ORIGINAL ARTICLE

Abruptio Placentae: Incidence and Pregnancy Outcome in Abubakar Tafawa Balewa Teaching Hospital, Bauchi: A 5-Year Review.

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ABSTRACT

Background: Antepartum hemorrhage especially abruptio placentae remains one of the leading causes of materno-foetal morbidity and mortality globally, more especially in middle and low-income countries like Nigeria. It is one of the common causes of foetal loss and severe maternal morbidity at Abubakar Tafawa Balewa University Teaching Hospital (ATBUTH), Bauchi. This study seeks to determine the incidence, common risk factors and foeto-maternal outcomes in ATBUTH, Bauchi. **Objectives:** To determine the incidence, common risk factors, and foeto-maternal outcomes of pregnancies complicated by abruptio placentae in (ATBUTH) Bauchi. Study design: This was a retrospective study of cases with abruptio placentae that presented to ATBUTH, Bauchi over 5 years between 1st January 2015 and 31st December 2020. **Results:** The incidence of abruptio placentae in this study was 0.93% with an age distribution of 17-47 years and a mean maternal age of 28.5 years. Majority of the patients were multi-gravida, unbooked, and married. More than half of the patients had no formal education. Risk factors identified were hypertension in 86 (50.6%) of cases, previous history of abruptio placentae in 73 (42.9%), and multiparity in 144 (84.7%) of cases. Clinical features were similar to those of other studies. Complications observed in this study included maternal shock, post-partum haemorrhage, and maternal death. Foetal complications included premature deliveries, intra-uterine fetal death (IUFD), and a high perinatal death of 103 (60.6%). **Conclusion:** Abruptio placentae is common in Bauchi and is a leading cause of both maternal and fetal morbidity and mortality.

Keywords: Antepartum hemorrhage, abruptio placentae, foeto-maternal outcome.

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Introduction

Placental abruption called Abruptio placentae is from Latin and connotes a 'rending asunder' of the placenta, it can be defined as premature separation of a normally situated placenta from its implantation site after the age of viability and before the delivery of the fetus.[1-3]

The incidence of abruptio placentae worldwide ranges between 0.30 to 1% following delivery of singleton pregnancy and up to 2% following twin delivery.[4-5] The incidence of abruptio placentae varies, with an incidence of 0.99% in India,[6] 1% in South Africa,[7] 0.96% in Lagos, Nigeria[8] and 0.51% in Abuja, Nigeria.[9]

The primary cause of placenta abruption is unknown however several risk factors have been implicated such as hypertensive disorder of pregnancy, previous history of abruptio placentae, multiparity, advanced maternal age, cigarette smoking, use of cracked cocaine, multiple pregnancies, polyhydramnios, premature rupture of membrane, maternal trauma, low socioeconomic status, and short umbilical cord.[1-9]

The signs and symptoms of abruptio placentae depend on the severity of bleeding and the degree of placenta separation. These include vaginal bleeding, abdominal pain and tenderness in most cases,

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abnormal uterine contractions, premature labour, maternal haemodynamic instability, foetal distress, and foetal death.[1-5] The management of abruptio placentae could either be conservative or active depending on the clinical status of the mother and the foetus, the gestational age of the pregnancy, and the severity of the abruptio placentae. Resuscitation should aim at the restoration or maintenance of maternal cardiovascular status. Monitoring of fluid input, output, and the coagulation status of the mother should be continuous. Delivery of a live healthy baby to a healthy mother is the goal.[1-3,10-14]

The complications of abruptio placentae include postpartum haemorrhage, disseminated intravenous coagulopathy (DIC), acute kidney injury, increased operative delivery, and maternal death. Fetal complications include birth asphyxia, intrauterine foetal death, severe foetal anemia, and foetal neurological sequelae.[10-17]

Some preventive measures include treatment of maternal hypertension in pregnancy, prevention of maternal trauma or domestic violence, prevention of smoking and substance abuse by pregnant women.[17-20]

Despite the importance of this morbidity of pregnancy, there is no information on the pattern of presentation, maternal and fetal outcomes among women who presented with this condition in Bauchi. Therefore, this study aimed to document the incidence and feto-maternal outcome of pregnancies complicated by abruption placentae in Bauchi northeast Nigeria.

Methods

This was a retrospective descriptive study carried out in the Department of Obstetrics and Gynecology of Abubakar Tafawa Belawa Teaching Hospital, Bauchi, a 700-bed tertiary facility located in Bauchi state. Labor ward record was used to extract the file number of patients who had abruptio placentae and 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 the ATBUTH from 1st January 2015 to 31st December 2020 were retrieved concerning their age, occupation, parity, educational status, marital status, gestational age at presentation, risk factors, presenting complaints, blood pressure at presentation, mode of delivery, foetal and maternal complications. Sher-Statland classification was used to grade the cases. The data collected were analysed using frequencies and percentages. Mean and standard deviation were used where appropriate. Ethical approval was given by the Health Research Ethics Committee Board of the hospital to conduct the study.

Results

A total of 180 patients were diagnosed with abruptio placentae during the study period out of a total of 16,820 deliveries giving an incidence of 0.93%. 170 folders were retrieved, giving a retrieval rate of 94.4%, and these were the cases that were analyzed.

Table 1 shows the sociodemographic characteristics of patients with abruptio placentae with ages ranging between 17-47 years, with a mean maternal age of 28.5 years ± 7 years. Women between 25-29 years of age were 56 which constitute 32.9% of the study population while 3 (1.8%) were 45 years and above. Majority of the patients were multigravidas 144 (84.7%). Most of the patients were unbooked 163 (95.9%) and all the patients but one were married. Almost ninety-two percent of the patients were housewives while 97 (57.1%) had non-formal education. About seventy-two percent of the patients were from rural settings. The mean gestational age at presentation was 35 weeks ± 3.4 weeks.

Common risk factors for abruptio placentae in this study were hypertension which was seen in 86 (50.6%) of cases, followed by previous history of abruptio placentae in 73 (42.9%) of cases, the least risk factor observed in this study was a patient (0.6%) who had history of smoking. Fifty-seven (33.4 %) of patients had elevated systolic blood pressure of ≥ 140 mm Hg while 63 (36.5%) of cases had elevated diastolic blood pressure of ≥ 90 mm Hg. This is shown in Table 2.

Table 3 shows the clinical features of patients' presentation. Common presenting complaints included vaginal bleeding and abdominal pain each constituting 169 (98.8%) of cases. Other clinical presentations included pallor, tense, and tender abdomen making 156 (91.8%), 163 (95.9%), and 164 (96.5%) respectively. One hundred thirty-five patients (79%) had retro-placental clots while 69 patients (40.6%) had significant protein in their urine specimens. More than half of the cases had severe abruptio placentae while only a case had a retrospective diagnosis of abruptio placentae.

The majority of the patients 119 (70%) had vaginal delivery while 136 (80%) of them had blood

transfusion. Among those that had blood transfused, 96 (70.6 %) were transfused with 1-3 units of blood while 40 (29.4 %) of them had 4 or more units of blood transfused. This is shown in table 4.

Table 5 shows foeto-maternal outcomes. The maternal morbidity suffered by patients in this study included postpartum haemorrhage seen in 91 (53.5%) of cases, shock in 70 (41.2%), disseminated intravascular coagulopathy in 22 (12.9%), acute kidney injury in 10 (5.9%), admission into ICU in 14 (8.2%), obstetric hysterectomy in 2 (1.2%) and 4 (2.4%) maternal death. The foetal outcomes included intrauterine foetal death at presentation in 99 (58.2%) of cases and 70 (41.2%) of babies were delivered preterm. Of babies delivered alive, 58 (81.8%) of them had 1st minute APGAR score of < 7, and 40 (56.3%) of these babies were admitted into the Special baby care unit. One hundred and three babies died in this study with a perinatal mortality of 60.6%.

Table 1: Socio-demographic Characteristics

Characteristics	Frequency	Percentage
Age		
15-19	16	9.4
20-24	26	15.3
25-29	56	32.9
30-34	28	16.5
35-39	25	14.7
40-44	16	9.4
45-49	3	1.8
TOTAL	170	100
Mean Age = 28.5 Years ± 7 Years		
Parity		
Primigravida	26	15.3
Multigravida	144	84.7
Total	170	100
Booking Status		
Booked	7	4.1
Unbooked	163	95.9
Total	170	100
Marital Status		
Married	169	99.4
Single	1	0.6
Total	170	100
Occupation		
Housewife	156	91.8
Civil Servant	2	1.2
Trader	12	7.1
Total	170	100
Educational Status		
Primary	22	12.9
Secondary	43	25.3
Tertiary	8	4.7
Non-Formal Education	97	57.1
Total	170	100

Place of Residence		
Urban	48	28.2
Rural	122	71.8
Total	170	100
GA at Presentation	Mean= 35 Weeks	Sd =3.4 Weeks

Table 2: Risk Factors for Abruptio Placentae

Characteristics	Frequency n=170	Percentage
Risk Factors		
Previous History of Abruptio Placentae	73	42.9
Hypertension	86	50.6
History of Trauma	6	3.5
Multiple Gestation	2	1.2
Polyhydramnios	5	2.9
Spontaneous Rupture of Membrane	4	2.4
History of Smoking	1	0.6

Table 3: Clinical Presentation

Presentation	Frequency	Percentage
Vaginal Bleeding	168	98.8
Abdominal Pain	169	99.4
Pallor	156	91.8
Tense Abdomen	163	95.9
Tender Abdomen	164	96.5
Urinary Protein Positive	69	40.6
Retro-placental Clots	135	79.4
Grade of Abruptio Placentae		
Grade 0	1	0.6
Grade 1	13	7.6
Grade 2	60	35.3
Grade 3	96	56.5
Total	170	100
Blood Pressure At Admission		
Systolic blood pressure ≥ 140	57	33.5
Diastolic blood pressure ≥ 90	62	36.5

Table 4: Mode of Delivery

Mode of Delivery	Frequency	Percentage
Vaginal delivery	119	70
Emergency Caesarean section	51	30
Total	170	100
Blood Transfusion	136	80
1-3 units	96	70.6
≥ 4	40	29.4

Table 5: Feto-maternal Outcome

Outcomes	Frequency	Percentage
Maternal		
Shock	70	41.2
Postpartum hemorrhage	91	53.5
Disseminated intravascular coagulopathy	22	12.9
Acute kidney injury	10	5.9
Obstetrics Hysterectomy	2	1.2
Intensive care unit Admission	14	8.2
Death	4	2.4
Foetal status		
Intrauterine foetal death	99	58.2
Alive	71	41.8
Total	170	100
Gestational age at Presentation		
Preterm	70	41.2
Term	100	58.8
Total	170	100
Admission Into SCBU :yes	40	56.3
no	31	43.7
Total	71	100
Perinatal Mortality :yes	103	60.6
no	67	39.4
Total	170	100

SCBU= Special baby care unit.

Discussion

The principal findings in this study were the incidence of abruptio placentae of 0.93%, the mean maternal age of participants of 28.5 years, majority of the patients were multigravida and unbooked. The maternal complications included maternal shock, DIC, AKI, obstetrics hysterectomy, and ICU admission. Fetal complications include premature deliveries, IUFD, and perinatal mortality.

The incidence of 0.93% is comparable to 0.96 % in Lagos, Nigeria,[8] 1% in South Africa[7], and 1.05% in India.[21] It is however higher than the incidence of 0.51% found in Abuja, Nigeria[9] and lower than 3.6 % in a study done in Niger Republic.[15] The incidence in this study may be because of differences in sociodemographic factors, poor antenatal attendance and care, as most of these patients were unbooked and from rural areas.

The mean maternal age of the patients is 28.5 years ± 7 years with an age range of 17-47 years. Women between 25-29 years of age constitute 32.9 % of the study population while 1.8% were 45 years and above. The age distribution was similar to that in a study in South Africa with an age range of 17-35 years and a mean maternal age of 28.7 years ± 0.52 years.[7] The age distribution was also comparable to that in a study done in Abuja, Nigeria with an age range of 25-34 years and a mean maternal age of 29.14 ± 5.17 years[9] but lower than 31.22 ± 0.52 found in a study done in Lagos, Nigeria.[8] This may be due to the early age of marriage and high parity at a younger age compared to patients in the studies done in Abuja and Lagos Nigeria.[22]

The majority of patients in this study were multigravida constituting 84.7%. This was similar to that found in Abuja, Nigeria with multiparity of 76.4%,[9] and another study in South Africa where 73% of the study population was multiparous.[7] This was higher than that found in Lagos which was 65%.[8] Age and parity have been shown to contribute to abruptio placentae as in this study.[7-9] This means that an

effective patient education program coupled with good contraceptive services may help in reducing the burden of abruptio placentae in our population.[7-9,20]

In this study, most patients were unbooked making up 95.9% of the cases. All but one were married. This result was comparable to a study done in India with the percentage of unbooked patients at 94.7%[6] but higher than other studies done in India which was 88.6%,[21] 70.9% in Abuja, Nigeria,[9] 57.5% in Lagos, Nigeria[8] and 14% in South Africa.[7] In this study, about 72% of the patients were from rural settings, 57.1% had non-formal education and 36.4% were Housewives. The high number of unbooked patients may be due to their low socioeconomic class, most of the patients were uneducated and resided in rural areas.

The major risk factors identified in this study were hypertension, a previous history of abruptio placentae, and multiparity. These findings were consistent with that of a study in Turkey,[23] and another multinational study done in Finland, Malta, and Aberdeen.[24]

The common clinical presentations in this study include vaginal bleeding 98.8%, abdominal pain 97%, pallor 91.8%, tense abdomen 95.9%, tender abdomen 96.5%, retro-placental clots 79.4% and positive urine protein 40.6%. This was comparable to a study done in India[6] where those that presented with vaginal bleeding were 94.7%, however, those that presented with abdominal pain, tense abdomen, and tender abdomen in this study were more compared to the study in India which reported 64.9%, 44.7% and 31.6% respectively.[6] This may be because most of the patients 92% in this study presented with grade 2 and 3 abruptio placentae.

The maternal complications observed in this study included Maternal shock in 41.2% of cases. This is higher than 10.9% found in Abuja, Nigeria[9] and 8.77% in Nepal, India.[6] Patients that had postpartum haemorrhage in this study were 53.5%. This was comparable with a study done in South Africa where 54.2%[7] of the patients had a postpartum haemorrhage but higher than that found in Abuja, Nigeria which was 16.4%,[9] 34.7% in Ogun, Nigeria,[24]and 0.88% in Nepal, India.[6] Eighty percent of the patients in this study were transfused due to anaemia. This was comparable to a study done in Ogun, Nigeria in which 81.6%[25] were transfused and 72.2% in Nepal, India[6] but higher than 16.4% in Nnewi, Nigeria.[12] This high blood transfusion may be a potential risk for blood transfusion reaction and viral transmission. Another maternal complication was DIC which affected 12.9% of cases in this study. This figure was higher than that found in a study in South Africa with 2.08%[7] but lower in Nepal, India with 15.79% of cases.[6] AKI was found in 5.9% of cases which was comparable to a study done in South Africa with 6.25%[6] of cases complicated by AKI but lower than that found in Ogun, Nigeria with 12.2% of cases.[24] Obstetric hysterectomies were done for 1.2% of cases in this study, which was slightly higher than that found in a study in Nepal, India 0.88%[6] but lower when compared to that in Ogun, Nigeria with 8.2%.[24] Admission of patients into ICU was 8.2% in this study which was comparable to 8.72% in Lagos, Nigeria[8] but lower than 10.9% in Abuja, Nigeria capital.[9] Maternal death in this study was 2.4% which was higher than 0.88% in Nepal, India[6,] and 1.8% in Lagos, Nigeria.[8] This suggests that abruptio placentae is associated with severe maternal outcomes. This high maternal death due to abruptio placentae in this study may be because the majority of the patients about 92% presented with grade 2 or 3 abruptio placentae hence effective patient educational programs on early recognition of obstetrics complications (danger signs in pregnancy) and complication readiness may help in reducing these complications.

The foetal complications included Premature deliveries of about 41.2% in this study. This was lower than that found in a study in Nepal, India[6] which was 50%, and another study in India which was 74%.[21] At admission, 58.2% of the cases presented with IUFD which was comparable with a study in India which was 61.1%.[6] This was higher than 46.9% which was found in a study in Sagamu, Nigeria.[24] The high percentage of IUFD found in this study was because 92% of cases were grade 2 and 3 abruptio placentae. In this study, 23.5% of the neonates were admitted into SBCU. This was higher than 11.3% in a study in Lagos, Nigeria[8] but lower than 38.2% in Abuja, Nigeria,[9] 40% in Turkey[23] and 46.9% in Sagamu, Nigeria.[24] The perinatal mortality found in this study was 60.6%, this was higher than that found in a study done in Abuja, Nigeria which was 13.5%.[9] This also suggests that abruptio placentae is a common cause of perinatal morbidity and mortality. Clinicians must have a high index of suspicion to recognize cases of abruptio placentae and institute appropriate treatment measures promptly to reduce foeto-maternal morbidity and mortality.

Conclusion

Abruptio placentae is associated with high perinatal and maternal morbidity and mortality hence an obstetric emergency. Major risk factors identified in this study included hypertension, previous history of abruptio placentae, and multiparity. The clinical features noted were similar to other studies. The maternal complications observed in this study included maternal shock, postpartum haemorrhage, anaemia, DIC, obstetrics hysterectomy, and maternal death. Foetal complications included premature deliveries, IUFD, and a high perinatal death of 60.6%. Identification and modification of risk factors, prompt diagnosis which is mainly clinical, and adequate resuscitation and prompt delivery may help in reducing the high perinatal and maternal morbidity and mortality of abruptio placentae in our environment.

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