is founded at 83.3%,(n=5) the second is transfusion 50%(n=3) and psychosocial impact at 50%(n=5) (Table 6). however, other study show that the primary outcome of PPH is death and hysterectomy, the secondary are blood transfusion and long stay.¹⁵

Comparison

Prevention

In this study for preventing PPH in AMSTL oxytocin was used at 93.3%, cord traction at 54, 8%, uterine massage was done at 67, 7%, while in advanced life support in Obstetrics, recommends that all women must receive all 3 components of AMSTL.^{16,17}

Management

In management of PPH, vital signs, and identification are done at 100% which are similar to the protocols in ALS0, 2013, but establishing intravenous access and preventing shock are done at 83.3%, are different from those protocols. To estimated blood loss is not done at 33.3%, even if is done at 66.7%, the way of estimation was different. According the literature review, the estimation of blood loss is still being a challenge in the clinical setting.¹³

Management of uterine atony is not deferent from others literature review,¹⁴ but was done at low level in this study, where uterine message is done at, misoprostol and oxytocin are given at, but to empty bladder still a big problem because was done 16,7%.The management of trauma, tissues and thrombin were done at 100% because all were managed as it recommended.¹⁷⁻²⁰

Conclusion

As the main cause of maternal mortality worldwide, PPH prevention interventions need to be prioritized. Grand multiparity and augmentation of labor are common risk factor of PPH as identified in this study; but women can develop PPH without any identified risk factor, the PPH can be prevented by avoiding unnecessary augmentation of labor.

Active management of third stage of labor (AMTSL) is a key role to prevent PPH, so it must be offered for every woman who is in labor and delivery by skilled birth attendant in health facility and should be promoted. In this study management of PPH depends on the cause and it is related to the practice standard, but catheterized bladder must be improved. Estimated blood lose is done without standard. If PPH is well prevented and managed at time, the outcome can be good.

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Conflicts of interest

The author declares no conflict of interest.

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