Analysis of Some Risk Factors for Abruptio Placentae in Jos, Northern Nigeria

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Abstract
Context: On a global scale obstetric haemorrhage remains a major cause of maternal morbidity and mortality. Abruptio placentae is an unpredictable obstetric emergency. Identification of women at risk is crucial to its effective management in terms of both prevention and appropriate treatment.
Objective: We were interested in establishing the influence of maternal age, parity, antenatal care, and hypertension on the incidence of this obstetric emergency in our setting.
Setting and Design: This cross-sectional case control study was done at the labour ward of Jos University Teaching Hospital (JUTH), Jos between 1st January 2002 and 31st December 2002. All cases of abruptio placentae that presented in our labour ward were included in the study. The variables measured were patient's age, parity, booking status, blood pressure at presentation as well as fetal and maternal outcome. The data obtained was analyzed using EPI info 2000 statcalc to obtain odds ratios and the X^2 values for linear trend in maternal age, parity and booking status. The difference was considered significant at P-value <0.05.
Results: During the 12-Month study period, 34 consecutive cases of abruptio placentae were managed among 2,338 deliveries in the labour ward of JUTH. This gives an annual incidence of 1.45%. High parity, lack of antenatal care and advanced maternal age were significant risk factors for abruptio placentae (P-values <0.001, 0.001, 0.011 respectively). Hypertension was found in 55.9% of cases suggesting a possible causal relationship. Maternal mortality was 8.8% while perinatal mortality occurred in 63.9% of the cases studied.
Conclusion: Women of high parity who do not receive quality antenatal care and of advanced age with hypertension are more likely to have abruptio placentae.

Key Words: Abruptio placentae, parity, maternal mortality, antenatal care, hypertension

Introduction
Obstetric haemorrhage endangers maternal life anywhere in the world, but particularly so in developing countries due to lack of preparedness for obstetric emergency care in most health facilities. Late arrival in the hospital to access medical and surgical interventions further contributes to maternal morbidity and mortality when such emergencies occur.

On a global scale, haemorrhage is the leading cause of maternal mortality and may contribute up to 60% maternal deaths in certain areas [1]. In Nigeria, haemorrhage is reported as the leading cause of maternal mortality and in some parts of Nigeria it is responsible for more than 30% maternal deaths [2,3].

Placental abruption is the most common cause of serious vaginal bleeding in late pregnancy, occurring in one percent of pregnancies[4]. It is an unpredictable, dramatic event and is a major cause of obstetric haemorrhage that contributes considerably to morbidity and mortality among affected mothers and babies. The incidence of abruptio placentae ranges between 0.5-3.5% of all pregnancies [4, 5, 6]. An incidence of 0.98% has been documented in a previous study in Jos [7].

Abruptio placentae is an unpredictable obstetric emergency with no clear aetiology found in the majority of cases. However, advanced maternal age, parity, and tobacco and cocaine use, previous abruptio placentae, premature rupture of membranes, hypertension, sudden uterine decompression and trauma during pregnancy have been documented as risk factors [8-11]. In developing settings with paucity of blood transfusion facilities and other emergency obstetric care, women identified with risk factors for abruptio during pregnancy needs close monitoring in centers equipped with facilities for emergency obstetric care so as to anticipate and manage promptly those cases that may develop placental abruption. If this is done, the incidence of abruptio placenta and the associated morbidity and mortality is likely to reduce. This study was designed to document the influence of advanced maternal age, parity, lack of

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antenatal care and hypertension as risk factors for abruptio placentae in a developing setting.

Materials and Methods

This cross-sectional case control study of abruptio placentae was undertaken at the Labour Ward of Jos University Teaching Hospital (JUTH), a tertiary health referral center located in the city of Jos, the capital of Plateau State, Northern Nigeria.

The study was done over a 12-month period between 1st January and 31st December 2002. All cases of clinically diagnosed abruptio placentae that presented in our Labour Ward were included in the study. Other deliveries not complicated by placental abruption during the study period were included as controls. The variables measured included patient's age, parity, booking status for antenatal care, gestational age at presentation, mode of delivery, and fetal and maternal outcome in terms of survival. The blood pressure (BP) of all the women was recorded at presentation. A single diastolic BP of =90mmHg at presentation was considered as hypertension. The data obtained was analyzed using EPI info 2000 statcalc to obtain odds ratios and the ^{2} values for the linear trend in maternal age, parity and booking status. The difference was considered statistically significant if p-value was <0.05.

Results

During the 12 months period of the study, there were 34 consecutive cases of abruptio placentae that occurred among 2,338 deliveries in the labour ward of JUTH, Jos. This gives an annual incidence of 1.45% for abruptio placenta. The risk of abruptio placenta significantly increases with advanced maternal age, high parity and lack of antenatal care (p-values: 0.011, 0.001, 0.001 respectively), (Tables 1, 2 and 3).

Hypertension was found in 55.9% of abruptio cases, one patient presented with unrecordable blood pressure (BP) and died within 20 minutes of admission. Of the 55.9% of patients who presented with hypertension, 47.4% had a diastolic BP =110mmHg (Table 4).

Maternal mortality occurred in 3 patients out of the 34 that presented with abruptio placenta (8.8%). A total of 36 babies were delivered (2 set of twins). Thirty-six (36%) percent of the babies were alive at birth, while 58.3% were fresh stillbirths and 5.6% were macerated stillbirths. The perinatal mortality at birth for babies affected with abruptio placentae was therefore 63.9%.

Discussion

Obstetric haemorrhage remains a leading cause of maternal mortality particularly in developing countries. Every effort should be put in place to identify pregnant women at risk and appropriate measures taken to prevent its occurrence as well as managing promptly those who present with haemorrhage. This study was set out to document the incidence of abruptio placentae and the associated risk factors.

The incidence of 1.45% for abruptio placentae found in this study was higher compare to the findings by other workers in Nigeria [12, 13]. This difference might be due to differences in characteristics of the population studied as well as methodology of the study. Our centre receives referrals from primary and secondary centers in and around Jos Township and this factor could have contributed to the relatively high incidence of this condition which was more among pregnant women who did not received antenatal care. The institutional incidence of abruptio placentae among pregnant women who had antenatal care and delivery in our centre is therefore likely to be lower than the incidence found in this study.

The principal risk factors for abruptio placentae found in this study were lack of antenatal care, high parity, and advanced maternal age as shown in table III, II and I respectively. The contribution of hypertension to occurrence of abruptio placentae was shown by the high incidence of hypertension (55.9%) among pregnant women who developed this obstetric condition. Other workers have reported a similar finding [14, 15]. However, the relationship between hypertension and abruptio placentae remains controversial. It has been proposed that the elevation of blood pressure associated with the condition is an effect rather than a cause [16]. It is speculated that hypertension is caused by vasoconstriction secondary to haemorrhage or release of vasoconstrictive substances. It is believed that hypertension is a predisposing or causative factor in a significant proportion of patients who developed abruptio placentae; however future research is needed in this area.

Lack of antenatal care was the major risk factor in

Table 1: Relationship Between Maternal Age and Abruptio Placenta

Age (years)	With Abruptio	Without Abruptio	Odds Ratio
15 - 19	1	120	1.00
20 - 24	6	523	1.38
25 - 29	10	848	1.42
30 - 34	7	501	1.68
35 - 39	6	262	2.75
40 - 44	4	50	9.60
Total	**34**	**2,338**	

^{2} value for linear trend = 6.468, p = 0.011

Table 2 : The Relationship Between Parity and Abruptio Placenta

Parity	No of cases with abruptio	No without abruptio placenta	odds ratio
0	6	654	1.00
1	2	402	0.54
2	4	388	1.12
3	3	279	1.17
4	4	246	1.77
5	3	153	2.14
6e	12	172	7.60
Total	**34**	**2.338**	

^{2} value for linear trend = 20.226, p = 0. 001

Table 3: Relationship Between Antenatal Care Status and Abruptio Palcentae

ANC status	With Abruptio	Without Abruptio
ANC in JUTH	5	1,459
ANC elsewhere	26	\ 790
Did not have ANC	3	55
Total	**34**	**2,338**

^{2} value=35.33, 2df, p = 0.0002

Table 4 : Blood Pressure in Patients with Abruptio Placentae at Presentation

BP (Diastolic in mmHG)	Number of Cases	Percent (%)
90 - 109	10	30.40
≥ 110	9	25.50
≥ 90	14	41.20
Unrecordable	1	2.90
Total	**34**	**100.00**

the development of abruptio placentae in this . Other workers have reported a similar finding of high parity associated with abruptio placentae [8, 12, 13]. In most developing countries were women needs to go through several pregnancies and deliveries to maintain an on going family, a significant proportion of these women are at risk of developing this obstetric tragedy and may be journeying on the path to mortality. This finding underscores the importance of family planning as one of the pillars for safe motherhood. The third risk factor in the development of abruptio placentae found in this study was advanced maternal age. Other workers[8] have reported a similar finding of advanced maternal age greater than 35 years associated with abruptio placentae. This finding is in agreement with the fact that obstetric complications occur more commonly with advanced maternal age. This group of pregnant women should have antenatal care in tertiary centers for early detection of complications as well as instituting prompt interventions in order to prevent possible mortality.

For future research in this area, placental bed biopsies to examine the vascular abnormalities in cases of abruptio placentae will give a better understanding of how aging, high parity and hypertension predisposes pregnant women to placental abruption.

In conclusion, abrutio placentae is a significant cause of obstetric haemorrhage, which is a leading cause of maternal mortality in developing countries. Pregnant women who do not have antenatal care and of high parity, advanced age with hypertension are particularly at risk.

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