

**ABRUPTIO PLACENTAE: INCIDENCE AND PREGNANCY OUTCOME IN A
TERTIARY HEALTH CENTRE IN ABUJA, NIGERIA: A 4 YEAR REVIEW.****Dr. Atta A. A.¹ and Dr. Abdullahi I. H.^{1*}**¹Department of Obstetrics and Gynaecology, University of Abuja Teaching Hospital, Abuja.***Corresponding Author: Dr. Abdullahi I. H.**

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ABSTRACT

Background: Abruption placentae remains a major cause of maternal and perinatal morbidity and mortality globally with poorer outcomes in developing countries like Nigeria. Even though most of its risk factors are known, the incidence remains high in most centres especially in developing countries. **Objectives:** To determine the incidence and the foeto-maternal outcome of pregnancies complicated by abruption placentae in University of Abuja Teaching Hospital. **Study design:** Retrospective study of pregnancies complicated by abruption placentae at University of Abuja Teaching Hospital, Abuja, Nigeria between 1st January 2011 and 31st December 2014. **Results:** A total of 95 cases of abruption placentae were recorded out of 8,475 cases admitted for delivery during the study period, giving an incidence rate of 1.1%. The major foetal complications were intra- uterine foetal deaths (41.1%), birth asphyxia (24.2%) and low birth weight (46.3%). The maternal complications were anaemia (53.4%), postpartum hemorrhage (38.4%), blood transfusion (50.6%), disseminated intravascular coagulopathy (DIC) (6.8%) and acute kidney injury (1.4%). No maternal mortality occurred due to abruption placentae during the study period. **Conclusion:** There is a high incidence of abruption placentae in our setting. The major foetal outcome was intrauterine foetal death, and the major maternal complications were anaemia and postpartum haemorrhage with consequent high transfusion rates.

KEYWORDS: Abruption placentae, incidence, fetal, maternal, outcome.**INTRODUCTION**

Abruption placentae is defined as the premature separation of a normally situated placenta after the age of viability and before the delivery of the foetus.^[1-4] By this definition, it refers to separation of a normally situated placenta after the 28th weeks of pregnancy in Nigeria.^[4]

Abruption placentae remains a major cause of massive obstetric hemorrhage.^[1-5] Other causes of obstetric hemorrhage include placenta praevia, ruptured vasa praevia, bleeding from vulval varicose, postpartum hemorrhage and ruptured uterus among others.^[1-5] It contributes significantly to perinatal morbidity and mortality and it is the commonest cause of intrapartum fetal death.^[1-5] It is also a significant cause of maternal mortality despite advances in obstetric care because of late presentation at health care facilities, the need for multiple transfusion which may not be readily available, and complications such as acute kidney injury.^[1-6] A high proportion of children that survived abruption placentae are found to have neurological deficit within the first year of life.^[1]

The incidence of abruption placentae varies according to locality and obstetric factors prevailing in that society. The world average is about 1%.^[6] The incidence is 1% in the USA, 1.1%, in Korle Bu University Teaching

Hospital, Ghana 1.1%, 3.6% in Niamey in Niger Republic, 0.8% in Nnewi, south east Nigeria, 1% in University College Hospital, Ibadan, south west Nigeria, 1.46% in Niger-Delta, south-south Nigeria and 1.45% in Jos north-central Nigeria.^[5,3,7,8,9,10,11]

The primary etiology of abruption placentae remains unknown but there are several conditions associated with it. Hypertension in pregnancy, either pregnancy induced or chronic hypertension is the most consistent predisposing factor.^[1-6] Maternal trauma severe enough to cause injury is implicated to be a cause in 35% of placental abruption.³ Other associated conditions are age (less than 20 or greater than 35 year), high parity, rapid decompression of the uterus, polyhydramnios, multiple pregnancy, maternal cigarette smoking/cocaine, low socio-economic status, race (more common in African), short umbilical cord and supine hypotension syndrome.^[1-5] Other possible associations are abnormalities of the uterine blood vessels, uterine fibroids and unexplained increase in the maternal alpha-feto protein serum level.^[3,12] Previous history of abruption placentae is also a recognized risk factor of placental abruption.^[1-5]

The signs and symptoms of abruption placentae depend on the severity of bleeding and the degree of separation of placenta. The clinical presentation varies from

asymptomatic to vaginal bleeding, uterine and abdominal pain with tenderness, abnormal uterine contractions, premature labor, maternal hemodynamic instability, fetal distress and fetal death.^[1-13] When the abruption is posterior there is marked back ache due to hypertonus of the uterus.^[5] The patient may be clinically pale and have oliguria or may present in renal failure if hemorrhage is severe. The blood pressure may remain within the normal limit despite the volume of blood lost and this is due to the intense vasospasm going on.^[5] Abdominal examination may reveal a tender woody hard uterus, with the fetal parts difficult to palpate and fetal heart rate check may reveal fetal distress or fetal death. The diagnosis is mainly clinical based on the history and examination findings. The diagnosis could be aided by ultrasonography which reveals retro-placental clot if it is long standing even though the absence of a retro-placental clot does not exclude abruptio placentae.^[3] Retro-placental hematoma may be recognized in 25% of all abruptions.^[14] This recognition depends on the degree of hematoma and on the operator's skill level. Ultrasonography may also be helpful in excluding placenta previa which is a close differential. MRI is diagnostically effective and can accurately depict placental abruption. Its use can be considered where ultrasonography findings in the presence of late pregnancy bleeding are negative.^[15]

There are no laboratory makers useful in the diagnosis of abruptio placentae even though some investigators have described the use of CA-125 antigen.^[16] CA-125 antigen is reported to have a sensitivity of 70% and specificity of 94% in the diagnosis of abruptio placentae.^[16]

The management of patients with abruptio placentae is dictated by the clinical status of the mother, the gestational age at presentation and the severity of the abruption.^[1] Expectant or conservative management may be done in case of mild abruption that occurs before 36 weeks of gestation with no evidence of fetal distress and the mother is stable.^[1-5] Active management is indicated where conservative management is contraindicated, and it involves resuscitation and delivery. Route of delivery depends on whether or not the fetus is alive, cervical dilatation, presence or absence of Disseminated Intravascular Coagulopathy (DIC), and the presence or absence of other contraindications to vaginal delivery. Whatever the mode of delivery, early amniotomy is advocated on presentation as this might lead to decompression of the uterus and enhance uterine contractions, and also prevent the escape of thromboplastin into the maternal circulation and arrest of continued clot formation thereby reducing the tendency towards consumption coagulopathy.^[3] The complication of Couvelaire uterus is also averted by early amniotomy.^[3] Vaginal delivery is the method of choice and it should be aimed at where there is intrauterine fetal death. If the fetus is alive and the cervix is not fully dilated, an emergency Caesarean section could be done to deliver the fetus. Another indication for Caesarean

section is severe uncontrollable maternal bleeding with the aim of delivery before disseminated intravascular coagulation sets in.^[3]

Efforts should be made to make accurate diagnosis of abruptio placentae, aimed at restoration or maintenance of maternal cardiovascular status, continuous monitoring of fluid input/output, also coagulation status of the mother and delivery of a healthy non-acidotic fetus.

Postpartum hemorrhage is a recognised sequel of abruptio placentae. It can occur due to poor contractility or the Couvelaire uterus or DIC. This can be prevented by active management of labour and continued oxytocin infusion or use of rectal misoprostol after delivery of the fetus and placenta. Other complications that could occur include consumptive coagulopathy, acute kidney injury, increased operative delivery and their sequelae and in some case maternal deaths.^[2] Fetal sequelae include intra-uterine death, fetal distress, severe anaemia and neurological sequelae in those that survived. Abruptio placentae is a major cause of maternal and perinatal morbidity and mortality.^[1-5]

The study in Niger republic found the commonest maternal complication to be anaemia occurring in 76.3%, with transfusion rate of 68.7% and maternal mortality of 5.1%. There was a high still birth rate of 71.3% and 23.8% of the babies were born premature.^[7]

Abruptio placentae can re-occur in subsequent pregnancy. A recurrence rate of up to 15- to 20- fold in subsequent pregnancies has been reported.^[5] Some preventive measures include treatment of maternal hypertension in pregnancy; administration of folic acid to pregnant mother, prevention of maternal trauma/domestic violence and cessation of smoking and substance abuse by pregnant women.

AIMS AND OBJECTIVES

- 1) Determine the incidence of abruptio placentae at UATH, Abuja.
- 2) Determine the foeto-maternal outcome of pregnancies complicated by abruptio placentae.

MATERIALS AND METHODS

The study was conducted at the University of Abuja Teaching Hospital, located in Gwagwalada, a high population density area on the outskirts of Abuja, Nigeria's Federal Capital Territory. The hospital has facilities for emergency obstetric care and offers 24-hour emergency maternity coverage. It offers obstetric services to patients from Niger, Kogi, Kaduna and Nassarawa states which are neighboring states and serves as a referral centre to other smaller facilities within Abuja and beyond.

It was a four-year retrospective study of all cases of abruptio placentae seen between January 1st 2011 and December 31st 2014 at the University of Abuja teaching

hospital, Gwagwalada. Data were collected from labour ward records, theatre registers and patients case folders using a structured format and were retrieved and analysed with respect to their age, parity, gestational age at presentation, occupation, booking status, risk factors, presenting complaints, packed cell volume, mode of delivery and the fetomaternal outcomes.

The results were presented and discussed using simple percentages. This study was approved by the hospital Ethics Committee.

RESULTS

A total of 99 patients were managed with abruptio placentae during the study period. However only 95 folders that were retrieved, giving a retrieval rate of 96.0%, and these were the folders that were analysed out of a total of 8,475 deliveries giving a prevalence of 1.1%. Table 1 shows the Socio-demographic characteristics of the patients who had abruptio placentae. The age range was 21-44 years and the mean age was 32.1 years \pm 5.5 years. Most of these women (42.1%) were in the age group 30-35 years, while only 4.2% were aged 40 years or more. The proportion with low parity was high, with 89.5% being Para 4 or less and 10.5% being grandmultiparous. The mean parity was 3.6 \pm 2.0. sixty-three point two percent (63.2%) of the patients were unbooked, while 36.8% were booked. Housewives comprised 40.0%, 23.1% were traders, 16.9% were civil servants, 9.5% were students in tertiary institutions, and 10.5% had other occupations such as tailoring and hairdressing. The mean gestational age at presentation was 38.1 weeks \pm 2.0. Most of the patients (58.9%) presented at term.

The main presenting complaint from table 2 was abdominal pain and vaginal bleeding which occurred in 74.7% of the patients while 25.3% complained of only abdominal pain. Table 4 shows the risk factors identified. 55.8% were hypertensive, 7.4% were grandmultiparous and 6.3% were older than 35 years. In 5.2%, it occurred following sudden decompression of the uterus by sudden

uncontrolled liquor drainage, 2.1% had previous history of abruptio placentae identified as the risk factor and 1.1% had abdominal trauma identified as a predisposing factor. There was no clear predisposing factor in 22.1%, while some of the patients had multiple predisposing factors identified.

14.7% had severe anemia with PCV of 21% or less, and 29.4% had PCV of 30% or more. 5 (6.8%) of the women reviewed had abnormal clotting time of greater than 11 minutes. 70 patients had urinalysis done at presentation using dipstick, 9 (12.9%) had significant proteinuria of 3+++ (>300mg/dl), 16 (22.9%) had 2++ (100mg/dl), 4 (5.7%) had proteinuria of 1+ (30mg/dl), while the remaining 51 (58.5%) had negative protein results.

Table 5 shows the modes of delivery. The mode of delivery was vaginal in 33.7% and 66.3% had caesarean section. Table 6 shows the fetal outcome. 93.8% of the babies born via the vaginal route were stillborn and only 6.2% were born alive, out of which only 1 (3.1%) had a 5 minute APGAR score of 8. Of the babies delivered by Caesarean section, 14.3% were stillborn and 50.8% had 5 minute APGAR scores of 7-10. Table 7 showed a total of 44 (46.3%) of the babies delivered had low birth weight. Table 8 showed that the maternal complications from the study were anaemia in 53.4%, postpartum hemorrhage in 38.4%. 50.6% had need for blood transfusion. 1 (2.7%) had 5 units of blood transfused, while 4 (10.8%) had 4 units of blood transfused, 7 (18.9%) were transfused with 3 units of blood, 16 (43.3%) were transfused with 2 units while the remaining 9 (24.3%) had 1 unit of blood transfused. There was 5 (6.8%) cases of disseminated intravascular coagulopathy and 1 (1.4%) had acute kidney injury with markedly elevated serum urea and creatinine. No maternal death in this study. The hospital stay of the women with abruptio placentae was longer than those that did not have abruptio with an average stay of 72 hours for those that had a vaginal delivery and 6 days for those who had abdominal deliveries.

Table 1: Sociodemographic Characteristics of Patients.

| Characteristics | Number | % |
|-------------------------|-----------|------------|
| Age distribution | | |
| 20-24 | 9 | 9.5 |
| 25-29 | 27 | 28.4 |
| 30-34 | 40 | 42.1 |
| 35-39 | 15 | 15.8 |
| 40-44 | 4 | 4.2 |
| Total | 95 | 100 |

Mean age= 32.6 years \pm 5.5 years

Parity distribution

| | | |
|--------------|-----------|------------|
| Nullipara | 7 | 07.4 |
| 1-2 | 50 | 52.6 |
| 3-4 | 28 | 29.5 |
| ≥5 | 10 | 10.5 |
| Total | 95 | 100 |

Mean parity= 3.6 ± 2.0

c) Booking Status

| | | |
|--------------|-----------|------------|
| Booked | 35 | 36.8 |
| Unbooked | 60 | 63.2 |
| Total | 95 | 100 |

d) Occupation

| | Number | % |
|---------------|-----------|------------|
| Housewife | 38 | 40.0 |
| Trader | 22 | 23.1 |
| Civil Servant | 16 | 16.9 |
| Student | 9 | 9.5 |
| Others* | 10 | 10.5 |
| Total | 95 | 100 |

*tailor, hairdresser, hotelier

Table 2: Clinical Presentation.

| Presentation | Number | % |
|-----------------------------------|-----------|------------|
| Abdominal pain + vaginal bleeding | 71 | 74.7 |
| Abdominal pain | 24 | 25.3 |
| Total | 95 | 100 |

Table 3: Gestational Age At Presentation.

| Gestational Age (wks) | Number | % |
|-----------------------|-----------|------------|
| 28-33 | 21 | 22.1 |
| 34-36 | 14 | 14.7 |
| 37-40 | 56 | 58.9 |
| 41-42 | 4 | 4.3 |
| Total | 95 | 100 |

Table 4: Risks Identified.

| Factor | Number | % |
|-----------------------------|-----------|------------|
| Hypertension | 53 | 55.8 |
| Grandmultiparity | 7 | 7.4 |
| Age ≥35years | 6 | 6.3 |
| Sudden liquor drainage | 5 | 5.2 |
| Previous abruptio placentae | 2 | 2.1 |
| Trauma | 1 | 1.1 |
| Unclear | 21 | 22.1 |
| Total | 95 | 100 |

Table 5: Mode Of Delivery

| Mode | Number | % |
|-------------------|-----------|------------|
| Vaginal | 33 | 34.7 |
| Caesarean section | 62 | 65.3 |
| Total | 95 | 100 |

Table 6: Fetal Outcome

| 5' APGAR score | Vaginal delivery | | Caesarean section | |
|----------------|------------------|------|-------------------|------|
| | Number | % | Number | % |
| 0 (IUFD) | 30 | 93.8 | 9 | 14.3 |
| 1-3 | 1 | 3.1 | 5 | 7.9 |
| 4-6 | 0 | 0.0 | 17 | 27.0 |

| | | | | |
|--------------|-----------|------------|-----------|------------|
| 7-10 | 1 | 3.1 | 32 | 50.8 |
| Total | 32 | 100 | 63 | 100 |

TABLE 7: FETAL WEIGHT

| Weight (Kg) | Number | % |
|--------------|-----------|------------|
| 1 - 1.49 | 12 | 12.6 |
| 1.5-2.49 | 32 | 33.7 |
| 2.5-3.99 | 47 | 49.5 |
| ≥4.00 | 4 | 4.2 |
| Total | 95 | 100 |

TABLE 8: MATERNAL OUTCOME

| Outcome | Number | % |
|-----------------------|-----------|------------|
| Anemia | 39 | 53.4 |
| Postpartum hemorrhage | 28 | 38.4 |
| DIC | 5 | 6.8 |
| AKI | 1 | 1.4 |
| Death | 0 | 0.0 |
| Total | 73 | 100 |

DISCUSSION

Abruptio placentae is defined as the premature separation of a normally situated placenta after the age of viability and before the delivery of the foetus.^[1] Abruptio placentae is a significant cause of third trimester bleeding, it remains as an important cause of maternal morbidity and mortality and more significantly a cause of perinatal morbidity and mortality both in developing and developed parts of the world. The incidence of 1.1% found in this study is comparable to those of Accra, Nnewi, Ibadan and Kano, North West, Nigeria.^[3,8,9,17] It is however lower than the incidence from Niger Republic and Pakistan.^[7,18] The reason for the variation in the incidence has been attributed to geographical and socioeconomic factors.

Age less than 20 or greater than 35 years is a risk factor for abruptio placentae however the findings from this study differ. The majority (42.1%) of these women age bracket was 30-35 years; this is similar to findings from Nnewi and Niger Republic.^[8,7]

High parity is a known factor risk factor for abruptio placentae but from this study most of the patients 51(60%) were Para 0-2 which is similar to the report in Jos.^[11]

Most of the patients (63.2%) in this study were unbooked. This is similar to the findings in a study in Nnewi, Jos and Pakistan.^[8,11,18] This may be related to their socio-economic class as most of these women belonged to the low socio-economic class as revealed by their occupation and low socioeconomic factor is a known risk factor for abruptio placentae. The main risk factors for abruptio placentae identified in this study were hypertension, grandmultiparity, age 35 years and above. This is similar to the findings of other studies.^[8,9,11,17] Most of the women presented with abdominal pain and vaginal bleeding (74.7%). Similar

observation was made by Tikkanen M, et al, in which vaginal bleeding was the commonest presenting symptom in 70% of women followed by abdominal pain in 51% of them.^[13] Other form of presentation is severe abdominal pain with minimal or no vaginal bleeding. This occurs when the abruptio placentae is the concealed type.

Sixty three (66.3%) of the cases were delivered by Caesarean section while thirty two (33.7%) had vaginal delivery. The main indication for the caesarean section was abruptio placentae with live baby. The patients who were confirmed to have IUFD were allowed to have vaginal delivery in the absence of other indications for Caesarean section. The 2 patients who delivered live babies vaginally had forceps delivery done. These findings were similar to those from Kano, North West, Nigeria.^[17]

From table 6, 32 patients out of the 63 (50.8%) patients who had caesarean section had good fetal outcome with Apgar scores of 7-10 at 5 minutes as compared to 1(3.1%) out of 32 patients that had vaginal delivery with good Apgar scores of 7-10 at 5 minutes. Hence a prompt Caesarean section could result in improved perinatal outcome for Abruptio placentae with a live baby rather than waiting unduly to achieve vaginal delivery with the risk of perinatal morbidity and mortality.

Abruptio placentae is an important cause of prematurity. The overall preterm pregnancies in patients with abruptio placentae in our centre was 35 which constituted 36.8% of cases as shown in table 3. This figure is lower than 51% found in Karachi.¹⁹ Table 7 showed that there were total of 44(46.3%) low birth weight babies and 39(41.1%) still births. This finding is lower than 70% and 51% respectively found in Hyderabad, Pakistan.²⁰ These results showed that abruptio placentae is an important cause of perinatal morbidity and mortality in

our center as most of the patients present with intrauterine fetal death. This mode of presentation is similar to findings from other centers in Nigeria.^[8,9,10,11]

Table 8 showed that anemia from maternal hemorrhage was the commonest maternal complication from the study accounting for 53.4%. Postpartum hemorrhage was found in 37.8% of the women which is higher than the 24.3% found in Kano.^[18] We found a transfusion rate of 50.6% which was lower than 61.5% found in Kano and 68% in Niger Republic^[18,7] However, this is a high value when the potential risks of blood transfusion are considered. There was no maternal death attributable to abruptio placentae during the study period. Similar finding was obtained from Kano and Calicut, India.^[18,21] This is in contrast to most institutions where maternal mortality ranges from 5.1% in Niger republic, 3.8% in Nnewi, 2.8% in the Niger Delta, and 5% in Hyderabad, Pakistan.^[7,8,10,20] This may be due to the level of care offered at our center being a tertiary institution with the presence of a functioning blood bank and theatre with 24 hours of labor ward coverage by all cadres of doctors.

CONCLUSION

Abruptio placentae is an obstetric emergency with a high incidence in our environment. The perinatal outcome is generally poor with a high rate of intrauterine fetal death. The maternal outcome is more favorable with anemia and postpartum hemorrhage being the commonest maternal complications with consequently high transfusion rates.

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