

Feto-Maternal Outcome of Abruptio Placentae in a Tertiary Hospital In Nnewi, Nigeria

Research Article

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Abstract

Background: Pregnancies complicated with abruption of the placenta is high risk pregnancy since it could be associated with adverse maternal, fetal and perinatal outcomes. Good antenatal care and prompt intervention is necessary to forestall adverse outcome and improve outcome.

Objectives: To determine the prevalence, sociodemographic characteristics, risk factors, fetomaternal outcome of abruptio placentae.

Methods: This is a retrospective study of all cases of abruptio placentae managed at the Nnamdi Azikiwe University Teaching Hospital, Nnewi, Nigeria between 1st July 2013 and 30th June 2018. The case files of the patients were retrieved from the Medical records department, relevant information were retrieved and recorded in proforma. The total number of deliveries within the study period was obtained from the labor ward records. In all patients with abruptio placentae, maternal outcome was assessed in terms of complications like cesarean section rate, postpartum hemorrhage, hysterectomy, need for blood transfusion and maternal death. Fetal outcome was noted in terms of preterm births, low birth weight, need for admission in intensive care unit and still births.

Result: During the period under review, a total of 6975 deliveries were conducted in our hospital. The total no of cases of abruptio placentae delivered was 156, giving a prevalence rate of 2.2%. The mean age of the women was 31.8±5.3 years with the 30-34 years age range being the commonest. Majority (68.2%) of the women were unbooked. The mean parity of the women was 3.4±1.7. The commonest risk factors were multiparity, hypertensive disorders in pregnancy and advanced maternal age. One hundred and three (69.6%) women were delivered via emergency caesarean section. Postpartum hemorrhage occurred in 24.3% (36) of the cases while prematurity was the commonest fetal complications. Maternal mortality was 0.7% [1] while still birth rate was 58.8% (87).

Conclusion: Abruptio placentae is associated with poor maternal and fetal outcome. Thus, good and quality antenatal care as well as high index of suspicion, early diagnosis and treatment remains the key to forestall these complications and improve fetomaternal outcome.

Keywords: Adverse pregnancy outcomes; Antepartum hemorrhage; Fetal complications; Retroplacental clot; vaginal bleeding



Introduction

Abruptio placentae is the partial or total separation of a normally situated placenta after the age of viability but before the delivery of the fetus [1,2]. It is the most common cause of antepartum haemorrhage [3,4]. Age of viability is 28 weeks in low resource countries lacking adequate neonatal facilities. Abruptio placentae is among the leading causes of maternal and perinatal mortality and morbidity worldwide [5]. The incidence of abruptio placentae in developed countries is about 1% of all deliveries, whereas in developing countries it is around 2-8% [6].

The etiology of abruptio placentae is unknown; however a hypothesis suggests placental or vascular abnormalities due to failure of secondary invasion of trophoblastic villi. The risk factors associated with abruptio placentae include high parity, young or advanced maternal age (<20 years or ≥35 years), low socioeconomic class, cigarette smoking, abdominal trauma, alcohol usage, crack cocaine use in pregnancy, maternal hypertension, preeclampsia, polyhydramnios, premature rupture of membranes, multiple pregnancy, thrombophilias, previous history of caesarean section and prior history of abruptio placentae [6-8].

Maternal complications are antepartum hemorrhage, intrapartum hemorrhage, blood coagulation disorders, increased incidence of operative interference, oliguria, anuria and renal failure, postpartum hemorrhage, shock, puerperal sepsis, lactation failure etc. Fetal complications are fetal distress, low birth weight, preterm delivery, asphyxia, perinatal death and intrauterine fetal death due to placental insufficiency [9,10]. Abruptio placentae contributes significantly to maternal and neonatal morbidity and mortality in sub-Saharan Africa.

In Nnewi, Nigeria, there is paucity of studies on antepartum hemorrhage caused by abruptio placentae despite its attendant morbidity and mortality. There also has been an increase in the number of patients presenting with abruptio placentae in our institution. This could be due to anecdotal report of increase in the hypertensive disorders in the institution, better record keeping and the fact that the institution serves a referral center with the capacity to salvage preterm babies, thus facilitating referral from neighboring communities. However, the last study on this was done by Igwegbe et al [11,12] about 10 years earlier, thus necessitating the need for this study and also to update the record on abruptio placentae. The study was aimed at assessing the fetomaternal outcome of pregnant women presenting with abruptio placentae in Nnamdi Azikiwe University Teaching Hospital (NAUTH), Nnewi, Nigeria.

Methods

Study design: A retrospective cross-sectional comparative study.

Study population: The study was conducted among pregnant women that had abruptio placentae.

Study site: Obstetrics and Labor ward of Nnamdi Azikiwe University Teaching Hospital, Nnewi, Nigeria. This hospital has many consultant obstetricians, trainee doctors (registrars and senior registrars) and ancillary medical staff. It is a training center for medical post-graduate studies in Nigeria. It is a government-funded referral center for maternal and newborn care. It provides comprehensive emergency obstetric care and serves as major referral center for maternal and childcare services in south-eastern Nigeria.

Eligibility Criteria

Inclusion criteria: This included women that underwent delivery during the study period from July 1st, 2013 and June 30th, 2018.

Exclusion criteria: Pregnant women who had placenta previa or any other type of antepartum hemorrhage, or uterine rupture or ectopic pregnancy or molar pregnancy were excluded from the study. The cases of missing or incomplete data were also excluded from the study.

Sample size determination

The sample size was an all population based study.

Sample technique: Non-random sampling approach. All available case files were examined.

Study Outcome Measures

Abruptio placentae rates, risk factors and perinatal outcomes of abruptio placentae.

Procedures Involved

The main theatre, labor ward and obstetrics theatre records were reviewed to identify women that had abruptio placentae during the study period. The patients' case records were then retrieved from the hospitals' medical record department. For the obstetric variables, data were extracted from the Maternity Registers and medical records by trained data collectors using a data retrieval form. The patients' socio-demographic, booking status, and total number of deliveries within the study period were obtained from the labor ward records. In all patients with abruptio placentae, maternal outcome was assessed in terms of complications like caesarean section rate, postpartum hemorrhage, hysterectomy, need for blood transfusion and maternal death. Fetal outcome was noted in terms of preterm births, low birth weight, need for admission in intensive care unit and still births. Completed forms were then assessed by a data coordinator at the hospital for completeness and accuracy before being entered digitally into the Excel spreadsheet by the data entry and management team.

Statistical analysis

The cleaned data were exported to Statistical Package for Social Sciences (SPSS) version 26 (IBM Corp.) for analysis. The patients were analyzed for variables such as age, parity, booking status, gestational age at delivery, recognized risk factors, route of delivery, perinatal and maternal outcome. The information was obtained and recorded in proforma. We used descriptive statistics to compare the socio-economic and obstetric characteristics of women with abruptio placentae and applied the Pearson chi-squared test for categorical variables to determine statistically significant differences between the groups. All significance tests were two sided; a p value of <0.05 was considered statistically significant.

Ethical approval

The study was approved by the Ethics Review Board of the hospital (reference number: 0164/10/2022; date of approval: 1st October, 2022). The study was conducted according to the Helsinki declarations on ethical principles for medical research involving human subjects.

Result

Within the 5 year period under review, a total of 6,975 deliveries were conducted in our hospital. The total number of cases of abruptio placentae delivered was 156 giving a prevalence of 2.2%. The mean age of the women was 31.8± 5.3 years. Majority, 96 (64.9%), of patients were in the age range of 24-34 years (Table 1). All the patients were married. Forty-seven (38.1%) of them were booked while 101 (68.2%) were unbooked (Table 1). The parity of the women ranged from 0 to 8 with mean parity of 3.4±1.7 (Table 1). The gestational age ranged from 28 to 43 weeks (Table 1). Thirty-one (20.9%) of the women presented at term while 117 (79.1%) were preterm. The identified risk factors are as shown in table 1. The commonest risk factors identified were



advanced maternal age, hypertensive disorders in pregnancy and high parity. Forty-five (30.4%) of the women presented with anemia (Table 1). Vaginal delivery was the commonest mode of delivery and it accounted for 60.1% of the cases. A total of 11 (7.4%) patients

had hysterectomy (Table 2). The commonest fetal complication was prematurity while 41 (27.7%) of the babies delivered were admitted into neonatal intensive care unit. Maternal mortality was 1(0.7%) while perinatal mortality was 87(58.8%) (Table 2).

Table 1: Socio-Demographic Characteristics.

Characteristics	Frequency (n)	Percentage (%)	
Age (years)	20-24	12	8.1
	25-29	43	29.1
	30-34	53	35.8
	≥35	40	27
Booking status	Booked	47	31.8
	Un booked	101	68.2
Parity	0	27	18.2
	01-Apr	80	54.1
	≥5	41	27.7
Gestational Age (weeks)	28-32	81	54.7
	33-36	25	16.9
	≥37	42	28.4
Risk Factors	Age (≥35 years)	39	26.4
	High parity (Grand multiparity)	35	23.6
	Hypertensive disorders in pregnancy	37	25
	Previous cesarean section	15	10.1
	Blunt abdominal trauma	7	4.7
	Previous history of abruption placenta	10	6.8
	Multiple pregnancy	5	3.4
PCV (at presentation)	Anemic <30	45	30.4
	Normal (≥30)	103	69.6

Table 2: Feto-Maternal Outcome of Abruptio Placentae.

Outcome	Frequency (N)	Percentage (%)	
Birth outcome	Live birth	61	41.2
	Stillbirth	87	58.8
Prematurity	Yes	117	79.1
	No	31	20.9
Sex	Male	46	31.1
	Female	102	68.9
Birth weight	Low birth weight	102	68.9
	Normal	46	31.1
GA at delivery (weeks)	28-32	75	50.7
	33-36	42	28.4
	≥37	31	20.9
NICU admission	Yes	41	27.7
	No	107	72.3
Mode of delivery	Emergency C/S	59	39.9
	Vaginal	89	60.1
Blood transfusion	Yes	54	36.5
	No	94	63.5



PPH	Yes	36	24.3
	No	112	75.7
Hysterectomy	Yes	11	7.4
	No	137	92.6
Maternal Death	Yes	1	0.7
	No	147	99.3

GA Gestational Age; NICU: Neonatal Intensive Care Unit; PPH: Postpartum Hemorrhage.

Discussion

Placental abruptio remains an important cause of maternal and perinatal morbidity and mortality globally, but is of more serious concern in developing world [11]. The prevalence of abruptio placentae in this study was 2.2%. This is similar to the prevalence rate in Tanzania of 2.5% [5]. However, the prevalence of 0.8% was reported in Nnewi, Nigeria 10 years earlier [12-14]. The high prevalence of abruptio placentae in the study could be due to increase in the hypertensive disorders in the institution, better record keeping and the fact that the institution serves a referral center with the capacity to salvage preterm babies, thus facilitating referral from neighboring communities.

Maternal age of 35 years and above, high parity and hypertensive disorders of pregnancy were the commonest risk factors identified accounting for 75% (111) of cases of abruptio placentae studied. This is similar to the finding in Kano, Nigeria [15]. Another study in Pakistan found that most of the women studied were aged 35 and above and majority (62%) of them were grandmultipara [13]. Other risk factors identified in the study were previous history of abruptio placenta (6.8%), blunt abdominal trauma (4.7%), previous cesarean section (10.1%) and multiple gestation (3.4%). Similar findings were reported by other studies [14].

The prevalence of abruptio placentae in multiparous women was 81.8% when compared with 18.2% for low parity women. Grandmultiparity alone accounted for 27.7% of the cases. Similar findings were reported in Lagos in Nigeria, Kano in Nigeria and Tanzania [4,13,15]. This shows that abruptio placentae is predominantly a disease common in multiparas. Therefore, right application of family planning and contraception will reduce the prevalence of this condition and thus forestall the complications associated with it.

Majority of the patients in this study were unbooked and accounted for 68.2% (101) of the cases. This obviously underscores the need for quality antenatal care as it helps in identifying the risk factors, early detection or diagnosis and prompt treatment. The role of antenatal care in preventing the complications associated with abruptio placentae cannot be overemphasized as it gives opportunity for health education, counseling and risk factors identification. Even though bleeding can cause anaemia, poor antenatal care may have contributed to the reason 30.4% of the women with abruptio placentae presented with anaemia in the study. Sharmila and Prasanna reported similar finding [16]. Where antenatal care is lacking, pregnancy becomes at risk of complications including abruptio placentae and its sequelae as demonstrated in this study. Pregnancy outcome in abruptio placentae is associated with fetal and maternal complications. It has been implicated as a major cause of fetomaternal morbidity and mortality [17]. This study reveals that women with abruptio placentae are likely to have adverse fetomaternal outcome.

The fetal outcome observed in this study include low birth weight, prematurity, increased rate of Neonatal Intensive Care Unit (NICU) admission and stillbirth which were 68.9%, 79.1%, 27.7% and 58.8% respectively. Majority (50.7%) of the women in this study delivered at the gestational age between 28 weeks and 32 weeks. In India the commonest reported gestational age at delivery was between 31

weeks and 34 weeks [16]. The commonest fetal complication were prematurity and low birth weight accounting for 79.1% (117) and 68.9% (102) of cases of abruptio placentae respectively. Similar finding was reported in Tanzania [5]. A higher prematurity rate of 82.8% was reported in India. 16 Forty-one (27.7%) babies required NICU admission. Similar rate of stillbirth found in this study was reported in Kano and Tanzania [5,15,17]. Lower still birth rates were reported in India and Ethiopia [14,18,19]. NICU admission was lower in the work done by Sharmila and Prasanna, and this accounted for 8.5% of the cases [16].

Majority of the deliveries were via spontaneous vaginal delivery, accounting for 60.1%. However, this was different from the studies done in Lagos and Sagamu both in Nigeria, which found that Cesarean section is the commonest route of delivery in abruptio placentae [1,4].

Thirty-six (24.3%) of the studied population had primary postpartum hemorrhage, 36.5% required blood transfusion and 7.4% of the patients had hysterectomy. A study in Kano, Nigeria found similar rate of primary postpartum hemorrhage but a different rate of blood transfusion [15]. Similar blood transfusion rate of was reported India [14]. One maternal death was recorded within the period of this study. Maternal mortality was lower in Sagamu and Abuja in Nigeria [1,18].

Our study is not without limitations. The study design is retrospective in nature. This may have introduced sampling/selection bias and the data may not be representative of whole population of patients. However, one strength is that it has provided an updated prevalence of abruptio placentae in the study hospital.

In conclusion, the prevalence of abruptio placentae is high in our environment when compared with the findings from other institutions within the country. Abruptio placentae has been shown to be associated with significant adverse fetomaternal outcome. Therefore, good and quality antenatal care as well as high index of suspicion, prompt diagnosis and treatment remains the key to forestall these complications and improve fetomaternal outcome.

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Author contributions

CBO, OOE and G.U.E were involved in the overall conceptual design and implementation of the project, and overall revision of the manuscript. C.C.O., EPI, CAO and COE contributed to data collection, analysis, and manuscript writing. MEN, KEE and JII were involved in the writing of this manuscript and overall revision. The authors read, approved the final manuscript, and agreed to be accountable for all aspects of the work.

Disclosure statement for publication

All authors have made substantial contributions to conception



and design of the study, or acquisition of data, or analysis and interpretation of data; drafting the article or revising it critically for important intellectual content; and final approval of the version submitted. This manuscript has not been submitted for publication in another journal.

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Ethical approval and consent to participate

The study was approved by the Ethics Review Board of the hospital (Reference number: 0164/10/2022). Informed consent was not sought for the present study because it was a retrospective study of cases. The waiver for the consent was taken from the Institutional Review Board.

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