

Appropriate Documentation of the Timing of Events in the Management of Women with Postpartum Hemorrhage in Aminu Kano Teaching Hospital: A 2-Year Audit

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Abstract

Background: Appropriate documentation of the timing of events in the management of women with postpartum hemorrhage (PPH) is associated with better outcome. **Objective:** To find out how best the Department of Obstetrics and Gynaecology, Aminu Kano Teaching Hospital, fares when compared with the Royal College of Obstetricians and Gynaecologists (RCOG) guidelines about appropriate documentation of the timing of events in the management of PPH. **Methodology:** It was a retrospective study based on findings obtained from the case folders of women who had PPH between January 2016 and December 2017. A structured pro forma was used to extract information such as personal data, type of PPH, vital signs of patients, sequence of events, administration of pharmacological agents, and timing of interventions. **Results:** There were 5202 patients who presented to the labor ward, and 129 of them were cases of PPH giving an incidence of 2.48%. The mean age of the patients was 20.38 ± 1.13 years, and about half of them (47.6%) were multiparas. There was appropriate documentation in terms of initial assessment, resuscitation, and investigations as the percentages of standards achieved are 85%, 78.6%, and 85.7%, respectively. Sixty-one percent of the patients had treatment within the time recommended and 56% had treatment with appropriate uterotonics. Appropriate documentation of major surgeries according to the guidelines was achieved in 12% of cases. **Conclusion:** There was good performance in documentation of initial management of patients with PPH when compared with the RCOG guidelines but suboptimal performance in timing of major surgical interventions.

Keywords: Audit, documentation, Kano, postpartum hemorrhage

INTRODUCTION

Postpartum hemorrhage (PPH) is defined as blood loss from the genital tract in excess of 500 ml following vaginal delivery, above 1000 ml following cesarean section, and >1500 ml following cesarean hysterectomy. It can also be defined as blood loss sufficient to cause hypovolemia, a 10% drop in hematocrit, or blood loss requiring transfusion of blood products (regardless of route of delivery).¹ PPH is said to be primary when it occurs within 24 h and secondary when it occurs between 24 h and 12 weeks postnatally.² It is the leading cause of maternal mortality worldwide (25%) and is a major contributor of maternal deaths in Africa (33.9%).³

Factors associated with PPH include increasing maternal age, multiparity, fetal macrosomia, multiple pregnancies, uterine fibroids, antepartum hemorrhage, previous history of PPH, previous cesarean section, prolonged labor, and

episiotomy.⁴ However, none of these factors has an adequate positive predictive value for a good screening tool. Therefore, experts recommend that all women should benefit from active management of the third stage of labor, the only intervention known to prevent PPH.⁵ Active management of the third stage of labor reduces the incidence of PPH by one third, and therefore, a significant proportion of women will proceed to develop PPH despite this active management.⁶ Skilled birth attendants must therefore be conversant with proper management of PPH.

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The Royal College of Obstetricians and Gynaecologists (RCOG) issued guidelines on PPH prevention and management which was published in 2009 and updated in 2016. The 2009 guideline was based on an earlier guideline on the management of PPH developed in 1998 under the auspices of the Scottish Committee of the RCOG and updated in 2002;⁷ however, this passive dissemination of guideline is by itself insufficient to change professionals' practices. However, the analysis of the actions was developed while providing care to the newly delivered women; accurate documentation against time is important for further clinical management, continuity of care, and team work. In addition, inadequate documentation can contribute to the likelihood of medico-legal consequences.^{8,9} This is the framework within which this study was initiated to identify dysfunctions in the management of PPH at the Gynaecology and Obstetrics Unit of Aminu Kano Teaching Hospital (AKTH), Kano.

There is minimal or no standard guidelines for the management of PPH in AKTH as such this audit will make use of the RCOG guidelines as the standards to compare the management protocol offered with reference to appropriate documentation in the center.

The aim of this audit is to find out how best we are doing in AKTH when compared with the updated RCOG guidelines about appropriate documentation with timing of events in the management of patients with PPH.

Royal College of Obstetricians and Gynaecologists audit standard

Initial assessment of the patient must be done within the first 15 min. A multidisciplinary team involving senior members of staff should be alerted when women present with major PPH. Resuscitation (ABC, oxygen, fluid balance, blood transfusion, and blood product) must be carried out within 15 min. Blood sampling to measure the rate of hemoglobin and determine blood group and blood compatibility (cross-match 4 units, fresh frozen plasma, platelets, and cryoprecipitate) can be done within 30 min. Etiological treatment must be performed within 30 min. Bimanual uterine compression and ensuring that the bladder is empty are necessary. Medical treatment with 10 IU of oxytocin by slow intravenous infusion should be given and then maintain on 40 IU oxytocin in 500 mls isotonic crystalloids at 125 mls/hour. Ergometrine can be given at a dose of 500 micrograms (contraindicated in women with hypertension). Carboprost 250 micrograms can also be given intramuscularly every 15 minutes up to a maximum of 8 times and then 0.5 mg intramyometrial. Finally misoprostol 1000 micrograms can be inserted rectally. Consideration should be given to the use of tranexamic acid in the management of PPH. Major surgeries (suture of a uterine rupture, intrauterine balloon tamponade, brace suture, hysterectomy, bilateral uterine artery, and bilateral internal iliac artery ligation) must be performed within 60 min. Transfer to the intensive care unit once the bleeding is controlled should be considered or monitoring at high dependency unit if appropriate.

METHODOLOGY

The audit was a retrospective study based on the findings obtained from the case folders of women who had PPH and were managed between January 2016 and December 2017. A structured pro forma was used to extract information such as personal data, type of PPH, vital signs of patients, staffs in attendance and the time they arrived, sequence of events, administration of different pharmacological agents, their timing and sequence, timing of surgical interventions, condition of the mother throughout the different steps, and timing of intravenous fluids and blood products given. These were compared with the criteria obtained from the 2016 RCOG guidelines.

Inclusion criteria

All women who had blood loss from the genital tract within 24 h following delivery in excess of 500 ml following vaginal delivery or 1000 ml following a cesarean section were considered to have PPH. Regardless of the quantity of blood loss, diagnosis of PPH was also considered when bleeding was associated with at least 2 of the following signs; conjunctival pallor, systolic blood pressure <80 mmHg, thready pulse, agitations, cold sweats, cold extremities, severe thirst, impaired consciousness, or bleeding which required blood transfusion.

Exclusion criteria

All the women whose blood loss through the genital tract did not have a serious impact on their general condition and those whose medical records were not adequately retrieved were excluded.

The information was collated using SPSS Statistical Software Version 21 (SPSS Inc., Chicago, IL, USA). Ethical approval for the study was sought from the institutional ethical committee.

RESULTS

There were 5202 patients who presented to the labor ward for delivery during the study period. One hundred and twenty-nine of them were cases of PPH, thus giving an incidence of 2.48%. Among the 129 cases, 84 (65.1%) case notes were retrieved from the medical records department and these were the ones analyzed. The mean age of the patients was 20.38 ± 1.13 years. The majority (64.2%) of the women were between the age groups of 20 and 24 (32.1%) and 30 and 34 (32.1%) years. About half (47.6%) of the patients were multiparas with secondary school leaving certificate as the highest level of education ($n = 57$, 67.9%). Average parity was 5 ± 2.22 with extremes ranging from 1 to 8. Majority of the patients (69, 82.1%) delivered at AKTH, while the remaining (15, 17.9%) were referred. Fifty-five percent (55%) of the women were unbooked while 45% were booked. This is shown in Table 1.

Majority (82.1%) of the patients who had PPH delivered in our facility while the remaining (17.9%) were referred from other facilities or delivered at home. Most of the patients (90.5%) had primary PPH. Uterine atony was the most common cause of PPH (79.8%). Retained products, genital tract lacerations,

Table 1: Sociodemographic characteristics

	Frequency (%)
Age (years)	
20-24	27 (32.1)
25-29	15 (17.9)
30-34	27 (32.1)
35-39	13 (15.5)
≥40	2 (2.4)
Total	84 (100.0)
Parity	
1	17 (20.2)
2-4	40 (47.6)
≥5	27 (32.1)
Total	84 (100)
Education	
Secondary	57 (67.9)
Tertiary	11 (13.1)
Quranic	8 (9.5)
Others	8 (9.5)
Total	84 (100)
Occupation	
Homemaker	61 (72.6)
Student	6 (7.1)
Business	7 (8.3)
Civil servant	10 (11.9)
Total	84 (100)

Table 2: Referral status, type, and causes of postpartum hemorrhage

	Frequency (%)
Referral status	
Referred	15 (17.9)
Delivered at AKTH	69 (82.1)
Total	84 (100.0)
Type of PPH	
Primary PPH	76 (90.5)
Secondary PPH	8 (9.5)
Total	84 (100.0)
Causes of PPH	
Uterine atony	67 (79.8)
Retained products	6 (7.1)
Genital tract laceration	9 (10.7)
Uterine rupture	2 (2.4)
Total	84 (100.0)

PPH - Postpartum hemorrhage, AKTH - Aminu Kano Teaching Hospital

and uterine rupture accounted for 7.1%, 10.7%, and 2.4%, respectively. This is as shown in Table 2.

Table 3 shows the frequency and percentages achieved with reference to the audit standards. Documentation of initial assessment within 15 min as recommended in the guideline was achieved in 61% of cases, and a multidisciplinary team was promptly alerted in 38.1% of cases. Resuscitation within 15 min was achieved in 78.6% of cases. Appropriate urgent blood investigations were done in 85.7% of patients. Sixty-one

percent of the patients had etiological treatment within the time frame recommended in the RCOG guidelines, 56% had documented pharmacological treatment with appropriate uterotonics, while 3.6% had documented consideration of the use of tranexamic acid. Appropriate documentation of major surgeries done according to the guideline was achieved in 12% of cases.

DISCUSSION

The exact incidence of PPH is difficult to determine due to the difficulty in accurately measuring blood loss after delivery; the global estimate was found to be 6% although this figure varies in different regions.¹ In this study, however, the incidence of PPH was 2.47% which is similar to 2.72 reported in Jos but lower than 4.2% reported in Ilorin.³ This low value may be due to the fact that our institution is a tertiary center where active management of the third stage of labor is routinely done and it has been shown to reduce the incidence of PPH by about 60%.⁴

The analysis of results points out the preponderance of age groups between 20 and 24 years and 30 and 34 years, with the majority (47.6%) of the patients being multiparas. These findings are similar to those reported in Jos and are close to the general trend observed in African studies.^{10,11} Majority of the women had secondary school leaving certificate as the highest level of education and were homemakers. Although most of the patients in this study (82.1%) delivered in our facility, majority of them were unbooked as reported by similar study conducted in Port Harcourt.¹²

Women with known risk factors for PPH should be advised during antenatal care to deliver in a hospital under supervision of skilled birth attendants and where blood transfusion services are available. The patients who were referred were mainly from primary health care centers managed by poorly trained community health extension workers and women who delivered at homes. This was not surprising as management of the third stage of labor is not practiced in many institutions due to lack of knowledge and unavailability of oxytocic agents. Primary PPH is the most common form of PPH recorded in this study, and uterine atony constitutes the most common cause. These are similar to the finding reported in Port Harcourt, Ilorin, and several other studies.¹¹⁻¹⁷

This study shows that there is appropriate documentation of management in terms of initial patient assessment, resuscitation, and blood samplings for cross-matching as the percentages of standards achieved are 85%, 78.6%, and 85.7%, respectively. The importance of initial resuscitation in the management of PPH cannot be overemphasized as it had been shown to affect prognosis.⁷ The use of anti-shock garment in resuscitation of patient with PPH in our unit may reduce the need for urgent blood transfusion.

Etiological treatment of patients with PPH must be performed within 30 min according to the RCOG guidelines. This was achieved at our center as 61% were able to receive definitive

Table 3: Frequencies and percentages of standards achieved

Criteria	Frequencies (%)
Initial assessment of the patient must be done within 15 min	51 (61)
A multidisciplinary team involving senior members of staff alerted when woman presented with major PPH	32 (38.1)
Resuscitation (ABC, oxygen, fluid balance blood transfusion, blood product) within 15 min	66 (78.6)
Blood sampling to measure the rate of hemoglobin and determine blood group and blood compatibility (cross-match 4 units, FFP, PLT, cryoprecipitate) within 30 min	72 (85.7)
Etiological treatment must be performed within 30 min	51 (61)
Bimanual uterine compression and ensure bladder is empty	24 (28.6)
Medical treatment with 10 IU of oxytocin then 40 IU in 500 ml as infusion, 500 µg of ergometrine, carboprost 250 µg intramuscular every 15 min up to 8 times and then 0.5 mg intramyometrial, misoprostol 1000 µg rectally	47 (56)
Consideration should be given to the use of tranexamic acid in the management of PPH	3 (3.6)
Major surgeries (suture of a uterine rupture, intrauterine balloon tamponade, brace suture, hysterectomy, bilateral uterine artery, and bilateral internal iliac ligation) must be performed within 60 min	10 (12)
Consider transfer to intensive therapy unit once the bleeding is controlled or monitoring at high dependency unit on delivery suite, if appropriate	10 (12)

FFP - Fresh frozen plasma, PLT - Platelet, PPH - Postpartum hemorrhage

care within 30 min of presentation. However, only 12% of the standard was achieved in having major surgeries within 1 h. There was moderate achievement in the appropriate use of uterotonics in patients with uterine atony as the cause of most bleeding. Areas where high dysfunctions were recognized include the use of tranexamic acid which accounted for 3.6% even though studies have shown that tranexamic acid is effective in decreasing the incidence of blood loss >1000 ml in women who had undergone cesarean section, but not vaginal birth.⁹ Admission into the intensive care unit was achieved in only 1.2% of patients and this shows our poor utilization of the unit. This may be due to the lack of bed space most often encountered as the unit has only few bed spaces available.

CONCLUSION

This audit showed a good performance in documentation of initial management of patients with PPH when compared with the standard guideline with suboptimal performance in timing of major surgical interventions.

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Conflicts of interest

There are no conflicts of interest.

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