Primary Postpartum Haemorrhage [PPH] In Ilorin: Current Trends.

A.S. Adeniran, M.A. Ijaiya, A.P. Aboyeji, O.R. Balogun, A.A. Fawole, K.T. Adesina

Department of Obstetrics and Gynaecology,
University of Ilorin/ University of Ilorin Teaching Hospital, Ilorin, Nigeria.

Abstract

Postpartum Haemorrhage [PPH] remains a major cause of maternal mortality all over the world. In line with the attainment of the Millennium Development Goal [MDG-5] which aims to reduce maternal death by three quarters, there is the need for a regular review.

This study was carried out to determine the incidence of Primary Postpartum Haemorrhage following vaginal delivery and evaluate the trend at the University of Ilorin Teaching Hospital [UITH], Ilorin, Nigeria.

This study was a hospital based retrospective study of all cases of Primary Postpartum Haemorrhage [PPH] following vaginal delivery at the centre between 1st January 2004 and 31st December 2008. The case notes of all women who had primary PPH over the study period were retrieved from the records department of the hospital and necessary information was extracted. The results were compared with previous studies on primary PPH at the centre from 1987-2003.

There were 14,700 vaginal deliveries, primary PPH occurred in 614 giving the incidence of PPH as 4.2%. Unbooked patients had a three times higher risk of developing primary PPH than their booked counterparts; the commonest risk factor was grandmultiparity [27.0%], uterine atony was the commonest aetiology [54.1%] and 64.8% had blood transfusion. Uterine massage and uterotonics were effective in 44.3% and two maternal mortalities were recorded during the period. The trend in primary PPH over a 22 year period showed an improvement in survival and a reduction in mortality.

Correspondence to:

A.S. Adeniran
Department of Obstetrics and Gynaecology, University of Ilorin,
PMB 1515, Ilorin.
E-mail: adeniran.as@unilorin.edu.ng or acrowncord@hotmail.com
Tel: +234 805 753 4788

Primary PPH can occur in any woman in labour, thus all parturient must be managed by skilled attendants who can promptly diagnose and manage the problem. Antenatal blood donation for pregnant women will improve availability of blood and blood products for treatment of primary PPH; evaluation of the primary PPH scourge is an important index in evaluating the impact of the Millennium Development Goal-5.

Keywords: Primary Postpartum Haemorrhage, Trend, Ilorin, Vaginal delivery.

Introduction

Worldwide, about half a million women die yearly of pregnancy-related causes; Postpartum Haemorrhage [PPH] is responsible for 25% of these deaths[1] and it is the commonest cause of maternal mortality in both developing and developed countries[2-4].

Postpartum haemorrhage has traditionally been defined as a loss of 500ml or more of blood following vaginal delivery or 1000ml or more following caesarean delivery or any blood loss that causes a compromise in the cardiovascular status[2-5]. The American College of Obstetricians and Gynaecologists [ACOG] defined PPH as a decrease in haematocrit of more than 10% of antepartum values[6]. It is termed primary if it occurred within 24hours of delivery and secondary after 24 hours till six weeks postpartum.

It has been reported that a healthy well nourished parturient can tolerate up to a loss of 1000ml without significant haemodynamic changes; however in low income countries like Nigeria, most parturient enter labour already compromised by anaemia and blood loss less than 500ml may be devastating in its effect[7].

Though risk factors like multiple pregnancy, polyhydraminos, foetal macrosomia, previous history of PPH, prolonged labour, anaemia, obesity, uterine fibroid, retained dead foetus, and antepartum haemorrhage have been associated with PPH[8,9]; many cases of PPH still occur without warning[3-5,10].

In developing countries, the risk factors are further aggravated by poverty, ignorance, wrong traditional belief and fear of surgery that prompt many women to have their deliveries at home, in religious homes and

other poorly equipped facilities[11] where skilled birth attendants are not present.

Active management of third stage of labour has been shown to reduce maternal blood loss, shortens the third stage of labour and reduces incidence of PPH[3,10,11].
In general, the cornerstones of effective management of PPH are early diagnosis and prompt treatment which can be medical, surgical or use of interventional radiology.

Globally, the emphasis is on the Millennium Development Goals which we hope to achieve by the year 2015. Special attention need to be given to Millennium Development Goal [MDG]-5 which aim to improve maternal health and the target of reducing by three quarters maternal mortality ratio. PPH is a major cause of maternal mortality worldwide being responsible for as much as a quarter of these deaths [2-4], therefore it is a worthwhile effort to evaluate the trend in this condition since bringing it under control will go a long way in achieving the MDGs.

The objectives of this study are to determine the prevalence and associated risk factors with primary PPH over a five year period and compare the result with previous reports over a 22 year period at a tertiary hospital in Ilorin, Nigeria.

Materials and Methods
The study involved a five-year retrospective descriptive study of primary PPH at the department of Obstetrics and Gynaecology of the University of Ilorin Teaching Hospital [UITH] Ilorin, Nigeria between 1st January 2004 and 31st December 2008 and a comparison with previous studies on primary PPH from the centre from 1987-2003. The case notes of all patients who had primary PPH during the five year study period were retrieved from the Medical Records Department and all relevant information on personal data, labour, delivery and postpartum records and management was retrieved. The findings were then compared with reports from four previous publications from the centre on the same subject to evaluate the trend over a 22year period in the centre.

The inclusion criteria were a diagnosis of primary PPH and delivery at the study site during the period under review. The exclusion criteria were women without primary PPH or women with primary PPH who delivered outside the study site. This was because necessary information was not available in women who delivered outside our health facility.

Labour was managed using the partograph and delivery was conducted by skilled birth attendants with active management of the third stage in each participant. Primary PPH for this study was defined as a loss of 500ml or more of blood following vaginal delivery, any blood loss that causes a compromise in the cardiovascular status or a decrease in haematocrit of more than 10% of Antepartum values.
The results were expressed in tables with percentages.

Results
During the five year period [2004-2008] a total of 14,700 vaginal deliveries were conducted and there were 614 cases of primary PPH representing 4.2% of all vaginal deliveries. Of these, 452[73.6%] were unbooked while 162[26.4%] were booked. Maternal age distribution showed that 414[67.4%] were <35years while 200[33.6%] were ≥ 35years; 276[45.0%] were of low parity [para 0 to 2] while 166 [27%] were grandmultipara [para≥ 5] as shown in Table 1.

There were identifiable risk factor in 390[63.5%] cases; among these the commonest was

Table 1: Sociodemographic Parameters of Participants

	Frequency	%
Age [Years]		
<20	32	5.2
20-24	112	18.2
25-29	142	23.2
30-34	128	20.9
35-39	110	17.9
=40	90	14.6
Booking status		
Unbooked	452	73.6
Booked	162	26.4
Parity		
Para 0-2	276	45.0
Para 3-4	172	28.0
Para =5	166	27.0

Table 2: Identified Risk Factors in Women with Primary PPH

Risk Factor	Frequency N= 390	%
Grandmultiparity	166	42.6
Prolonged second stage	32	8.1
Foetal macrosomia	30	7.7
Induction/augmentation of labour	28	7.2
Pre-eclampsia	24	6.2
Multiple pregnancy	24	6.2
Uterine fibroid	18	4.6
Previous PPH	16	4.1
Antepartum haemorrhage	15	3.8
Episiotomy	15	3.8
Retained dead foetus	8	2.1
Polyhydraminos	8	2.1
Wrong use of oxytocic	6	1.5

Note: There were no identifiable risk factor in 224 [36.5%] of participants.

Table 3: Aetiology of Primary PPH among Participants

Aetiology	Frequency	%
Uterine atony	332	54.1
Lower genital tract laceration	123	20.0
Retained placenta	66	10.7
Retained placenta/membrane fragment	65	10.6
Uterine rupture	28	4.6

Table 5: Management options used and complications following primary PPH

Parameter	Frequency	%
Management option used		
Uterotonics and uterine massage	320	52.1
Repair of genital laceration	120	19.6
Manual removal of placenta	66	10.7
Evacuation of placenta/membrane fragments	60	9.8
Repair of uterine rupture	20	3.2
Bimanual uterine compression	12	2.0
B-Lynch suture	8	1.3
Hysterectomy	8	1.3
Complications		
Anaemia	399	65.0
Hypovolaemic shock	36	5.9
Septicaemia	22	3.6
Acute renal failure	2	0.3
DIC	2	0.3
Death	2	0.3
No complication	151	24.6

DIC Disseminated Intravascular Coagulopathy

Table 4: Estimated Blood Loss and Blood Transfusion in primary PPH

	Frequency	%
Anaemia before delivery		
No	466	75.9
Yes	148	24.1
Estimated blood loss [ml]		
501 – 999	346	70.1
1000-1499	130	21.2
1500-1999	38	6.1
=2000	10	1.7
Blood transfusion after delivery		
Yes	398	64.8
No	216	35.2

Table 6: Trend In Primary Postpartum Haemorrhage [1987-2008]

	STUDIES CONDUCTED AT THE CENTRE				
Parameter	Adetoro	Anate	Ijaiya et al	Balogun	Index study
Study period	1987-1989	1988-1989	1993-1996	2001-2003	2004-2008
Study duration [years]	2	2	4	3	5
Sample size	204	616	348	545	614
Incidence	1.8%	5.4%	4.5%	6.7 %	4.2%
Booking status:	NA	NA	Booked [69.5%]	NA	Booked[26.4%]
Commonest cause [%]	Uterine atony 47.1	Uterine atony 45.1	Uterine atony 53.8	Uterine atony 44	Uterine atony 54.1
Age group:					
20-29 years	65.3%	41.1%	45.7%	50.8%	41.4%
Parity =5	NA	20.8%	20.7%	22.0 %	27.0%
Blood loss =1000ml	30.4%	NA	22.7%	NA	29%
Blood transfusion	80.4%	NA	32.8%	NA	64.8%
Treatments:					
Oxytocic+uterine massage	47.1%	NA	49.1%	NA	52.1%
Hysterectomy	1.5%	NA	2.0%	NA	1.3%
Complications:					
Anaemia	64.4%	NA	27.9%	NA	65%
Mortality[%]	1.4	NA	0.9	2.9	0.3

grandmultiparity which occurred in 166[42.6%]. Other identified risk factors were prolonged second stage of labour in 32[8.1%], foetal macrosomia in 30[7.7%], induction/augmentation of labour in 28[7.2%], pre-eclampsia in 24[6.2%] and multiple pregnancy 24[3.9%] of cases as shown in Table 2.

Table 3 showed that Uterine atony was the commonest aetiology occurring in 332[54.1%], lower genital tract laceration 123[20%], retained placenta 66[10.7%], retained placenta tissue or membrane fragments 65[10.6%] and uterine rupture 28[4.6%].

Table 4 showed the pattern of blood loss and 436[71%] lost 501-999ml of blood, 130[21.2%] lost 1000-1499ml, 38[6.1%] lost 1500-1999ml and 10[1.7%] lost $\geq$ 2000ml. Also, 148[24.1%] were anaemic before delivery while 466[75.9%] were not anaemic; and 398[64.8%] had blood transfusion while 216[35.2%] had no transfusion.

In managing the women, uterine massage and use of oxytocics were effective in 320[52.1%]; 120[19.6%] had repair of genital tract laceration, 60[9.8%] had uterine evacuation, 66[10.7%] had manual removal of placenta, 12[2.0%] had bimanual uterine compression, 20[3.2%] had repair of uterine rupture, 8[1.3%] had B-Lynch suture and 8[1.3%] had hysterectomy. The commonest complication was anaemia which occurred in 399[65%], 36[5.9%] had hypovolaemic shock, 22[3.6%] had septicaemia, while 2[0.3%] each had acute renal failure and disseminated intravascular coagulopathy. There were two maternal deaths during the period due to disseminated intravascular coagulopathy representing 0.3% mortality.

Table 6 showed the trend in primary PPH at UITH over a 22 year period from 1987-2008. There was a general reduction in occurrence of primary PPH as well as a fall in the incidence though with a peak from 2001 to 2003; it was initially commoner among booked patients [69.5%] from 1993 to 1996 but it became a problem of unbooked patients from 2004 to 2008 [73.6%]. Uterine atony remained the commonest aetiologic factor in all the studies ranging from 44% to 54.1%. In addition, the commonest age range for PPH in all the studies were the 20 to 29years age group. Grandmultiparity was also a prominent group

with PPH among them ranging from 20.7% in 1993-1996 to 27% in 2004-2008. There was a reduction in number of women who lost ≥ 1000ml from 30.4% in 1987-1989 to 22.7% in 1993-1996 but rose to 29% in 2004-2008. In addition, the number of blood transfusion reduced from 80.4% in 1987-1989 to 32.8 in 1993-1996 but rose to 64.8% by 2004-2008. The use of oxytocic and uterine massage remained the commonest treatment modality in all the studies. The number of patients who had hysterectomy rose from 1.5% in 1987-1989 to 2.0% in 1993-1996 but reduced to 1.3% by 2004-2008. Anaemia remained the commonest complication of PPH in all the studies and maternal deaths reduced over the years to the lowest value of 0.3% by 2004-2008 though with a peak of 2.9% in 2001-2003.

Discussion

The incidence of primary PPH in this study was 4.2%, this was less than 5.4% reported by Anate[12], 4.5% by Ijaiya et al[13] and 6.7% by Balogun[14]; though more than 1.8% by Adetoro[15]. This suggests a better proficiency in patient management possibly due to better expertise and higher work force over the years. In this study, there was an overall three times risk of primary PPH in unbooked compared to booked patients. This agrees with studies by Anate[12] in this centre and Edhi et al.[5], in Pakistan who recorded higher risk for primary PPH in unbooked patients; and showed a change from the finding of Ijaiya et al[13] who reported it to be commoner among booked patients in this centre. Grandmultiparas remained a significant at risk group for primary PPH similar to reports of Anate[12], Ijaiya et al[13] and Balogun[14] in this centre unlike reports of Selo-Ojeme and Okonofua[16] in Nigeria, who demonstrated no association between high parity and occurrence of primary PPH.

The commonest aetiology for primary PPH was uterine atony [54.1%] in this study which correlates with findings in the literature and other previous studies on primary PPH both in this centre and beyond [5,8,9,11-15]. This explains why uterine massage and use of oxytocics was the commonest treatment modality in this study. In addition, the fall in the rate of hysterectomy in the management of primary PPH in this centre may be partly due to the introduction of the use of the B-Lynch stitch which is a uterine compression suture introduced during the period of this study.

The increase in blood transfusion from 32.8%[13] to 64.8% in this centre with the attendant reduction in maternal deaths from 0.9% to 0.3% may be connected to an increased availability of blood and blood products for women who needed transfusion in this centre due to the policy of antenatal donation of one unit of blood on behalf of each pregnant woman attending our antenatal clinic which has helped to reduce mortality from non availability of blood and blood products for transfusion in this centre. About 1 in 4 patients in this study [24.1%] were anaemic before delivery, this may explain the high rate of blood transfusion recorded in the study [64.8%] despite the fact that 71% of the patients lost 501-999ml of blood which ordinarily should not cause cardiovascular instability in well nourished women; the pre-partum anaemia prevented maternal compensation to blood loss.

The general improvement over the 22 year period may be a reflection of increase awareness about primary PPH, increase in all cadres of manpower, skill acquisition by these workers, improvement in available treatment modalities and introduction of new ones as well as easier access to blood and blood products for transfusion at the centre.

Conclusion

This study showed that primary PPH remains a major obstetric problem in our environment which can occur in any parturient irrespective of the age or parity. Therefore, all health workers must remain alert during labour management. Antenatal care coverage should be improved to reduce the numbers of unbooked parturient who have been shown to be at greater risk for primary PPH and uterotonic should be made available at health facilities for prompt treatment. We recommend antenatal blood donation on behalf of each pregnant woman to enhance easier and faster access to safe blood transfusion when required to treat primary PPH.

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