

Post-Partum Haemorrhage at the Federal Medical Centre, Yenagoa, South-South Nigeria: A 5-Year Review

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ABSTRACT

Postpartum haemorrhage complicates about 3 – 5% of deliveries. It is the leading cause of maternal morbidity and mortality worldwide, especially in sub-Saharan Africa (of which Nigeria is a part), where it significantly contributes to the burden of maternal and perinatal morbidity and mortality. The objective of this study was to determine the incidence, maternal and perinatal outcomes of postpartum haemorrhage at the Federal Medical Centre, Yenagoa, South-South, Nigeria. This retrospective survey was conducted between 1st January, 2016 and 31st December, 2020. Data were retrieved, entered into a pre-designed proforma, and analysed using IBM SPSS version 25.0. Results were presented in frequencies and percentages for categorical variables and mean and standard deviation for continuous variables. Out of 4,571 deliveries within the study period, postpartum haemorrhage complicated 66, representing a case incidence rate of 14.4 per 1,000 deliveries. Majority of the women were multiparous (53, 80.3%) and unbooked (56, 84.4%). Primary postpartum haemorrhage was the more common (56, 84.8%) type of postpartum haemorrhage, with uterine atony being the most (39, 59.1%) implicated aetiology. The most common (12, 18.2%) perinatal complications were birth asphyxia and admission into special care baby unit. There were five cases of maternal mortality, giving a maternal mortality rate of 10.9 deaths per 10,000 pregnant women. Postpartum haemorrhage remains one of the leading causes of maternal morbidity and mortality, especially in developing countries. Antenatal booking, recognition of risk factors and active management of third stage of labour are key in the prevention of postpartum haemorrhage and its associated complications. Women should be encouraged to book for antenatal care early, and be regular at the visits, as this will help recognise danger signs early and establish plans to prevent postpartum haemorrhage.

Keywords: Maternal, Morbidity, Mortality, Nigeria, Postpartum haemorrhage, TBA

INTRODUCTION

The third stage of labour is associated with considerable maternal morbidity and mortality, and the major complication is postpartum haemorrhage, which affects about 3 – 5% of deliveries.¹ It is the leading cause of maternal morbidity and mortality worldwide,² especially in sub-Saharan Africa.³

Primary postpartum haemorrhage is defined as blood loss from the genital tract of 500 ml or more for vaginal delivery and 1,000 ml or more for Caesarean section, or any amount of bleeding likely to compromise the patient's haemodynamic status within 24 hours after the delivery of the baby. Secondary postpartum haemorrhage is any amount of bleeding from the genital tract more than 24 hours after delivery. The American College of Obstetricians and Gynaecologists defines postpartum haemorrhage as a 10% change in haematocrit between the antenatal and postpartum periods, or the need for blood transfusion.⁴ Postpartum haemorrhage is responsible for nearly one-quarter of all maternal deaths worldwide, with an estimate of 125,000 deaths per year.⁵ The incidence of postpartum haemorrhage in a Nigerian tertiary hospital was 4.5%,⁶ 6.9% in Uganda,⁷ and 6.4% in the Netherlands.⁸

The causes of primary postpartum haemorrhage are uterine atony, laceration of the genital tract, retained products of conception and coagulopathy. The causes of secondary postpartum haemorrhage are mainly sepsis, retained products of conception and broken-down episiotomy/perineal tear repair.

The predisposing factors for postpartum haemorrhage are previous postpartum haemorrhage, antepartum haemorrhage, induction/augmentation of labour, chorioamnionitis, maternal anaemia, foetal macrosomia, maternal obesity, multiple gestations, pre-eclampsia, prolonged labour, prolonged pregnancy, placental abnormalities such as placenta praevia or placenta accreta, previous Caesarean section, maternal age > 35 years, multiparity, previous uterine injury or surgery, uterine malformations, infection, and mismanagement of the third stage of labour. Other risk factors are maternal

medical conditions – Type II diabetes mellitus, connective tissue disorders like Marfan and Ehler Danlos syndrome, carriers of Haemophilia B. The commonest cause of primary postpartum haemorrhage is uterine atony, which is responsible for 80 – 85% of cases.^{9,10}

Postpartum haemorrhage is recognised when there is a sudden loss of blood from the genital tract following delivery. The bleeding may be brisk, bright red, intermittent or continuous. Features of volume decompensation may set in. They include dizziness, tachycardia, sweating, hypotension, palpitations, weakness, restlessness, pallor, oliguria/anuria, collapse and air hunger.

The management of postpartum haemorrhage is dependent on its cause, and may be multi-disciplinary. The attending physician calls for help, commences resuscitative measures, and examines the patient. As resuscitative measures are being carried out, the genital tract is examined to determine the cause of the bleeding, and treated promptly. Apart from the use of oxytocics, fluids and blood transfusion, tranexamic acid is very useful in the prevention and management of postpartum haemorrhage.¹¹ It is used as a peri-operative agent to minimise blood loss and reduce the need for blood transfusion peri-operatively.¹¹ Survival of patients with postpartum haemorrhage depends on prompt recognition and treatment of the condition. The objective of this retrospective survey is to determine the incidence of postpartum haemorrhage and its maternal and perinatal outcomes at the Federal Medical Centre, Yenagoa, South-South, Nigeria.

MATERIALS AND METHODS

This retrospective study was carried out in the Obstetric/Maternity Unit of the Federal Medical Centre, Yenagoa, Bayelsa State, South-South, Nigeria between 1st January 2016 and 31st December 2020 among patients managed for postpartum haemorrhage in the Unit.

All the patients that were managed for postpartum

haemorrhage in the Unit within the period under review were included in this study. All the patients who did not have postpartum haemorrhage in this facility were excluded from the study.

Relevant data were collected from the patients' case records with a pre-designed proforma. The data included age, marital status, level of education, state of residence, occupation, parity, booking status, predisposing factors, causes, place of delivery, gestational age at delivery, mode of delivery, maternal outcome, foetal outcome and the total number of deliveries during the period under review. Data was analysed using Statistical Package for the Social Sciences version 25.0. Results were presented in frequencies and percentages for categorical variables, and mean and standard deviation for continuous variables.

RESULTS

Sociodemographic characteristics of affected women.

Postpartum haemorrhage complicated the deliveries of 66 out of 4,571 women who delivered in our Centre in the five years under review, representing a case incidence rate of 14.4 per 1,000 deliveries. The mean age of the women who had postpartum haemorrhage was 32.8 ± 6.4 years. The proportion of women that were 31 – 35 years and >35 years were 34.8% and 28.8% respectively (Table 1). Majority (59; 89.4%) of the women were married, had secondary level of education (45; 68.2%) and those who were traders by occupation were 31 (47.0%) (Table 1).

Obstetric features of affected women.

More than half (34; 51.5%) of the women were multiparous and another 28.8% (19) of them were grand multiparous women (Table 2). Most (56; 84.8%) of the women who had postpartum haemorrhage were unbooked, and with singleton gestation (92.4%). The modal (39; 59.1%) gestational age at delivery was 38 weeks. Slightly above a tenth (12.1%) were delivered by Caesarean section. Indication for Caesarean section included obstructed labour and placenta praevia in 4.5%

Table 1: Sociodemographic characteristics of parturients with postpartum haemorrhage

Characteristics	Frequency N = 66	Percentage (%)
Age group		
17 - 20 years	4	6.1
21 - 25 years	5	7.6
26 - 30 years	15	22.7
31 - 35 years	23	34.8
> 35 years	19	28.8
Marital status		
Single	7	10.6
Married	59	89.4
Level of education		
None	4	6.1
Primary	12	18.2
Secondary	45	68.2
Tertiary	5	7.6
Occupation		
Unemployed	12	18.2
Civil Servant	3	4.5
Trader	31	47.0
Professional	3	4.5
Farmer	13	19.7
Artisan	4	6.1

Table 2: Obstetric features of parturients with postpartum haemorrhage

Characteristics	Frequency N = 66	Percentage (%)
Parity		
Nulliparity	4	6.1
Primiparity	9	13.6
Multiparity	34	51.5
Grandmultiparity	19	28.8
Booking Status		
Booked	10	15.2
Unbooked	56	84.8
Number of Foetus		
Singleton	61	92.4
Multiple gestation	5	7.6
GA delivery		
33 weeks	1	1.5
37 weeks	9	13.6
38 weeks	39	59.1
39 weeks	9	13.6
40 weeks	3	4.5
41 weeks	5	7.6
Mode of delivery		
Spontaneous vaginal delivery	55	83.3
Assisted vaginal breech delivery	3	4.5
Elective Caesarean section	3	4.5
Emergency Caesarean section	5	7.6
Indications for Caesarean section		
Obstructed labour	3	4.5
Placenta praevia	2	3.0
Malpresentation of leading triplet	1	1.5
Lower segment uterine fibroid	1	1.5
Retained second twin	1	1.5
Previous Caesarean Section	1	1.5

and 3.0% of parturients, respectively (Table 2). Majority (39.4%) of parturients who had postpartum haemorrhage were delivered in a traditional birth attendant's place (Figure 1). Risk factors for postpartum haemorrhage identified in the parturients were prolonged labour (33; 50.0%), grand-multiparity (19; 28.8%) and maternal anaemia (11; 16.7%). Others include foetal macrosomia, induction/augmentation of labour and multiple

gestations in 10 (15.2%), 7 (10.6%) and 5 (7.6%), respectively (Figure 2).

Aetiology of postpartum haemorrhage.

Primary and secondary postpartum haemorrhage occurred in 56 (84.8%) and 10 (15.2%) of parturients respectively (Table 3). While uterine atony was the leading cause of primary postpartum haemorrhage (39;59.1%), retained placenta was the most common

Table 3: Aetiology of postpartum haemorrhage, and blood transfusion

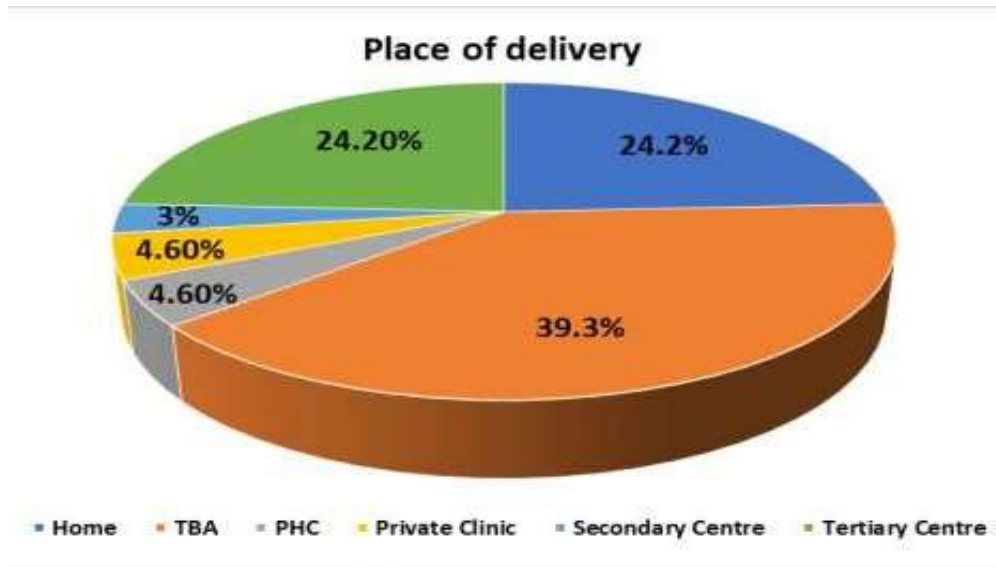
Characteristics	Frequency N = 66	Percentage (%)
Type of PPH		
Primary PPH	56	84.8
Secondary PPH	10	15.2
Causes of Primary PPH		
Uterine atony	39	59.1
Laceration of genital tract	15	22.7
Retained placenta	4	6.1
Causes of Secondary PPH		
Retained placenta	6	9.1
Puerperal sepsis	4	6.1
Uterine atony	1	1.5
Units of Blood Transfusion		
2 units	41	62.1
3 units	13	19.7
4 units	12	18.2

*PPH = Postpartum haemorrhage

Table 4: Maternal and foetal outcomes

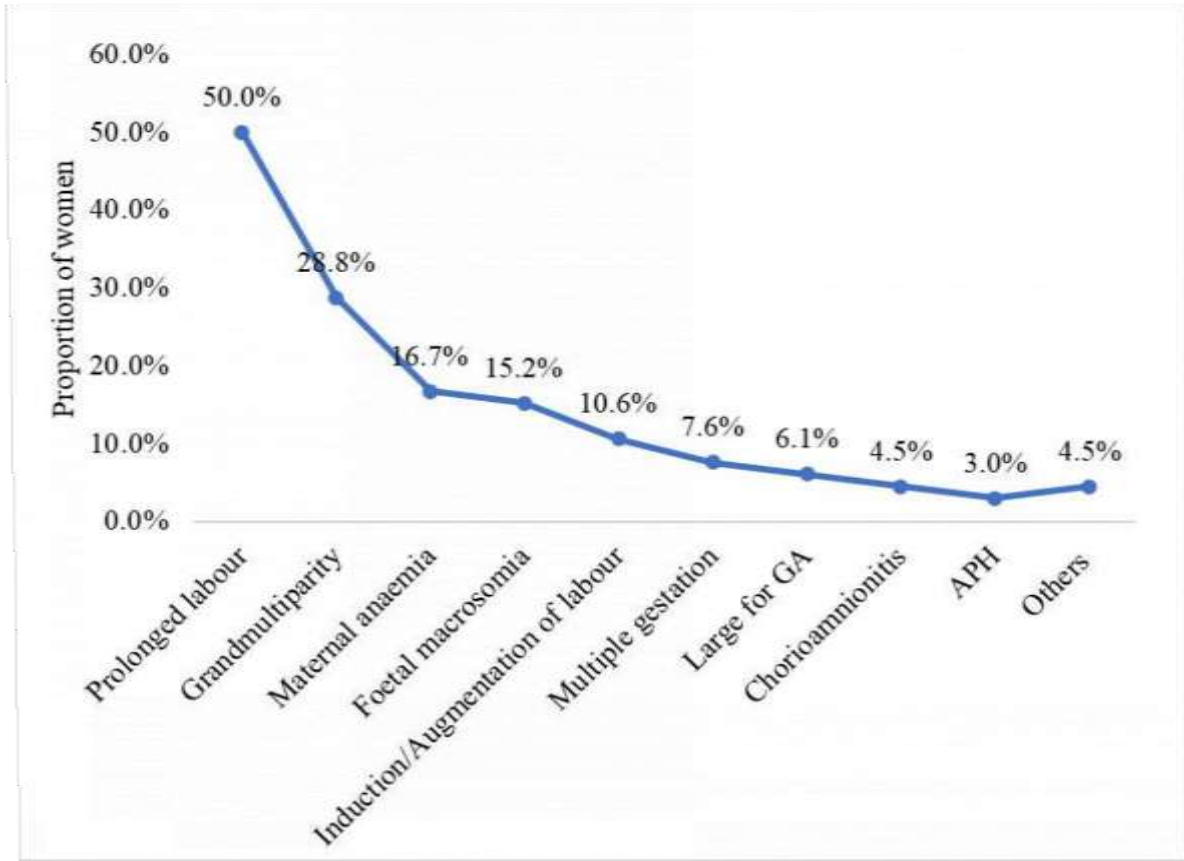
Characteristics	Frequency	Percentage (%)
Maternal Outcome	N = 66	
Alive	61	92.4
Died	5	7.6
Foetal Outcome	N = 75	
Alive	66	88.0
Died	9	12.0
Morbidity	N = 66	
Normal Apgar Score	54	81.8
SCBU Admission	12	18.2
Indication for SCBU Admission*	N = 12	
Moderate asphyxia	7	58.3
Severe asphyxia	3	25.0
Prematurity	5	41.7

*Multiple indications apply; SCBU = Special Care Baby Unit



TBA = Traditional Birth Attendants, PHC = Primary Health Centre.

Figure 1: Place of delivery of parturients



Others include: lower segment uterine fibroid, previous CS, Hypertensive diseases in pregnancy. GA = Gestational age, APH = Antepartum haemorrhage.

Figure 2: Risk factors for postpartum haemorrhage identified in the parturients.

cause of secondary postpartum haemorrhage (6; 9.1%). All parturients who had postpartum haemorrhage had at least 2 units of blood transfused (Table 3).

Maternal and perinatal outcomes

There were five cases of maternal mortality from postpartum haemorrhage in the five-year period under review, which was 10.9 deaths per 10,000 pregnant women.

There were 75 babies from the 66 parturients that had

postpartum haemorrhage in the review period (64 babies from singleton gestations; eight babies from four twin gestations and 3 babies from one triplet gestation). Nine babies (9; 12.0%) from the singleton gestation died, while 66 (88.0%) survived (Table 4). Twelve of the 66 babies (18.2%) that survived were admitted into the special care baby unit for varying degrees of birth asphyxia and prematurity (Table 4).

DISCUSSION

The exact data on the incidence of postpartum haemorrhage vary from place to place due largely to the subjectivity in estimating blood loss and how the third stage of labour is managed. While figures ranging from 4.5% to 13% have been quoted in several studies;^{6-8,12} in our review, the incidence of postpartum haemorrhage was 1.4%. This is similar to the 1.6% reported in Ile-Ife, South-West Nigeria, 1.13% in Nnewi, South-East Nigeria, and 1.6% from Zimbabwe.¹³⁻¹⁵ Such a relatively low rate of postpartum haemorrhage maybe because in tertiary Centres such as ours, the third stage of labour is actively managed routinely, with the use of oxytocics. Routine offer of prophylactic uterotonics in the third stage of labour is known to reduce the risk of postpartum haemorrhage.¹⁶ It is however, significant that in our Centre, majority (84.8%) of those at risk of having postpartum haemorrhage were unbooked. In this Centre, unbooked status is consistently known to be associated with adverse maternal/perinatal outcomes.¹⁷⁻²⁰ The risk of postpartum haemorrhage in the unbooked patients may be because of a higher likelihood of antenatal anaemia seen among women who either do not book or book late in pregnancy.^{16,21} A large proportion of the women were delivered at the TBAs, where active management of the third stage of labour is not practised. These women and the large number of women that were delivered at home were noted in this study to have had prolonged labour, a major risk factor also reported in other African studies.^{14,15,22} Other risk factors among our patients were grand-multiparity, foetal macrosomia, induction/augmentation of labour and multiple gestations. This is similar to the findings in several other reports, with implications on the duration of labour.^{14,6-8,12-15,23} The prolongation of the first and second stage of labour due to these factors has been associated with increased risk of postpartum haemorrhage despite active management of the third stage of labour.⁴ Postpartum haemorrhage is also known to occur in patients without known risk factors.^{23,24} This has implications for the healthcare provider to continue to

take steps, including active management of the third stage of labour to avert the occurrence of postpartum haemorrhage, irrespective of risk categorisation. Similar to several other reports, uterine atony was the commonest cause of postpartum haemorrhage in this study.^{4,7,8,25} This was unlike the findings at Ile-Ife, South-West Nigeria, where the commonest cause of postpartum haemorrhage was retained placenta. What is however, similar in both studies, is that majority of the cases were managed outside the hospital setting, such as by TBAs, where the third stage of labour is often poorly managed.¹³ Genital tract laceration was the second most common cause of primary postpartum haemorrhage, while retained placenta occurred the most among women with secondary postpartum haemorrhage in our Centre. This may not be unconnected with unskilled attendance at birth, as these labours were mostly conducted outside our Centre. Since postpartum haemorrhage can occur both in women with or without risk factors, the recommendation is for active management of the third stage of labour to be offered to all women in labour.^{24,25} These are interventions intended to enhance the delivery of the placenta and prevent uterine atony, which are the major causes of postpartum haemorrhage. This includes the administration of uterotonic agents, usually oxytocin, soon after the birth of the baby; controlled cord traction and uterine massage after the delivery of the placenta.^{24,25} Adjunctive use of other uterotonics such as prostaglandin E2 (misoprostol) and/or ergometrine to manage the third stage of labour in selected women at higher risk of postpartum haemorrhage may have also accounted for the lower incidence in our Centre. Risk identification, active management of labour with the partograph to identify precipitating factors, active management of the third stage of labour and prompt replacement of intravascular blood volume will help avert the preventable morbidities or mortality from postpartum haemorrhage.^{4,6,9,12} In the period under review, all the parturients who had postpartum haemorrhage were transfused with at least 2 units of blood, with 5 maternal

mortalities, which was 10.6 deaths per 10,000 women. Other preventable morbidities of postpartum haemorrhage will include the complications of blood transfusion, renal failure, disseminated intravascular coagulopathy and Sheehan's syndrome.

CONCLUSION

Postpartum haemorrhage is one of the leading causes of maternal morbidity and mortality, especially in developing countries. Therefore, antenatal booking, recognition of risk factors, active management of third stage of labour, efficient emergency obstetric care services and prompt referral systems are key in the prevention of postpartum haemorrhage and its associated complications.

Recommendations

Unbooked status was noticed to be a major predisposing factor for postpartum haemorrhage in this study. Therefore, women should be encouraged to book for antenatal care early, and be regular at the visits. This will help recognise danger signs early and establish plans to prevent postpartum haemorrhage.

Women should be counselled on family planning, as multiparity and grand-multiparity were major predisposing factors for postpartum haemorrhage in our study.

Women should be more educated and empowered, as these will help them recognise danger signs early and seek medical help.

Reduction of antenatal booking fees and cost of health care will encourage more women to utilise hospital services.

Traditional birth attendants should be re-trained and enlightened to enable them recognise danger signs in pregnancy, and refer patients early to health facilities where they can get expert care.

Limitation

This study is limited by the fact that it is a single Centre hospital-based study, and hence the findings cannot be

used to draw general conclusions. This limitation should be factored in the interpretation of this research findings.

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Conflict of Interest

The authors declare that there are no conflicts of interest.

Authors' Contributions

DOA wrote the first draft of the manuscript and supervised the entire research. PCO conceptualised the study, collated data, wrote the introduction and results. OSO wrote the discussion. MNC wrote the abstract. GA collected the data for the research. AEU, IDA and BE managed literature searches and contributed to writing of the discussion. All authors read and approved the final manuscript.

Ethical Approval

The research work was examined and approved by the hospital Research and Ethics Committee.

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