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Original Article

Primary Postpartum Haemorrhage Following Vaginal Delivery in Ahmadu Bello University Teaching Hospital: A Five-Year Retrospective Review.

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Abstract

Background: Postpartum haemorrhage (PPH) is a leading cause of maternal mortality globally. It is also the most common cause of postpartum maternal morbidity in northern Nigeria. Though its causes are known, regional variations in the causes and risk factors do exist. **Objective:** To determine the prevalence, causes, risk factors, and outcome of primary PPH following vagina delivery in Ahmadu Bello University Teaching Hospital (ABUTH), Zaria. **Methodology:** A retrospective cross-sectional study among women who had primary postpartum haemorrhage after vaginal delivery in ABUTH between 1st January 2017-31st December 2021. Their case folders were retrieved and information regarding the socio-demographic characteristics; reproductive profile; causes; risk factors and maternal outcome of PPH were obtained using a structured proforma. **Results:** The prevalence of primary PPH was 6.35%. The mean age and standard deviation were 29.5±4.6years. About one-third (30.2%) were grand multiparous; 91.2% had singleton pregnancies and 67.2% delivered before term. Only 17.6% had unbooked pregnancies and 55.3% booked in non-tertiary facilities. Uterine atony was the commonest cause (52.3%) while coagulopathy was the least (1.5%). Common risk factors for primary PPH were intrauterine fetal death (27.1%), prolonged labour (19.5%), antepartum haemorrhage (16%), and previous history of PPH (7.3%). Haemorrhagic shock was seen in 16.4%, acute kidney injury in 1.1% and the case fatality rate was 2.3%. **Conclusion:** The prevalence of primary PPH following vaginal delivery in this study is lower than the global incidence and uterine atony was the commonest cause. Intrauterine fetal death, prolonged labour, and antepartum haemorrhage were the leading risk factors. Therefore, effective antenatal and skilled intrapartum care are key strategies to address the commonly identified risk factors for primary PPH following vaginal delivery.

Keywords: Primary postpartum haemorrhage, prevalence, risk factors, causes.

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Introduction

Current reports from World Health Organisation revealed that about 303,000 women die as a result of complications of pregnancy and childbirth. Overwhelming proportions of these deaths occur in developing countries of the world and Nigeria ranked fourth country with highest maternal deaths.[1] Majority of these deaths occur within a few hours of delivery and in most cases are due to postpartum haemorrhage with one in every six women dying. Primary postpartum haemorrhage (PPH) is the loss of more than 500ml of blood within the first twenty-four hours of delivery or loss of any amount that is enough to cause haemodynamic instability in the mother or loss of more than 10% of the total blood volume. PPH accounts for 60% of all cases of obstetric haemorhage.[2] Postpartum haemorrhage

(PPH) is the leading cause of maternal mortality, accounting for about 35% of all maternal deaths and these deaths have a major impact on the lives of the families affected and confer significant morbidity on survivors.[3]

Worldwide, PPH is the leading cause of maternal mortality with nearly 14 million women dying annually.[1] In Nigeria, PPH complicates about 2.2% of deliveries; accounted for the highest proportion of maternal mortality ratio (112/100 000 live births) and mortality index of 29.1% in a survey across 42 tertiary hospitals.[4]

Though PPH is a significant cause of obstetric haemorrhage and severe maternal outcomes in Nigerian hospitals, regional variation in its causes and risk factors exist. Thus, we aimed to study the prevalence, causes, risk factors, and maternal outcome of primary PPH after vaginal delivery in Ahmadu Bello University Teaching Hospital (ABUTH), Zaria.

Methodology

It was a cross-sectional retrospective study. Case folders of women who had primary postpartum haemorrhage after vaginal delivery in ABUTH between 1st January 2017 to 31st December 2021. All parturients with blood loss of 500mls and above in the first 24 hours after vaginal delivery within the study period were included. However, women who delivered outside ABUTH and presented with complications of primary PPH and women with incomplete records were excluded. Postpartum blood loss estimation in our center is usually estimated by visual quantification of blood in the kidney dish and perineal pad.

Case folders of all eligible women were retrieved, and information was extracted using a structured proforma that has been uploaded onto the Open Data Kit (ODK) software.

The data collected were analyzed using the IBM SPSS version 25. For univariate analysis, discrete data was summarized using counts, frequencies, and percentages while continuous data was summarized using mean and standard deviation. Ethical approval was obtained from the Health Research Ethic Committee of ABUTH (HREC/W33/2022)

Results

There were 5639 vaginal deliveries and 358 cases of primary PPH following vaginal delivery identified during the study period giving a prevalence rate of 6.35%. However, only 262 folders only could be retrieved giving a retrieval rate was 73.2%. The mean age was 29.5+4.6 years. The majority of the women were married (97.7%), Muslims (85.9%), and of the Hausa tribe (74%). These are shown in Table 1

Table 1: Socio-Demographic Characteristics of Women with Primary PPH Following Vaginal Delivery in ABUTH

Characteristics	Frequency	Percent (%)
Age (years)		
15-19	14	5.3
20-24	39	14.9
25-29	78	29.8
30-34	60	22.9
35-39	56	21.4
40-44	15	5.7
Marital status		
Married	256	97.7
Single	6	2.3
Religion		
Islam	225	85.9
Christianity	37	14.1
Tribe		
Hausa	194	74.0
Yoruba	15	5.7
Igbo	5	1.9
Others	48	18.3
Personally source of income		
Yes	163	62.2
No	99	37.8

Table 2: Reproductive Characteristics of Women with Primary PPH Following Vaginal Delivery in ABUTH

Characteristics	Frequency	Percent (%)
Parity		
Para 0-1	98	37.4
Para 2-4	85	32.4
Para ≥5	79	30.2
Booking status		
Unbooked	46	17.6
Booked at ABUTH	71	27.1
Booked elsewhere	145	55.3
Place of booking		
Tertiary hospital	117	44.7
Secondary hospital	51	19.5
Primary hospital	46	17.6
Private hospital	48	18.3
Gestational age at delivery (weeks)		
<38	176	67.2
≥38	86	32.8
Type of Gestation		
Singleton	239	91.2
Multiple	23	8.8

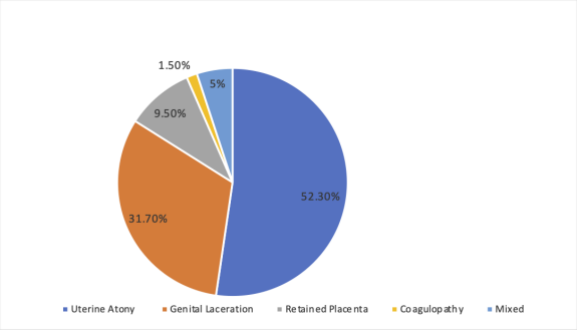

Figure 1: Causes of Primary Postpartum Haemorrhage Following Vaginal Delivery among Parturients in ABUTH

Only about one-third of the women (30.2%) were grand multiparous. More than half (72.9%) of the

women who had PPH were either unbooked or booked elsewhere, 67.2% had preterm delivery and 91.2% had singleton gestation. Most of the study respondents 51.1% were referred.

Table 3: Risk Factors of Primary Postpartum Haemorrhage among Women with Primary PPH following Vaginal Delivery in ABUTH

Risk factors of Primary PPH	Frequency	Percentage (%)
Maternal Risk Factors		
Previous history of PPH	19	7.3
Previous uterine scar	16	6.1
Uterine rupture	1	0.4
Co-existing Uterine Fibroid	4	1.5
Foetal Factors		
Macrosomia	15	5.7
IUFD	71	27.1
Placenta/Membrane		
APH	42	16
Chorioamnionitis	6	2.3
Labour Risk		
Assisted breech delivery	18	6.9
Active phase >12 hours	51	19.5
Instrumental delivery	5	1.9
Induction of labour	15	5.7
Augmentation of labour	24	8.2
No active management of third stage of labour	15	5.7
Polyhydramnios	3	1.1

Table 4: Maternal outcome after primary PPH Among Women with Primary PPH Following Vaginal Delivery In ABUTH

Outcome	Frequency	Percent (%)
Survived	256	97.7
Died	6	2.3
Blood Loss		
500-999mls	121	46.2
1000-1999mls	90	34.4
≥2000mls	51	19.4
Blood Transfusion		
Yes	140	53.4
No	122	46.6
Units of Blood Transfused		
<2 units	49	18.7
2-4 units	81	30.9
≥5 units	10	3.8
Shock	43	16.4
A.K. I	3	1.1
D.I.C	3	1.1

Uterine atony was the commonest cause of primary PPH (52.3%) while coagulopathy was the least common (1.5%) as shown in Figure 1.

The commonest risk factor for primary PPH was IUFD (27.1%), prolonged labour 19.5%, antepartum haemorrhage (APH) 16% and previous history of PPH was seen in 7.3% of cases as seen in Table 3

The mean blood loss was 1250mls. Case fatality from primary PPH following vaginal delivery was 2.3%. More than half (53.4%) had blood transfusion while only 3.8% were transfused with ≥5 units of blood. Other maternal outcomes are shown in Table 4

Discussion

Variable prevalence rates have been reported globally but a recent meta-analysis by Huang et al found the global prevalence of primary PPH to be 17% which is higher than the finding from this study.[5,6] This can be explained by the subjective methods of estimating blood loss employed and the variable practices of the delivery units. In this study, the prevalence of primary PPH is higher than reports from other regions in Nigeria. [7-11] A study on postpartum blood loss estimation in the same setting by Sada et al found a higher prevalence of PPH.[12] The higher prevalence was likely due to the additional use of objective quantification of blood loss using calibrated drapes in contrast to the use of visual estimation of blood employed in this study.

The majority of the patients were either unbooked or booked elsewhere which is similar to findings of Sotunsa et al and Galadanci et al.[4,14] About two-third of women in this study had preterm delivery which contrasts with findings from Yenagoa where only 15.1% delivered below 38 weeks.[7] This emphasizes the importance of preventing preterm delivery to avert additional PPH-related morbidities

The commonest cause of primary PPH in the study was uterine atony which is similar to findings in India, Afghanistan, and some parts of Nigeria.[7,9,10,17-19] However, a study from Ife reported retained products of conception as the commonest cause of PPH 71.1% and a much lower incidence of uterine atony 15.8%.[8] A possible reason for this observed difference could be that most of the women in the Ife study had their deliveries outside the hospital where the third stage of labour is likely to be poorly managed and the study involved women with both primary and secondary PPH. This study found a lower risk of recurrence of PPH compared to findings from Egypt.[20] Prolonged labour was the commonest labour risk factor identified in this study and is consistent with findings from Yenagoa, Maiduguri, and Zimbabwe.[7,10,21] Labour-related factors were also the commonest risk factors identified in studies from Owerri and Port Harcourt.[11,12] This highlights the importance of proper labour management and identification of these women for additional prophylactic measures against primary PPH. Traditionally, grand multiparous women were known to suffer from PPH, largely due to uterine atony. However, only about one-third of the women were grandmultiparous and this highlights the need to screen women with lower parity for other risk factors for PPH.

The study found a lower case fatality rate compared to reports from Zimbabwe[21] and from the finding of 4.9% across 42 tertiary hospitals in Nigeria.[4] Haemorrhagic shock was the commonest complication from this study which differed from findings from Afghanistan where only 5.1% had shock.[16]

Conclusion

The prevalence of primary PPH following vaginal delivery in this study is lower than the global incidence and uterine atony was the commonest cause. Intrauterine fetal death, prolonged labour, and antepartum haemorrhage were the leading risk factors. Therefore, effective antenatal and skilled intrapartum care are key strategies to address the commonly identified risk factors for primary PPH following vaginal delivery.

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