

Original Research Article

FETO-MATERNAL OUTCOME OF PREGNANCIES COMPLICATED BY ABRUPTIO PLACENTAE IN THE UNIVERSITY OF PORT HARCOURT TEACHING HOSPITAL, NIGERIA.

Abstract

Background: Abruption placentae contributes significantly to maternal and perinatal morbidity and mortality globally particularly in the developing world. The role of prevention, early detection and prompt management in reducing morbidity and mortality associated with this condition cannot be overemphasized.

Objective: To determine the incidence and feto-maternal outcome of pregnancies complicated by abruption placenta in the university of Port Harcourt teaching hospital (UPTH).

Materials and methods: This was a retrospective study involving all pregnant women who had abruption placenta from January 1, 2014 to December 31, 2018. Data on sociodemographic characteristics, risk factors and fetal and maternal morbidity and mortality were extracted from patients' case notes for analysis.

Results: The mean age of the subjects was 31.34 ± 3.7 years. The incidence of abruption placenta was 0.9%. Multiparity was the most important risk factor seen in 73.8% of cases. Birth asphyxia was the major perinatal morbidity and occurred in 27.9% of babies whereas 29.5% were stillbirths. There were 21 perinatal deaths giving a perinatal mortality rate of 344 per 1000 births. The Caesarean section rate was 78.7%. Thirty-seven (60.7%) had blood transfusion, 28 cases (45.9%) had postpartum haemorrhage and 26.2% had postpartum anaemia. There was one maternal death giving a case specific fatality rate of 1.6%.

Conclusion: Abruption placentae is associated with adverse maternal and fetal outcome. Lack of antenatal care, increasing maternal age and multiparity are independently associated with

abruptio placentae and this has significant impact on the fetomaternal outcome. Early diagnosis and prompt management will significantly improve fetomaternal outcome.

key words: Abruptio placentae, antepartum haemorrhage, fetomaternal outcome, Port Harcourt

Introduction

“Abruptio placentae is derived from a Latin word meaning “rendering asunder of placenta” which denotes a sudden accident.”¹ Thus, placental abruption is also known as accidental haemorrhage.

“By definition, abruptio placentae is a partial or total separation of a normally situated placenta after the age of foetal viability but before the delivery of the foetus.”^{2,3} “It is one of the major causes of antepartum haemorrhage and accounts for 30% of third trimester bleeding.”⁴ “It is associated with serious obstetrics complications with antecedent increased risks of perinatal and maternal morbidity and mortality. The perinatal mortality from abruptio placentae ranges from about 1 in 830 (0.12%) to about 65%, with a fatality rate of about 3%.”⁵

“The incidence of abruptio placentae varies worldwide, with an average of about 0.8-1% of all pregnancies and 1.2% in twin pregnancies worldwide.”^{4,6,7} The incidence in USA is about 1%,⁸ while that in Asia country is about 4.4%,⁹ in Nigeria, it ranges between 0.4% - 0.8%.^{4,5,10}

“The exact aetiology of abruptio placenta is unknown but hypothesis suggest placenta or vascular abnormality due to failure of secondary invasion of trophoblastic villi may be responsible.”⁴ “The abnormal pathological separation of a normally situated placenta from its uterine attachment results in bleeding from the open sinuses into the decidua basalis.”^{2,3} “This leads to the development of a retroplacental clot between the placenta and the decidua basalis, hence interferes with the supply of oxygen to the foetus thereby causing distress. The haemorrhage may be concealed, revealed or mixed type.”^{2,3} “The concealed type is particularly dangerous because the amount of blood loss does not correlate with maternal vital sign and also, it has been noted to have higher foetal deaths.”^{2,3}

Some predisposing factors have been associated with abruptio placentae which include hypertensive disorders of pregnancy, previous episode of abruptio placentae, extreme of ages (<20 and >35years), multiparity, uterine overdistention (multiple pregnancy, polyhydramnios, uterine leiomyoma), use of tobacco products, cocaine use, uterine abnormality, blunt abdominal trauma, premature rupture of membrane, short umbilical cord, blood clotting disorder and low socio-economic status.^{4,6,11}

“The diagnosis is mainly clinical and it is based on history and examination findings”.^{2,3,12} The most common presentations are painful vaginal bleeding and abdominal pain.”^{13,14} Ultrasound is relatively insensitive for diagnosis but can be used to exclude placenta praevia.^{1,15} “This is partly because a retroplacental haematoma is sometimes isoechoic to placenta on ultrasonography.”^{1,15} “MRI is diagnostically effective and can accurately depict placental abruption.”¹⁵

A recognised maternal sequel of abruptio placentae is postpartum haemorrhage. This could be due to poor uterine contractility as a result of abruptio or Couvelaire uterus or Disseminated Intravascular Coagulopathy.^{1,16} Other complications associated with abruptio placentae include shock, consumptive coagulopathy, acute renal failure, increased operative delivery and their sequelae and in some cases maternal death.^{1,3,16} Fetal sequelae include fetal distress, birth asphyxia, prematurity, severe anaemia, intra-uterine deaths.^{16,17}

“Abruptio placentae can re-occur in subsequent pregnancy. A recurrent rate of 4-12% has been reported.¹ Some preventive measures include treatment of maternal hypertension in pregnancy, prevention of maternal trauma/domestic violence, avoidance of smoking and substance abuse and folic acid supplements in pregnancy.”^{1,18}

“The management of abruptio placentae entails assessing the patient’s clinical status, amount of blood loss, foetal maturity, whether the patient is in labour or not, presence of any complication and degree of placental abruption. In most cases, immediate delivery is imperative either through vaginal route or by caesarean section.”^{1,2,3,18} “The route of delivery is dependent on the severity of the abruptio placentae, foetal condition, state of the cervix and the severity of the bleeding. Expectant management is rarely done except in carefully selected cases where bleeding is slight or has stopped, foetus is alive with reactive cardiotocography and remote from term. The goal of such management is to prolong the pregnancy with hope of improving foetal maturity and survival without compromising maternal health.”^{3,18,19}

Objectives

The objective of this study is to determine the prevalence and fetomaternal outcome of pregnancies complicated by abruptio placentae in the University of Port Harcourt Teaching Hospital (UPTH) over a 5-year period.

Materials and methods

This was a retrospective study carried out in the department of Obstetrics and Gynaecology of the University of Port Harcourt Teaching Hospital, Port Harcourt. Ethical clearance was obtained to access the patient record from the labour ward. The file number of patients who had abruptio placentae were extracted. Their case notes were retrieved from the medical records department of the hospital. The case records and antenatal data of all the women with abruptio placentae delivered at University of Port Harcourt Teaching Hospital, Port Harcourt, from 1st January, 2014 to 31st December, 2018 were retrieved and analysed with respect to their age, parity, gestational age at presentation, occupation, booking status, and socio-economic status of the patient (using a scoring system by Olusanya et al),²⁰ risk factors, presenting complaints, packed cell volume, mode of delivery and the fetal and maternal complications as well as fetal outcome (birth asphyxia, birth weight, fetal demise). Data were entered into a structured proforma.

The data were analyzed using Statistical Package for Social Science, IBM SPSS statistics Version 25. Chi-square (χ^2) test was employed to examine the significant association within variable groups such as parity, socioeconomic status and booking (booked and unbooked) status. Unbooked mothers are mothers who did not receive specialized antenatal care in the index pregnancy but later presented in UPTH following complications while booked mothers are those who received specialized antenatal care including those who had antenatal care in UPTH.

Statistical significance was set at $p < 0.05$. The results are presented as mean with standard deviations and simple percentages.

Results

During the study period a total of 61 cases of abruptio placentae were managed out of a total deliveries of 6803, giving an incidence of 0.9%. The mean age of the patients was 31.34 ± 3.70 years. From the results of this study, abruptio placentae occurred more in the age group of 30-34 years while patients in the age range of 20-24 years were the least affected as shown in table 1.

Also, from the result of this study, the incidence of abruptio placentae was highest among traders, accounting for 40.9% of cases and the lowest incidence was seen amongst students (4, 6.56%). Forty-three (70.5%) were unbooked patients while 18 (29.5%) were unbooked mothers.

Women with a parity range of 2-4 were most affected (36, 59.02%) while the least occurrence was among grand-multiparous women (9, 14.75%). Women who had had 2 or more previous deliveries were significantly more likely to have abruptio placentae ($\chi^2 = 27.57$, $P = 0.0000002$, Odds ratio = 27.57).

Abruptio placentae was commoner among the unbooked patients (43, 70.5%), as compared to the booked patients and the difference was statistically significant ($\chi^2 = 20.49$, $P = 0.000006$, Odds ratio = 5.71). Unbooked mothers are about six times more likely to develop abruptio placentae than booked mothers.

Patient with low socio-economic status had more occurrence of abruptio placentae (44, 72.1%) as compared with those with high socio-economic status which had none in this study. Low socio-economic status was significantly associated with abruptio placentae ($\chi^2 = 23.98$, $P = 0.000001$, Odds ratio = 6.70). Women with low socioeconomic status were seven times more likely to have abruptio placentae than those with a higher social class.

Majority of the patients (42, 68.9%) presented with both vaginal bleeding and abdominal pain as shown in table 3.. The mode of delivery of most of the patient (48, 78.7%) was by Caesarean section while 13 (21.3%) had vaginal delivery. The most common maternal complication was postpartum hemorrhage 28 (49.5%) while the least was disseminated intravascular coagulopathy 1(1.6%) as shown in table 4.

Majority of the patients 37(60.7%) had blood transfusion. There was one maternal death giving a case fatality rate of 1.6%. The maternal death occurred in an unbooked patient who presented very late to the hospital in irreversible shock having had massive hemorrhage at the home of a traditional birth attendant.

The total birth was 63 and there were 45 (73.8%) live births out of which 17 (27.9%) had birth asphyxia and 20(32.8%) was admitted into the special care baby unit (SCBU) as shown in table 5. There were 21 perinatal deaths (stillbirth and early neonatal death) giving a perinatal mortality rate of 344 per 1000 births. The causes of deaths were severe birth asphyxia and prematurity. Thirty-four (55.7%) babies were males and twenty-seven (44.3%) were females.

Discussion

Abruptio placentae is a significant cause of maternal and perinatal morbidity and mortality, the fetal and maternal outcomes are function of the duration and severity of abruption.

“The incidence of abruptio placenta in this study was 0.9% and this is similar to estimates from other studies.”⁴⁻¹⁰ “About 40.9% of the subjects with abruptio placenta were between the ages of 30 -34 years and most were para 2 and above. Advanced maternal age and high parity are well documented risk factors for abruptio placenta.”^{1-3,5} “This means that an effective patient education programme coupled with good family planning services can help in decreasing the incidence of abruptio placenta in our community. The majority of patients (70.4%) in this study were unbooked. Similar result were reported in other studies.”^{1,6} The association of abruptio placenta with hypertensive disorders was demonstrated in this study. Twenty-three percent has severe pre-eclampsia (occurrence of hypertension with proteinuria in a previously normotensive, non-proteinuric pregnant mother) /eclampsia (convulsions in a patient with preeclampsia) while 3.3% had chronic hypertension. Similar findings were also reported in other studies.^{3,5,14} This study showed that low socioeconomic status was the second leading factor accounting for 72.1% risk. Some authors have connected low socioeconomic status to lack of antenatal booking.³ Such patient may also be poorly educated and likely to seek care from traditional birth attendants who will appreciate the warning signs of abruptio placentae such as severe hypertension. This brings to the fore, the deleterious effect that poverty, ignorance and low socioeconomic status have on their obstetric performance.

Other risk factors were multiple pregnancy, extreme of maternal age, male fetal sex, previous Caesarean section as was noted in other studies.^{4,5,6} In this study, it was noted that previous

abruptio placenta accounted for 4.9% of cases. This is in tandem with a report that it had a recurrent rate of 4-12%.¹ “Majority (78.7%) of patients were delivered by emergency Caesarean section. This corresponds with other studies.”^{1,5,6} However, some other studies indicated a larger proportion of patients having vaginal delivery.”⁴ “The reason for the disparity in the mode of delivery may be due to the status of the fetus at the time of presentation. Caesarean delivery is a better option for patients with abruptio placenta with live baby as this mode of delivery can reduce the perinatal death rate by 20-50%.”^{3,5} “Vaginal delivery is preferred when the fetus is dead, mother is haemodynamically stable with no other contraindication to vaginal delivery.”^{2,5}

The most common maternal morbidity noted in this study was postpartum haemorrhage and postpartum anaemia. Similar findings were reported other studies.^{1,5,16} Over 60.7% of patients had blood transfusion. The case fatality of 1.6% found in this study agrees with that found in Abuja.⁵ “The only maternal death from abruptio placenta in this study was from an unbooked patient who presented late to the hospital in irreversible shock following massive haemorrhage. This underscores the importance of early presentation and expert management to prevent the adverse maternal and foetal morbidity and mortality associated with abruptio placenta. Abruptio placenta is often associated with high perinatal morbidity. It has been recorded to account for about 1 in 830 (0.12%) with a case fatality of about 3%.”⁵ “In this study, there were about 21 (34.4%) perinatal deaths, giving a perinatal mortality rate of 344 per 1000 births. This is higher than that report Adewole et al.”⁵

Conclusion

Abruptio placenta is an important pregnancy complication in UPTH which adversely affect foeto-maternal outcome. Multi-parity, unbooked status and low socioeconomic factor were significantly associated with abruptio placentae in this study. Ensuring specialized antenatal care and the eradication of poverty will improve the foeto-maternal outcome of abruptio placentae amongst the study population.

DISCLAIMER:

Authors have declared that no competing interests exist. The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

Ethical Approval:

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

Consent

As per international standard or university standard, patients' written consent has been collected and preserved by the author(s).

References

1. Attah RA, Zakari M, Abdulrahman A. Outcome of pregnancies complicated by abruptio placentae in Kano, Nigeria: A 5 Year review. *Ibom Med J* 2017; 10:27- 34.
2. Kwawukume EY, Omo-Aghoja LA. Antepartum haemorrhage. In: Kwawukume EY, Ekele BA, Danso KA and Emuveyan EE (eds). *Comprehensive Obstetrics in the tropics* 2nded. Accra Ghana: Assemblies of God Literature Centre Ltd; 2015: 184- 196.

3. Akadri AA, Ogunsowo KM, Odelola OI. Abruptio Placenta: A retrospective analysis in a tertiary hospital, Sagamu, Nigeria. *Tropical Journal of Obstetrics and Gynaecology*. 2018; 35(2): 142-6.
4. Abasi IJ, Israel J, Ekine AA. Risk Factors and Pregnancy Outcome of Placental Abruption at the Niger Delta University Teaching Hospital Okolobiri, South-South Nigeria. *British Journal of Medicine and Medical Research*. 2015; 5(8):1000 -6.
5. Adewole N, Isah AD, Osinachi IF. Feto-maternal outcome of abruptio placentae at a Nigerian tertiary hospital. *African Journal of medical and health sciences*. 2019; 18(3): 18-24.
6. Janakiram P, Sellathamry SG, Ponnivalavan K, Maternal and Perinatal Outcome in Abruptio Placenta. *J Evid Based Med Healthc*. 2017; 4:3985-8.
7. Gluck O, Koro M, Tairy D, Barda G, Bar J, Weiner. Bloody Amniotic Fluids During Labour – Prevalence and Association with Placental Abruption, Neonatal Morbidity and adverse pregnancy outcome: *European Journal of Obstetrics and Gynaecology and Reproductive Biology*. 2019; 234:103-7.
8. Tikkanen M, placental abruption: epidemiology, risk factors and consequences. *Acta obstetrician et gynecologica scandinavila*. 2011; 90(2):140-9.
9. Sarwa I, Abbasi AN, Islam A: Abruptio placentae and its complications at Ayub Teaching Hospital, Abbottabad. *J. Ayub Med Coll Abbottabad* 2006;18(1) 27-31.
10. Igwegbe AO, Eleje G U, Okpala BC. Management outcomes of Abruptio Placentae at Nnamdi Azikiwe University Tertiary Hospital, Nnewi, Nigeria. *Nigerian Journal of Medicine*. 2013; 22(3): 234-8.
11. Shoopala HM, Hall DR, Re-evaluation of Abruptio Placentae and other maternal complications during expectant management of early onset pre-eclampsia. *Pregnancy Hypertension*. 2019;16: 38-41.
12. Magagula B, Nkwenika T, Adam S. An audit of Patients with abruptio placentae in the Pretoria Academic complex . *South Afri J Obstet and Gynecol*. 2019; 25 (3): 79-83.
13. Mei Y, Lin Y. Clinical Significance of Primary Symptoms in women with Placental Abruption. *The Journal of Maternal-Foetal and Neonatal Medicine*. 2018; 31 (18): 2446-9.

14. Adeniran AS, Elegbua CO, Ezeoke GG, Adesina KT, Balogun OR. Abruptio Placentae: Epidemiology and Pregnancy Outcome in a low resource setting. Port Harcourt Medical Journal. 2018; 12 (3): 131.
15. Fadl SA, Linnau KF, Dighe MK. Placental Abruptio and Haemorrhage - Review of Imaging Appearance and Emergency Radiology 2019; 26(1): 87-97.
16. Irinyenikan TA, Arowojolu A, Comparative Study of the Maternal and Foetal Outcome of women who presented with Abruptio Placenta and Placental Praevia at the University College Hospital, Ibadan: A-10-Year Review. Trop J Obstet Gynaecol. 2012; 29(2): 15-20.
17. Kasai M, Aoki S, Ogawa M, Kurasawa K, Takahashi T, Ihrahara F. Prediction of Perinatal Outcomes based on Primary symptoms in women with Placental Abruptio. J Obstet Gynaecol Res. 2015 Jun; 41(6): 850-6.
18. Igwegbe AO, Eleje GU, Okpala BC. Management Outcomes of Abruptio Placentae at Nnamdi Azikiwe University Teaching Hospital, Nnewi Nigeria. Nig J Med. 2013; 22(3) 234-8.
19. Takai IU, Sayyadi BM, Galadanci HS. Antepartum Haemorrhage: A retrospective Analysis from Northern Nigeria Teaching Hospital. Int Appl Basic Med Res. 2017s; 7(2): 112.
20. Olusanya O, Okpere E, Ezimokhai M. The importance of social class in voluntary fertility control in a developing country. W Afri J Med 1985; 4: 205-212.

Table 1: Socio-demographic characteristics of patients

Characteristics	Number (61)	%	P-Value
Age distribution			
20-24	1	1.64	
25-29	17	27.87	
30-34	25	40.98	
≥ 35	18	29.50	

Parity distribution			
0-1	16	26.23	
2- 4	36	59.02	0.0000002
≥5	9	14.75	
Booking Status			
Booked	18	29.51	
Unbooked	43	70.49	0.0000006
Educational level			
No formal education	1	1.64	
Primary education	12	19.67	
Secondary education	33	54.10	
Tertiary education	15	24.59	
Occupation			
Trader	25	40.98	
Housewife	16	26.23	
Civil servant	8	13.11	
Student	4	6.56	
Others	8	13.11	
Socioeconomic class			
Low Class	44	72.13	0.0000001
Medium Class	17	27.87	
High Class	0	0.00	

Table 2: Maternal risk factors for abruptio placentae

Risk factors	Number	Percentage
Multiparity	45	73.8
Low socio economic status	44	72.1
Maternal blood group O	24	39.3

Severe preeclampsia and eclampsia	14	23.0
Extreme of maternal ages <20 >35	13	21.3
Previous caesarean section	8	13.1
Idiopathic	6	9.8
Spontaneous rupture of membrane	5	8.2
Previous abruptio placentae	3	4.9
Maternal trauma	3	4.9
Chronic hypertension	2	3.3
Multiple gestation	2	3.3
Polyhydramnios	2	3.3
Multiple uterine fibroid	1	1.6

Table 3: Presenting Complains of Abruptio Placentae

Clinical features	No	%
Vaginal bleeding and Abdominal pain	42	68.9
Vaginal bleeding	9	14.8
Abdominal pain	8	13.1
None	2	3.3

Table 4: Maternal postpartum complications

Complications	No	%
Post-partum haemorrhage	28	45.9
Post-partum anaemia	16	26.2

Hypovolaemic shock	5	8.2
Puerperal sepsis	5	8.2
Couvellaire uterus	3	4.9
Acute renal failure	2	3.3
Disseminated intravascular coagulopathy	1	1.6
Maternal death	1	1.6

Table 5: Perinatal Outcome and birth weight of babies with abruptio placenta

Parameters	No	Percentage
Term baby (37-42 weeks)	40	65.6
Normal birth weight (≥ 2.5 kg)	38	62.3
Low birth weight (< 2.5 kg)	25	41.0
Preterm baby (< 36 weeks)	21	34.4
SCBU admissions	20	32.8
Intrauterine death/stillbirth	18	29.5
Birth asphyxia	17	27.9
Early neonatal deaths	3	4.9