

Hypertensive disorders of pregnancy: A five-year review in Babcock University Teaching Hospital, Ilishan-Remo, Ogun State, Nigeria

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Abstract.

Objective: To determine the prevalence and outcome of hypertensive disorder of pregnancy in Babcock University Teaching Hospital, Ilishan-Remo, Ogun State Nigeria

Method: This was a retrospective descriptive study of all documented cases of hypertensive disorder of pregnancy between the 1st of June 2012 and 31st May, 2017. Information such as age, parity, booking status, level of education, blood pressure at presentation, urinalysis at presentation, gestational age at presentation, and delivery, mode of delivery, baby's birth weight was extracted from patients' case files.

Result: There were 1,118 deliveries during the study period out of which 55 (4.9%) patients had hypertensive disorders in pregnancy. The mean age was 31.5years \pm 48.1 and mean parity, 1.2 \pm 1.1. The mean systolic and diastolic blood pressures were 180.4 \pm 1.88mmHg and 105.1 \pm 1.5mmHg, respectively. Thirty-four (75.5%) of the women had preeclampsia/ eclampsia, while 7 (15.5%) had gestational hypertension. Most women were delivered preterm (22 patients, 48.7%). The majority of them (33, 73.3%) were delivered by cesarean section, out of which 2 (4.4%) were elective cesarean section and 31 patients (68.8%) were emergency cesarean section. The case fatality rate was 1.8%.

Conclusion:

Pre-eclampsia was the most prevalent t hypertensive disorder of pregnancy. It was more prevalent among primigravidae patients and the most common complication was preterm delivery. Strengthening antenatal care services will enable early identification of cases. Prompt referral of cases for specialist care will help in reducing the adverse outcomes associated with the condition.

Keywords: Hypertensive disorder, Pregnancy, Preeclampsia, Prevalence, Outcome

Background

Hypertension is the most common non-communicable disease in Nigeria (1). It is also the most common medical disorder of pregnancy worldwide (2). Hypertensive disorders of pregnancy are among the leading causes of maternal and perinatal deaths in developing countries. Globally, the prevalence of hypertensive disorder of pregnancy is 5.2-8.2% (3), and it contributes to 10%-15% of maternal death annually with the majority occurring in low

and middle-income countries (4). In Nigeria, 29% of all maternal deaths were attributed to Hypertensive disorders of pregnancy (5). Similarly, it accounts for 19-32% of all maternal deaths in South Africa making it the leading cause of direct maternal death (4).

In a study done in southern Nigeria, hypertensive disorder of pregnancy contributed to over a quarter of severe maternal outcomes (6). It is estimated that 5-10% of pregnancies in Nigeria are complicated by hypertensive disorders in

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pregnancy and it results in more admissions in the antenatal period than any other disorder (7, 8, 9, 10, 11). In Ogun State, pre-eclampsia accounted for 36.9% of maternal death (5).

Hypertensive disorders in pregnancy can be classified broadly into chronic hypertension, preeclampsia/eclampsia, pre-eclampsia superimposed on chronic hypertension, and gestational hypertension. Chronic hypertension refers to high blood pressure that either precedes pregnancy, is diagnosed within the first 20 weeks of pregnancy or does not resolve by the 12th week postpartum. Gestational hypertension is elevated blood pressure that develops after 20 weeks of pregnancy. Preeclampsia on the other hand refers to the development of hypertension and proteinuria after 20 weeks of gestation (12).

Hypertensive disorders of pregnancy are associated with increased risks of adverse maternal and fetal outcomes such as preterm delivery, intrauterine growth restriction, acute renal failure, acute hepatic failure, post-partum bleeding, and maternal mortality. These adverse outcomes commonly follow complications such as HELLP syndrome, disseminated intravascular coagulopathy, and seizures (13). The perinatal outcomes are often dependent on the gestational age at the onset of hypertension, the severity of hypertension, and the gestational age at delivery. Women who are affected by pregnancy-induced hypertension before their 37th week of gestation have poorer perinatal outcomes when compared with women who are affected at term (14).

Hypertensive disorder of pregnancy is an important cause of maternal mortality in this environment (15). Therefore, a continuous epidemiological survey to determine its prevalence, complications, and outcome is necessary. Thus, the purpose of this study is to determine the prevalence and outcome of hypertensive disorders of pregnancy in Babcock University Teaching Hospital.

Methods

This was a retrospective study of all cases of hypertensive disorders of pregnancy managed at Babcock University Teaching Hospital (BUTH) between 1st June 2012 and May 31st, 2017. Babcock University Teaching Hospital is a private tertiary hospital situated in Ikenne Local government, Ogun State. The hospital has various specialty units which include surgery (general surgery, Urology, Orthopedics, pediatrics surgery, Otolaryngology, anesthesia), internal medicine (endocrinology, cardiology, neurology, respiratory, nephrology), pediatrics

and neonatal unit and obstetrics and gynecology. Services rendered in Obstetrics and Gynecology include antenatal clinics, gynecology clinics, family planning units, and emergency obstetric services. The antenatal and postnatal ward has a total of 14 beds with 3 beds in the delivery suits. There were 1,118 deliveries in the period studied. The patients with a hypertensive disorder in pregnancy were identified by reviewing the antenatal ward admission book and the Labor ward register. Their case notes were retrieved by members of the research team from the medical records department and reviewed. Information such as age, parity, booking status, and level of education was extracted with the aid of a data capture sheet. The blood pressure at presentation, urinalysis at presentation, gestational age at presentation, and delivery, mode of delivery, and birth weight of babies delivered were also recorded on a data capture sheet.

Hypertension in pregnancy was defined as blood pressure greater than or equal to 140/90 mmHg. Preeclampsia was defined as hypertension in pregnancy with significant proteinuria which is equal to or greater than (2+) dipstick after the twentieth (20th) week of gestation. Chronic hypertension was defined as elevated blood pressure of equal to or greater than 140/90 mmHg before conception, before the 20th week of gestation or use of antihypertensive outside pregnancy. Eclampsia was defined as the presence of generalized Tonic-Clonic seizures on background preeclampsia¹¹.

The results were presented in tables. Categorical variables were summarized using frequencies and percentages while continuous variables were summarized using means.

Results

There were 1,118 deliveries between the 1st of June 2012 and 31st of May, 2017 out of which 55 patients (4.9%) were diagnosed as having hypertensive disorders in pregnancy. Ten out of the 55 case notes were not found, leaving 45 case notes (81.8%) for analysis.

The majority of the subjects, 23 (51.1%) were within the 25-34 years' age group, while 4 (8.9%) were under 20 years of age and 14 (31.1%) were between 35-44 years of age. The mean age of the subjects was 31.4±48.1 years. Twenty-two women (48.9%) were nulliparous while 6 (13.3%) were greater or equal to Para 3. The mean parity was 1.2±1.1. Twenty-three (51.1%) had tertiary education while 7 (15.6%) had no formal education. Thirty (66.7%) out of the cases

reviewed were unbooked while 15 (33.3%) were booked cases. The demographic data of the patients are presented in table 1.

Table 1: Sociodemographic characteristics of subjects

Characteristics	Frequency	Percentage
Age (years)		
15-24	7	15.6
25-34	23	51.1
35-44	14	31.1
≥45	1	2.2
Parity		
0	22	48.9
1	9	20.0
2	8	17.9
3	4	8.8
≥4	2	4.4
Level of education		
No formal education	7	15.6
Primary education	6	13.3
Secondary education	9	20.0
Tertiary education	23	51.1

The distribution of the various classes of hypertensive disorders is presented in table 2. The majority of the patients 34 (75.6%) had

preeclampsia/eclampsia while 7(15.6%) had gestational hypertension.

Table 2: Class of hypertensive disorders in pregnancy

Class of hypertensive disorder	Frequency	Percentage
Gestational hypertension	7	15.6
Pre-eclampsia/eclampsia	34	75.6
Chronic hypertension	1	2.2
Chronic hypertension with superimposed pre-eclampsia	3	6.6

The distribution of systolic and diastolic blood pressure in hypertensive mothers is illustrated in table 3. The mean systolic blood pressure was 180.4±1.88mmHg while that of diastolic blood

pressure was 105.1±1.46mmHg. Twenty-seven (60%) of women diagnosed with the hypertensive disorder in pregnancy had significant proteinuria.

Table 3: Distribution of blood pressure

Systolic blood pressure (mmHg)	Frequency	Percentage
<140	2	4.4
140-160	19	42.2
161-180	13	29.0
>180	11	24.4
Diastolic blood pressure(mmHg)		
<90	5	11.1
90-109	19	42.2
≥110	21	46.7

Seventeen patients (37.8%) presented after 37 weeks' gestation while 19 patients (42.2%) were delivered after 37 weeks (table 4). The mean birth weight of babies in hypertensive mothers was 2.3± 1.1kg. Five babies (11.1%) had 5 minutes

Apgar score less than 7 which indicates birth asphyxia. Thirty-three (73.3%) had delivery by cesarean section out of which 2 (4.4%) whereby elective cesarean section and 31(68.9%) by emergency cesarean section. Ten women

(22.2%) had spontaneous vertex deliveries, 2 (4.4%) had instrumental vaginal deliveries while

6 (13.3%) had induction of labor on account of hypertensive disorders in pregnancy.

Table 4: Gestational age at presentation and delivery

Gestational age at presentation	Frequency	Percentage
< 28	1	2.2
28-34	10	22.2
35-37	12	26.7
>37	17	37.8
Postpartum	5	11.1
Gestational age at delivery		
< 28	None	0.0
28-34	9	20.0
35-37	13	28.9
>37	19	42.2
Not documented	4	8.9

Table 5 shows the complications associated with hypertensive disorders in pregnancy. There were 17 (37.7%) cases of preterm deliveries, 11

(24.4%) had low birth weights and there were 6 (13.3%) cases each of both abruption placentae and intrauterine fetal deaths.

Table 5: Complications associated with the hypertensive disorder in pregnancy.

Complications	Frequency	Percentage
Preterm delivery	17	37.7
Low birth weight	11	24.4
Abruption placenta	6	13.3
Intrauterine fetal death	6	13.3
Acute renal failure	4	8.9
Intrauterine growth restriction	4	8.9
HELLP syndrome	3	6.7
Pulmonary edema	2	4.4
Maternal mortality	1	2.2

Discussion

The prevalence of hypertensive disorders of pregnancy was 4.9% in this study. This is similar to a prevalence of 5.3% which was reported in a study conducted in a teaching hospital in Sagamu, Nigeria (1). Other studies in Nigeria have reported prevalence ranging from 5-10% (7, 8, 9, 10). However, the prevalence from this study is lower than the rate of 10.3% reported in a community-based study in Ogun State (5). This may be an indication of the huge burden of the disease at the community level where facilities necessary for the proper management of the condition are lacking. In essence, those that present at teaching hospitals may represent just be the tip of the iceberg. It is thus necessary to train community-based health workers to identify and triage cases of hypertensive disorders of pregnancy for their referral to secondary and tertiary hospitals where they could be more effectively managed.

The mean age of 31.4 years, age-range, and parity distribution of the subjects are similar to

findings from other studies (5). This corroborates the fact that hypertensive disorders are more common in primigravidae patients (15).

The mean systolic blood pressure for the women was 180.4 ± 1.88 which is significantly higher compared to observation in Calabar¹⁶ but similar to that of Sagamu (5). The mean diastolic blood pressure of 105± 1.46 is similar to another study (15). The mean birth weight of the study group was 2.3kg which was slightly lower compared to similar studies with a mean birth weight of 2.5-2.7kg (1, 6, 16). This could be because most of the deliveries were preterm in this study; hypertensive disorder of pregnancy is a common factor for preterm deliveries (17).

About 75.6% of the patients with hypertensive disorder of pregnancy had pre-eclampsia which is in contrast to other studies in which the proportion of gestational hypertension in pregnancy seems to be the commonest disorder in the spectrum (14, 15). This could be attributed to the delay in referral of patients to this center as most of the women studied were not booked in

this facility. Furthermore, the role of quality antenatal care in early detection and management of hypertensive disorders of pregnancy cannot be overemphasized. In Nigeria, only half of the pregnant women have at least 4 antenatal clinic visits and the quality of care received during these visits have been observed to be suboptimal especially in primary health centers (18). There is a need for strengthening antenatal care services to enable early identification and triage of women with hypertensive disorders of pregnancy for specialist care.

In our study, almost three-quarters of the patients with hypertensive disorders of pregnancy had a cesarean delivery. Other studies (6, 19) have also corroborated this finding. Timely delivery is an essential component of the management protocol in women with hypertensive disorders of pregnancy. This could be by induction of labor or by cesarean section. The severity of the condition at presentation often determines the preferred mode of delivery. About half of the women in this study had features of severe hypertension at presentation. This could be partly responsible for the high cesarean section rate. There was one case that resulted in mortality in this study. The patient had severe pre-eclampsia complicated by HELLP syndrome which eventually led to disseminated intravascular coagulopathy. The case fatality rate of 1.8% is lower compared to a study conducted in Sagamu (20). This may be attributed to low cases in this study compared to that of Sagamu.

Due to the retrospective nature of this study, assessments relied on records that may not be accurate. Also, casual relationships with hypertensive disorders of pregnancy could not be assessed. The other limitation of this study is the low number of identified cases which may affect the precision of the study. Some case notes were missing which precluded the analysis of almost 20% of the cases.

Conclusion

The prevalence of hypertensive disorder of pregnancy is similar to reports from other studies in Nigeria. However, pre-eclampsia was more prevalent than other categories of hypertensive disorders of pregnancy. Hypertensive disorder of pregnancy was more prevalent among primigravidae and the most common complication was preterm delivery. Strengthening antenatal care services will enable early identification of cases. Prompt referral of cases

for specialist care will help in reducing the adverse outcomes associated with the condition.

Declaration

Ethical approval and consent to participate

Permission was obtained for the Director of Clinical Sciences, Babcock University Teaching Hospital to assess medical records of patients. Data extraction was done in strict compliance with confidentiality.

Consent for Publication

The authors hereby transfer all copyright ownership exclusively to the journal, if this work is published by the journal.

Conflict of Interest

The authors have declared no conflict of interest.

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Authors Contributions

AO and AA conceived the concept of the research, drafts were written and reviewed by all authors.

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