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Prevalence, maternal and perinatal sequelae of antepartum haemorrhage in a tertiary hospital in south-south, Nigeria

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Abstract
Background: Antepartum haemorrhage (APH) remains a dire obstetric emergency associated with high maternal and perinatal morbidities and mortalities.
Aim: The aim of the study was to review antepartum haemorrhage in Rivers State University Teaching Hospital (RSUTH), to determine its prevalence, blood transfusion requirement, maternal and perinatal sequelae over a three-year period for improved management outcomes.
Methods: This was a cross-sectional study of 135 cases of APH managed in RSUTH. Data collected were analysed using IBM Statistical Product and Service Solution (SPSS) version 25.0 (Armonk, NY).
Results: Over the view period, there were 6,138 deliveries, of which 135 were cases of antepartum haemorrhage. The prevalence of APH was 2.2% or 22 per 1000 deliveries. The most common cause of APH was placenta praevia [88 (65.2%)], followed by abruptio placentae [47 (34.1%)]. The mean age ±SD and gestational age ±SD at occurrence of APH were 32.25 ± 4.78 years, [95% Confidence Interval (CI): 31.44, 33.06], and 36.04 ±3.02 weeks, (95%CI: 35.52,36.55) respectively. Majority of the women were booked 104(77%), Christians 129 (95.7%), had formal education 129 (99.3%-) and blood transfusion 120 (88.9%). Modal parity was para-1, range 0-5. Still birth rate was 3.26 per 1000 deliveries. There was no case of maternal mortality.
Conclusion: Th e prevalence of antepartum haemorrhage in RSUTH is 2.2%. Antepartum haemorrhage in RSUTH is common with high blood transfusion requirement. Thus, early diagnosis, prompt management and blood transfusion services are pertinent in achieving excellent maternal and foetal outcomes.

Keywords: Antepartum haemorrhage, placenta praevia, abruption, blood transfusion, RSUTH

Introduction
Obstetric haemorrhage is the leading cause of maternal death worldwide and includes antepartum haemorrhage, intrapartum and postpartum haemorrhage [1-3]. Antepartum haemorrhage (APH) refers to as bleeding from or into the genital tract after the period of foetal viability and before delivery [4]. It is an obstetric emergency associated with increased maternal and foetal morbidity and mortality [4-6]. Antepartum haemorrhage complicates about 3-5% of pregnancies worldwide and accounts for 30% of maternal mortality [6].
The causes of antepartum haemorrhage can be classified as obstetric, local and unclassified. Placenta praevia, abruptio placentae and uterine rupture are the common obstetric causes of APH, rarely vasa praevia [7, 8]. Local causes of antepartum haemorrhage include: vaginitis, cervical erosion, polyps, trauma, varicosities of vulva, and introitus. In a number of cases, the cause of APH is not obvious. This group is referred to as unclassified [4]. Placental abruption and placenta praevia account for about 50% of the causes of APH. When placenta is wholly or partially implanted in the lower uterine segment, it is referred to as placenta praevia. Risk factors for placenta praevia include previous history of placenta praevia, multiparity, previous history of miscarriages (induced or spontaneous), advanced maternal age, coexisting uterine fibroid, previous uterine scars as a result of myomectomy, evacuation of retained products of conception [9, 10]. Studies have shown that large placenta size, as seen in multiple gestation, severe anaemia, diabetes mellitus, smoking and polyhydramnios can predispose to, its implantation in the lower uterine segment [4, 8].
Placental abruption refers to premature separation of a normally situated placenta before the delivery of the baby.

This is also known as accidental haemorrhage. Although the exact aetiology of placental abruption is not fully known, some of the associated risk factors are previous history of abruptio placentae, hypertensive disorders of pregnancy, polyhydramnios, multiparity, abnormal presentation, practice of abdominal massage and trauma have been implicated [10, 11]. Maternal mortality rates of 2-3% associated with abruptio placentae have been reported [12-14].

Perinatal complications of APH include preterm delivery, low birth weight, birth asphyxia, intrauterine fetal death [8, 15]. Some of the maternal complications of antepartum haemorrhage are shock, caesarean hysterectomy, postpartum haemorrhage, disseminated intravascular coagulopathy (DIC), increased rate of caesarean section, preterm labour, sepsis and death [4, 8, 16].

The high maternal and perinatal morbidity and mortality associated with antepartum haemorrhage is still a concern in low -middle- income countries like Nigeria, due to poor health seeking behaviour, difficulties in accessing adequate health care and out of pocket payment. Blood transfusion requirement is high among women with APH and most of the death result from shock. As such, four units of blood are often grouped and cross matched for the patient at presentation. APH has not been studied in RSUTH. Thus, this study is aimed at reviewing antepartum haemorrhage over a three-year period, to determine its prevalence, blood transfusion requirement, maternal and perinatal sequelae in Rivers State University Teaching Hospital for improved management outcomes.

Materials and methods

This was a cross-sectional study carried out at the department of Obstetrics and Gynaecology Rivers State University Teaching Hospital (RSUTH), Port Harcourt, Nigeria. RSUTH is one of the Teaching Hospitals in Rivers State, Nigeria. It is situated at the heart of Port Harcourt and receives referrals from other health facilities within and outside the State [17].

The records of one hundred and thirty-five pregnant women who had antepartum haemorrhage from 1st January, 2018 to 31st December, 2020 were retrieved from the antenatal, labour ward and theatre registers, and reviewed. Data collection form (study proforma) was designed and used to collect data from obstetric records in department of Obstetrics and Gynaecology, RSUTH. The following variables were considered: women's socio-demographic characteristics (age, parity, educational status, religion, booking status), mode of delivery, birth weight, management outcomes (alive or dead), and sequelae. Antepartum haemorrhage was defined as bleeding from or into the genital tract after 28 weeks and before delivery of the baby.

Data were coded and analyzed using International Business Machine (IBM) Statistical Product and Service Solutions (SPSS), formerly known as Statistical Package for Social Sciences, version 25.0 Armonk, NY. Continuous variables were summarized using mean and standard deviations with 95% confidence intervals around the point estimates while categorical variables were summarized in frequencies and percentages. Results were presented in Figures and Tables as appropriate for the data. Ethical clearance for the study was obtained from the Hospital.

Results

During the period under review, there were one hundred and thirty -five (135) cases of antepartum haemorrhage and six thousand, one hundred and thirty-eight (6,138) deliveries; giving the prevalence of APH as 2.2% or 22 per 1000 deliveries. Of 135 cases of antepartum haemorrhage, 77 (57%) cases were due to placenta previa, 38 (28.2%) placental abruption, I8 (13.3%) uterine rupture and 2 (1.5%) from other causes undetermined (Table 1). The prevalence of placenta praevia, abruptio placentae, and uterine rupture is 1.3%, 0.6% and 0.3% respectively. Cases of APH decreased from 69 (51.1%) in 2018 to 21 (15.6%) in 2020 (Figure 1)

Table 1: Causes of Antepartum Haemorrhage in RSUTH

Causes	Number	Percentage
Placenta praevia	77	57.0
Placental abruption	38	28.2
Uterine rupture	18	13.3
Others	2	1.5
Total	**135**	**100**

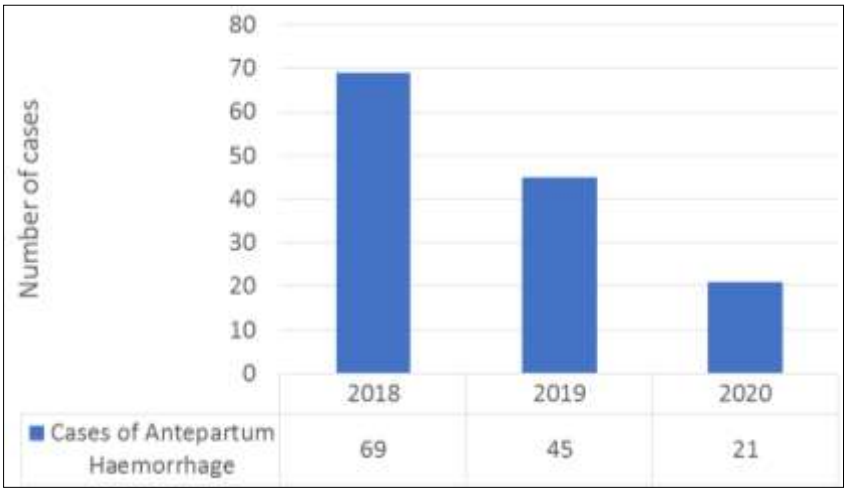

Fig 1: Yearly distribution of Antepartum Haemorrhage in RSUTH

Table 2. Shows the sociodemographic characteristics of participants. The mean age ±SD of the participants was 32.25 ±4.78, (95% confidence interval: 31.44,33.06), modal age group was 30-34 years. The mean gestational age was 36 ±3 weeks, 95%CI: 35.52,36.55. The modal parity was para-1, range 0-5. Majority were multipara 67 (49.6%), booked 104 (77%), Christians 129 (95.6%) and had formal education 134 (99.3%). Preterm delivery occurred in 60 cases (44%) of APH (Figure 2). One hundred and twenty women (88.9%) had blood transfusion either intrapartum or postpartum due to anaemia following acute blood loss. Seventy-five (75) of the parturient had at least one unit of whole blood transfused (Table 3).

Table 2: Sociodemographic characteristics of study participants

Variables	Numbers (n=135)	Percentage
Age		
20-24	9	6.7
25-29	30	22.2
30-34	50	37.0
35-40	41	30.4
>40	5	3.7
Mean Age 32.25	SD 4.78	95% CI 31.44, 33.06
Mean GA 36.04	SD 3.018	95% CI 35.52,36.55
Parity		
0	21	15.6
1	46	34.1
2	41	30.4
3	18	13.3
4	8	5.9
5	1	0.7
Educational status		
Non formal	1	0.7
Primary	39	28.9
Secondary	48	35.6
Tertiary	47	34.8
Religion		
Christianity	129	95.6
Islam	6	4.4
Booking status		
Booked	104	77
Unbooked	31	23

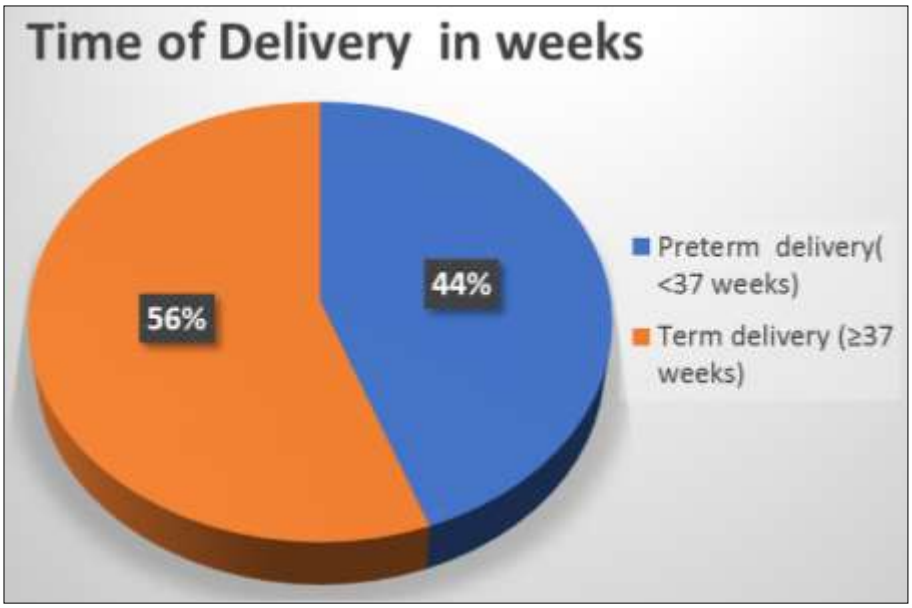

Fig 2: Time of delivery

Table 3: Blood transfusion requirement of the parturient

Variable	Number (n=135)	Percentage
Blood transfusion requirement		
None	15	11.1
Intraoperatively	75	55.6
Postoperatively	45	33.3
Units of blood received intraoperatively		
0	60	44.4
1	48	35.6
2	22	16.3
3	5	3.7

Majority of the foetus had normal birth weight 95 (70.4%) while low birth weight accounted for 25.2%. Mean birth weight of the foetus was 2.9 SD 0.71kg, 95%CI: 2.78,3.03 (Table 3).

Table 3: Classification of foetal birth weight

Birth weight	Number	Percentage
Extreme low birth weight	1	0.7
Very low birth weight	2	1.5
Low birth weight	34	25.2
Normal	95	70.4
Macrosomia (≥ 4kg)	3	2.2
Mean birth weight	2.9 SD 0.71, 95% CI 2.78, 3.03	
Total	**135**	**100**

Maternal complications are as shown in Table 4. Majority of the parturient had blood transfusion 120 (51.5%). This was followed by preterm delivery (25.8%), postpartum anaemia (19.3%).
The most common foetal complication was admission into neonatal intensive care unit which accounted for 35.9% of the complications recorded in this study. Others are as presented in Table 5.

Table 4: Maternal sequelae of Antepartum Haemorrhage in RUSTH

Maternal sequelae	Number*	Percentage
Postpartum Anaemia	45	19.3
Blood transfusion	120	51.5
Preterm delivery	60	25.8
Caesarean hysterectomy	3	1.3
Wound sepsis	5	2.1
Total	**233**	**100**

*Multiple complications

Table 5: Perinatal sequelae of Antepartum haemorrhage in RSUTH

Perinatal sequelae	Number*	Percentage
Birth asphyxia	42	16.9
Still birth	20	8.1
Prematurity	60	24.2
Extreme low birth weight	1	0.4
Very low birth weight	2	0.8
Low birth weight	34	13.7
Admission to NICU#	89	35.9
Total	**248**	**100**

* Some had multiple complications # Neonatal intensive care unit

Discussion

The prevalence of antepartum haemorrhage in RSUTH is 2.2% or 22 per 1000 deliveries. This finding corroborates findings of 2% [18], 2.3 % [19] in other studies in tertiary hospitals but higher than 1.2% reported in a study from Northern Nigeria [13], 1.3% in Western Rajasthan [16], and 1.3% in Mumbai, India [6]. However, our finding was lower than 15.3% [9], 5.4% [14], and 3.5% [20] and 15.3% reported in Qatar, Pakistan and Lagos, Nigeria respectively. This may be an underestimation as some cases may not have presented to the hospital due to socioeconomic factors that affects health seeking behaviour in our environment. Some parturient still go to traditional birth attendants place for delivery. This population may often not be referred to hospital for expert management when complications arise. Over the review period, the rate of APH decreased from 51.1% to 15.6%. This finding is in keeping with the low prevalence rate found in this study. The decreasing rate of occurrence may be due to the increased number of booked women compared to unbooked. Majority of the study population 104 (77%) were booked mothers who had antenatal care and supervised delivery in the hospital compared to unbooked cases. Improved obstetric care in recent times could have affected the rate of occurrence of APH from abruptio placenta, in particular.
In this study, the commonest cause of APH was placenta praevia, accounting for more than half of the cases, followed by placental abruption; which is in keeping with findings of previous studies in Nigeria [20, 21], in Iraq [19], and in Rajasthan [16]; but contrary to the finding of other studies [13, 18], where abruptio placentae were the most common cause. Multiparity and advanced maternal age are known risk factors for placenta praevia [1, 4, 8], and most of the women in present study were multipara (50%) and more than 30% were aged 35 years and above. This could have accounted for the increased number of cases of placenta praevia observed in present study.
The rate of blood transfusion requirement was high in this study. Over 85% of the parturient had blood transfused either intrapartum in the theatre or postpartum due to acute blood loss from antepartum haemorrhage and postpartum haemorrhage (as sequelae of APH). This is consistent with findings of previous studies [6, 7, 13]. Women with pregnancy complicated with antepartum haemorrhage often present with acute blood loss, necessitating blood transfusion. At presentation, four units of whole blood were grouped and cross matched for transfusion. This was helpful in management of the patients over the review period. As such, effective blood transfusion services are pertinent in the management of antepartum haemorrhage. The study revealed that 55.6% and 33.3% of the parturient received blood intraoperatively and post operatively; with 89% receiving at least one unit of blood between presentation and discharge from the hospital. This buttresses the need for creating awareness and counselling on blood donation for availability of blood in blood banks; which will enhance easy accessibility in time of emergency.
Blood transfusion was the commonest sequelae of antepartum haemorrhage from present study. This was followed by preterm delivery 60 (25.5%), postpartum anaemia 45 (19.3%) and wound sepsis 5(2.1%). These sequelae of APH are similar to findings of other studies [19, 22]. Three patients (1.3%) had caesarean hysterectomy as result of morbidly adherent placentae. This finding is similar to finding of a previous study [15] but lower than 5% among women with placenta praevia reported in another study in a tertiary hospital in Eastern India [11]. Although APH is associated with high foeto-maternal morbidity, there was no maternal mortality recorded from APH in this study. This may be as a result of specialized obstetric care, adequate intervention as well as prompt blood transfusion services in our hospital. However, previous studies have reported maternal death rate of 3% attributed to lack of prompt blood transfusion services and late presentation of patients to hospital [14]. In Low-middle-income countries restricted access to health care and socio-economic factors lead to increased morbidity and mortality from antepartum haemorrhage [13, 23].
From our study, the commonest perinatal complication was admission into Neonatal Intensive Care Unit (NICU), which accounted for 89 cases (35.9%). Other complications were prematurity 60 (24.2%), birth asphyxia 42(16.9%) and low birth weight 34 (13.7%). This is in agreement with findings of high neonatal complications associated with cases of antepartum haemorrhage in other studies [7, 11]. The still birth rate from our study was 32.6% or 3.26 per 1000 deliveries and mainly from unbooked cases. This is lower than reported values of 42.8%, 50.2% in other studies [13, 24]. Improved obstetric care of the booked women may contribute to the lower still birth rate observed in present study.

Conclusion

Antepartum haemorrhage is common in RSUTH with an increased blood transfusion requirement. The commonest cause

was placenta praevia accounting for more than half of the cases; followed by abruption placentae. APH remains a major contributor to maternal and perinatal morbidity and mortality. The main maternal and perinatal sequelae of antepartum haemorrhage from our study were blood transfusion, preterm delivery, anaemia, sepsis and admission to NICU, birth asphyxia, and low birth weight. Early diagnosis, prompt management and adequate blood transfusion services will improve foeto-maternal outcome.

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Conflict of interest
Authors have no conflict of interest to declare.

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