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Original Research Article

Eclampsia: a comparative study in a tertiary hospital setting in South-South Region of Nigeria

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ABSTRACT

Background: Eclampsia remains a leading cause of maternal and perinatal morbidity and mortality often in settings of poor health seeking behaviour and services. Objective of this study was to determine the incidence, investigate the risk factors, obstetric outcomes and suggest ways of improving the impact of eclampsia.

Methods: An analytical observational study on consecutive cases of eclampsia managed in a tertiary hospital setting from 2014 to 2019. For each case of eclampsia recruited the next gestational hypertensive and normotensive cases managed in the period were recruited to serve as controls. Computer statistical software, Chi square for test of associations were used for analysis with statistical significance set at $p < 0.05$.

Results: Among 3625 deliveries within the study period were 57 cases of eclampsia; an incidence of 1.57%. Most (74.4%) were antepartum eclampsia. Majority of the eclamptic mothers were unbooked (81.4%), of lower social class (86.0%), poorly educated (81.4%) and nulliparous (58.1%). Eclamptic mothers were more likely to be youth ≤ 24 years (39.5%), teenagers (25.6%), and unmarried. Twenty-four (55.8%) had abdominal delivery, anaemia (23.3%) and were transfused. Three women died from eclampsia; a case fatality of 6.98%. Twenty-four (55.8%) neonates were preterm, low birth weight (48.8%), intrauterine growth restriction (25.6%), special care baby unit admission (32.6%) and perinatal mortality 13 (30.2%).

Conclusions: Eclampsia is still an un-mitigating malady in this study settings with increased maternal and perinatal complications. Nulliparity, low social status, young age and lack of prenatal care appeared significant risk factors. Quality prenatal care, early detection and management of pre-eclampsia will mitigate eclampsia occurrence and severity. Women empowerment is proffered.

Keywords: Eclampsia, Incidence, Maternal, Nigeria, Outcome, Perinatal, Risk factors

INTRODUCTION

Eclampsia remains a leading maternal morbidity and a major cause of maternal and perinatal death mostly in settings of poor healthcare services and or health seeking behaviour. It is basically grand mal seizure disorder in pregnancy occurring in a background of gestational hypertension and absence of other known causes of seizure. The aetiology of pre-eclampsia-eclampsia is poorly understood and largely shrouded in theories.

Eclampsia is part of the end of the spectrum of pre-eclampsia thought to be associated with hypertensive encephalopathy, cerebral vasospasm, ischemia, vasogenic oedema and endothelial damage.^{1,2} Eclampsia is evidently preventable pregnancy-related disorder globally known to be more prevalent in low resource settings and rare in industrialized countries. The incidence of gestational hypertension unlike its complication eclampsia is about uniform globally. Eclampsia is rare and almost stable at 4-5 cases per 10,000 live births in industrialized countries

like the United States of America and the United Kingdom but common at 6-100 cases per 10,000 live births in developing countries.² Its morbidity is multisystem resulting in acute renal damage, cardiopulmonary, hepatic, haematological and placental dysfunction. The resultant placenta dysfunction accounts for poor foetal outcome. Eclampsia accounts for 50,000 maternal deaths annually globally.³ There has been a number of identifiable risk factors for eclampsia.^{4,5} Its incidence varies from one society to another just as the outcomes.^{4,5} The observed regional differences are not biological but related to behavioural and healthcare delivery system. Relative high occurrence and worse outcome in developing countries can be attributed to the lack of prenatal care largely due to limited accessibility and affordability of health care, late referral and high patronage of non-orthodox health care in developing countries. Regional documentations of the risk factors, incidence and outcomes of eclampsia will not only help in providing national data but add to the global body of knowledge and strategies to curb its impact.

METHODS

An analytical observational study of cases of eclamptic mothers as the study group with those of gestational hypertension and normotensive mothers respectively as the control groups to enable exploration of risk factors and the effects of eclampsia by comparisons was conducted between 2014 and 2019 at Niger Delta University Teaching Hospital (NDUTH), Bayelsa State in Nigeria. The study centre is a tertiary health institution with the major roles of teaching, research and health services. The study was in the obstetrics and gynecology department of the hospital. The centre is domicile at Bayelsa state as the leading referral centre to other health facilities within and outside the state. Bayelsa State is one of the oil-rich states of the Niger delta region of Nigeria. The Izons are the dominant ethnic group with residents from other parts of Nigeria and the globe. The traditional occupations are farming, fishing and trading. Data were collected on each case of eclampsia managed within the study timeline. For each case of eclampsia recruited, the next eligible cases of gestational hypertension and normotensive mothers were similarly respectively recruited for comparison. Each participant's case file, labour ward and obstetric theatre records were reviewed for data on sociodemographic (age in years, parity, marital status, educational status, spouse occupation), maternal and perinatal complications. The social class was determined according to Olusanya et al but sub grouped into upper class (classes I and II) and lower class (classes III, IV and V).⁶ Pregnancies complicated by eclampsia, gestational hypertension and normotensive ones managed at the study centre within the study period were eligible to be included in the study. Cases of chronic hypertension, unexplained proteinuria in pregnancy and multifetal pregnancies were excluded from the study. Every known unrelated neurological disorder like epilepsy in pregnancy was also excluded from the study.

Gestational hypertension was blood pressure $\geq 140/90$ mmHg with or without significant proteinuria (catheter specimen of urine with at least one + of proteinuria with dipstick or 300 mg/24-hour urine) first noted in the second half of pregnancy (≥ 20 weeks) in a mother previously normotensive and non-proteinuric. Eclampsia is seizure activity or coma unrelated to other cerebral conditions in an obstetric patient with gestational hypertension. Normotensive cases had neither gestational hypertension nor eclampsia. All the deliveries that took place in the study period were noted. The process of data collection did not involve subject identifiers therefore did not require individual subject consent.

Statistical analysis

The data was collated in EPI Info computer software used for analysis. Fisher's exact statistical package was used for test of associations of proportions of categorical variables as odd ratio while univariate analysis as frequency, mean and standard deviation for continuous variables. Student's t-test was used for comparison of the mean. Statistical significance was set at $p < 0.05$. The relative risks of eclampsia were estimated as odds ratios (OR).

RESULTS

There were 57 cases of eclampsia among 3625 deliveries, an incidence of 1.57%. Only 43 case files could be retrieved or had complete data for analysis 75.4% retrieval rate and these were used for subsequent analysis. Thirty-two (74.4%) of these had eclamptic fits before onset of labour, six (14.0%) intrapartum while five (11.6%) had it postpartum.

Table 1 shows the characteristics of the participants. The participants who suffered eclampsia were significantly younger than the control counterparts $p < 0.001$. Relative to gestational hypertension group, there were fourteen-fold likelihood of teenagers in study group and this increased to over thirty-two folds when compared with normotensive group. These findings were statistically significant $p < 0.01$. The study group was more than eighteen-fold at increased likelihood of being unmarried relative to gestational hypertensive group and about six-fold to the normotensive group. The observed differences were statistically significant $p < 0.01$.

Though, the participants were on average comparable in parity ($p > 0.05$), the study group compared with the gestational hypertensive group was about thrice (OR 2.9, $p = 0.03$) and fivefold (OR 5.6, $p = 0.0004$) with normotensive group, more likely to be nulliparous. Though the study group was comparable educationally with control groups, it was more than doubled and insignificantly more likely to be of lower educational level than the normotensive group ($p > 0.05$). The study group was more than fourfold more likely to be unbooked for prenatal care relative to control groups. The observed

difference was statistically significant $p < 0.01$. The study group had insignificantly shorter interpregnancy interval

relative to gestational hypertensive control group but longer than normotensive group $p > 0.05$ respectively.

Table 1: Characteristics of participants and risk of eclampsia N=131.

Characteristic	Variable	Eclampsia n=43 (%)	GHPN n=43 (%)	Normotensive n=45 (%)	EC versus GHTN OR: p-value	EC versus NTN OR: p-value
Age (years)	≤19	11 (25.6%)	1 (2.3%)	0 (0%)	14.4: 0.003	32.2: 0.002
	20-24	6 (13.9%)	4 (9.3%)	7 (15.6%)		
	25-29	8 (18.6%)	7 (16.3%)	7 (15.6%)		
	30-34	9 (20.9%)	13 (30.2%)	17 (37.8%)		
	≥35	9 (20.9%)	18 (41.9%)	14 (31.1%)		
	Mean±SD	27.1±8	32.1±6.5	32.0±5.6		
Marital status	Unmarried	13 (30.2%)	1 (2.3%)	3 (6.7%)	18.2: 0.007	6.1: 0.005
	Married	30 (69.8%)	42 (97.7%)	42 (93.3%)		
Parity	0	25 (58.1%)	14 (32.6%)	9 (20.0%)	2.9: 0.03	5.6: 0.0004
	≥1	18 (41.9%)	29 (67.4%)	36 (80.0%)	p=0.53	p=0.15
	Mean±SD	1.5±2.5	1.8±1.9	2.2±2.0		
Social class	Upper	6 (14.0%)	12 (27.9%)	13 (28.9%)	0.42: 0.18	0.40: 0.12
	Lower	37 (86.0%)	31 (72.1%)	32 (71.1%)		
Education	≤2 ⁰	35 (81.4%)	26 (60.5%)	29 (64.4%)	2.9: 0.06	2.4: 0.10
	>2 ⁰	8 (8.6%)	17 (39.5%)	16 (35.6%)		
Booking status	Unbooked	35 (81.4%)	21 (48.8%)	5 (11.1%)	4.6: 0.003	35.0: 0.0001
	Booked	8 (18.6%)	22 (51.2%)	40 (88.9%)		
Interpregnancy interval	Mean±SD	46.1±29.5	67.9±45.9	39.6±20.2	p=0.10	p=0.34

GHTN: Gestational hypertension, EC: Eclampsia, NTN: Normotensive.

Table 2: Maternal outcomes in the participants N=131.

Variables	Eclampsia n (%)	GHPN n (%)	Normotensive n (%)	EC versus GHTN OR: p-value	EC versus NTN OR: p-value
Mean SBP (Hg)	182.6±32.0	173.7±27.3	115.1±12.4	p=0.17	p<0.0001
Mean DBP (Hg)	114.2±24.6	107.3±17.3	72.2±11.1	p=0.14	p<0.0001
Caesarean section	24 (55.8%)	35 (81.4%)	6 (13.3%)	0.29: 0.02	8.2: 0.0001
Anaemia	10 (23.3%)	5 (11.6%)	1 (2.2%)	2.3: 0.26	13.3: 0.003
Acute renal failure	1 (2.3%)	0 (0.0%)	0 (0.0%)	-	-
Thrombocytopenia	1 (2.3%)	0 (0.0%)	0 (0.0%)	-	-
Cerebrovascular accident	1 (2.3%)	0 (0.0%)	0 (0.0%)	-	-
Long hospital stays	19 (44.2%)	13 (30.2%)	3 (6.7%)	1.8: 0.26	11.1: 0.0001
Postpartum haemorrhage	2 (4.7%)	7 (16.3%)	1 (2.2%)	0.25: 0.16	2.2: 0.61
Pulmonary oedema	1 (2.3%)	1 (2.3%)	0 (0.0%)	-	-
Transfusion	10 (23.3%)	16 (37.2%)	2 (4.4%)	0.51: 0.24	6.5: 0.013
LGT laceration	0 (0.0%)	0 (0.0%)	1 (2.2%)	-	-
Puerperal sepsis	1 (2.3%)	1 (2.3%)	0 (0.0%)	-	-
Mortality	3 (6.98%)	0 (0.0%)	0 (0.0%)	-	-

GHTN: Gestational hypertension, EC: Eclampsia, NTN: Normotensive.

Table 2 shows maternal complications of the participants. The study group has similar mean blood pressure to gestational hypertensive group ($p > 0.05$) but significantly higher than that of normotensive group; systolic blood pressure (SBP) 182.6 versus 115.1 mmHg and diastolic blood pressure (DBP) 114.2 versus 72.2 mmHg, $p < 0.001$.

Twenty-five (58.1%) of the eclamptic mothers had severe hypertension with diastolic blood pressure (DBP) ≥ 110 mmHg while 35 (81.4%) had systolic BP ≥ 160 mmHg. The composite complications for the participants was 72 (167.4%) versus 78 (181.4%) versus 14 (13.1%) for eclampsia, gestational hypertensive and normotensive

groups respectively. Twenty-nine of the eclampsia group had $\geq 2+$ proteinuria. The study group was approximately 70% less likely but more than eight-fold more likely to deliver per abdomen when compared with the gestational hypertensive and normotensive subsets respectively. The observed differences were significant $p < 0.01$. Sixteen (12.2%) of the participants suffered anaemia consisting of 10 (23.3%) of study group, five (11.6%) of gestational hypertensive and one (2.2%) of normotensive groups respectively. The observed differences were similar but noteworthy when the study group was related to the control groups $p = 0.26$ and $p = 0.003$ respectively. The data also showed that relative to the gestational hypertensive group, the study group was about 73% less likely to suffer postpartum haemorrhage but more than doubled the risk when compared with the normotensive group. Nonetheless the observed differences were not significant $p > 0.05$. This further reflected in the risk of blood

transfusion among the subgroups with reduced risk relative to gestational hypertensive but increase to about sevenfold and significant with normotensive subgroup $p = 0.013$. Though the eclamptic group has about double the likelihood of long hospital stay relative to gestational hypertensive group, nonetheless this was not statistically significant (OR:1.8, $p = 0.26$). On the contrary this likelihood increased to about eleven-fold and was significant when the former was compared with the normotensive group (OR: 11.1, $p < 0.001$). The study group suffered acute renal failure ARF (2.3%), pulmonary oedema (2.3%), cerebrovascular accident (2.3%), thrombocytopenia (2.3%) and 3 (6.98%) died from eclampsia. On the contrary, with the exception of one case of gestational hypertension group complicated by pulmonary oedema, none of the control groups had any of these complications or suffered mortality.

Table 3: Perinatal complications of participants N=131.

Variable	Eclampsia n=43 (%)	GHPN n=43 (%)	Normotensive n=45 (%)	EC versus GHTN OR: p-value	EC versus NTN OR: p-value
Mean delivery GA (weeks)	34.6 \pm 4.5	35.6 \pm 4.3	39.0 \pm 2.7	>0.05	<0.001
Mean birth weight (gms)	2294.4 \pm 975	2416.5 \pm 984.3	3161.1 \pm 489.0	>0.05	<0.001
ENND	4 (9.3%)	2 (4.7%)	0 (0.0%)	2.1: 0.68	10.4: 0.05
FSB	7 (16.3%)	5 (11.6%)	0 (0.0%)	1.5: 0.76	18.7: 0.005
MSB	2 (4.7%)	1 (2.3%)	0 (0.0%)	2.0: 1.0	-
Preterm birth	24 (55.8%)	24 (55.8%)	7 (15.6%)	1.0: 1.17	6.9: 0.001
A/S <7 at 5 min	18 (41.9%)	13 (30.2%)	1 (2.2%)	1.7: 0.37	31.7: 0.0001
Low birth weight	21 (48.8%)	24 (55.8%)	3 (6.7%)	0.76: 0.67	13.4: 0.0001
SGA	11 (25.6%)	12 (27.9%)	0 (0.0%)	0.89: 1.0	-
Stillbirth	9 (20.9%)	6 (14.0%)	0 (0.0%)	1.6: 0.57	-
SCBU admission	14 (32.6%)	14 (32.6%)	1 (2.2%)	1.0: 1.2	-
Perinatal death	13 (30.2%)	8 (18.6%)	0 (0.0%)	1.9: 0.32	-

GHTN: Gestational hypertension, EC: Eclampsia, NTN: Normotensive.

Table 3 shows the perinatal complications of the participants. There was statistically significant difference in the gestational age at delivery of the neonates of the three subsets of the participants ($p < 0.001$). However, the neonates were born to the eclampsia and gestational hypertensive groups at similar gestational age ($p > 0.05$). This reflected in their different relative birth weights ($p > 0.05$) and ($p < 0.001$) respectively. There were 13 (30.2%) perinatal death in eclampsia group; an approximately twice that in the gestational hypertensive group and none occurred in the normotensive group. Preterm birth was high among the eclampsia group at 55.8% similar to gestational hypertensive group ($p > 0.05$) but significantly higher than in normotensive (OR 6.9, $p < 0.001$). The rate of poor Apgar score at 5 minute at 41.9% among neonates born to the mothers in the eclampsia group was higher than the rate in the gestational hypertensive group though there was no statistical difference ($p = 0.37$). On the contrary the rate in the study group became significantly higher when

compared with the rate in the normotensive subset $p < 0.001$. Low birth weight rate was 48.8% among neonates of eclampsia group and statistically similar to those of gestational hypertensive group but significantly higher than normotensive group $p < 0.001$. Small for gestational age neonates were recorded in 25.6% of the eclampsia group and this was statistically similar to that in the gestational hypertensive group. Special care baby unit admission (SCBU) was 32.6% in both the eclampsia and gestational hypertensive groups respectively.

Twenty-four (55.8%) versus 24 (55.8%) versus 7 (15.6%) of the new-borns of the eclampsia, the gestational hypertensive and the normotensive mothers respectively were delivered preterm (Figure 1). The eclampsia group had the highest incidence of extreme preterm delivery (11.5%) The new-borns delivered at ≥ 37 weeks were 19 (44.2%) in eclampsia group, same in gestational hypertensive group and 38 (84.4%) in normotensive group.

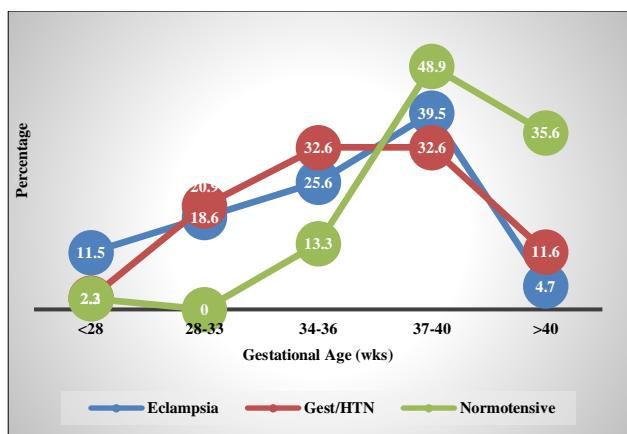


Figure 1: Gestational age at delivery of neonates by subsets of participants.

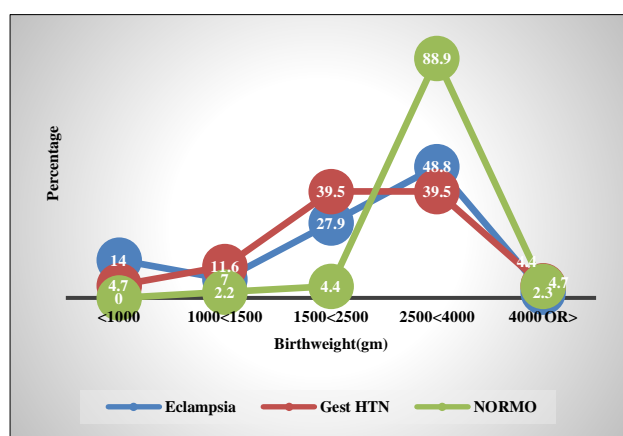


Figure 2: Birth weight of neonates by subsets of participants.

Figure 2 shows the birth weight of participants' new-borns. Twenty-one (48.8%) of the new-borns of the eclampsia group were low birth weight compared with 24 (55.8%) and 3 (6.7%) for gestational hypertensive and normotensive control groups respectively. Twenty-two (51.2%), 19 (44.2%) and 42 (93.3%) of the new-borns of the eclampsia group, gestational hypertensive and normotensive weighed ≥ 2500 grams at birth respectively.

DISCUSSION

The incidence of eclampsia in this data was 1.57% .This was lower than 1.99% in Benin city, 1.7- 2.1% in South West 4.4% in a 10-year data in northern Nigeria and 2.45% from Southeast Nigeria, higher than 0.64-1.48% in India, 1.12-1.25% from another report from southeast Nigeria and comparable to 1.32% reported in Gwagwalada an area council in Abuja, the Federal capital territory (FCT) of Nigeria and another report from Benin city 1.32%.^{1,4,5,7-14} This was however higher than 0.76% by another team of researchers from Abuja Metropolitan area of FCT Nigeria.¹⁵ The latter was based only on the data from intensive care admissions unlike the study data that included all the eclampsia cases managed in the

study period at the centre. The case fatality of 6.98% was higher than a maximum of 1% recommended by United Nations.¹⁶ The incidence was higher than 0.47 per 10,000 maternities in UK and 0.5-2% of the 5% cases of pre-eclampsia that progress to eclampsia in the United State.^{3,17} The majority (74.4%) of the eclampsia cases in this study were antepartum. This was similar to reports from Sokoto in northwest of Nigeria, Abuja the FCT of Nigeria, Nnewi in the Southeast and Benin city in South-south.^{4,7,18-21} This was however lower than reports from India where about nine out of every ten cases were antepartum eclampsia.^{1,11,12} This was in contrast to a report from northern Nigeria where the majority of the eclamptic fits were intrapartum.⁹ Most of these women in this study data did not benefit from prenatal care for early detection and management at pre-eclamptic stage before progression to eclampsia. They were largely referred cases following eclamptic fits. Mothers in this setting tend to preferably access traditional birth attendance (TBA) homes, health centres and private health facilities for reasons of proximity and affordability and are largely referred for quality care late. For instance, each of the five cases of postpartum eclampsia in this data delivered at home or TBA homes and were brought in only at antecedent fits. Similarly, the intrapartum cases presented following fits in labour outside the study centre. The pre-eclamptic women who present at the study centre before fit are proactively managed among other measures with the adequate dose of magnesium sulphate to prevent fits. It is evident from the Magpie trial; a randomized placebo controlled trial that magnesium sulphate given in labour and for at least 24 hours postpartum will reduce by more than half (58%) the risk of eclampsia in severe preeclampsia or imminent eclampsia.²² The mean age of the mothers managed for eclampsia in study data was 27.1 years and was comparable to that of other researchers.^{5,7,14,15} This was higher than the mean age reported in another study.^{9,11,12} The cases in study data were mostly young mothers (39.5%) especially the teenagers who constituted 25.6% of all the cases corroborating other reports.^{7,8,11,23,24} This was in contrast to higher age incidence reported by other researchers.^{4,19-20} The teen mothers and those ≥ 35 years belong to the groups at the extremes of reproductive age profusely associated in the literature with increased risk of preeclampsia-eclampsia.³ especially if it were first delivery. Mothers who were unbooked and did not have prenatal care were more prone to eclampsia in-keeping with other reports.^{7,12,22,23} Early detection and quality care of cases of pre-eclampsia not only reduces the incidence but the adverse outcomes of eclampsia. This explains the relative low incidence of eclampsia in industrialized societies with high level of maternal awareness and quality healthcare system. Eclampsia has been largely associated with inadequate prenatal care and high prevalence of poverty. This was corroborated in this data by the high incidence of the disorder among the mothers with low socioeconomic state similar to other reports in the literature.^{24,25} Eclampsia was recorded mostly (58.1%) among the nulliparous mothers and this was comparable

to the reports from southeast Nigeria, southwest Nigeria, Benin city and FCT Abuja Nigeria corroborating other reports in the literature.^{3,4,7,8,10,17,20,21} This was however, lower than the reports from northern Nigeria and India.^{9,11} Study data showed that mothers who were unmarried, poorly educated, of low socioeconomic status therefore mostly unsupported and subsequently lacked quality prenatal care were the candidates for eclamptic fits, thus supporting other reports.^{5,9,23,24} Most (58.1%) of the eclamptic mothers in this data had severe hypertension with diastolic blood pressure of ≥ 110 mmHg on diagnosis and admission. This was comparable to other reports where 48.5-69.6% cases of eclampsia had severe hypertension.^{1,4}

In this data, three eclamptic mothers each respectively had acute pulmonary oedema, acute renal failure and cerebrovascular accident. Three of the eclamptic mothers died, a case fatality of 6.98%. This was higher than 3.57% in India¹² and lower than 8.3-20.0% in South West Nigeria 8.5-28.2% in FCT Abuja Nigeria and 17.9-22.3% in the northern Nigeria, 10.7-15.96% in Benin City and 9.3-17.7% in the southeast region.^{4,5,7-9,14,15,20,21,26} The observed difference in case fatality can be ascribed to the promptness in presentation and diagnosis coupled with the level of aggressiveness and quality of management of the cases. The longer the time interval of the onset of fits and or the higher the number of the fit episodes before commencement of quality intervention the worse the maternal outcome and higher the mortality in eclampsia. Most of the women in this study data were referred in advanced state of the disorder. In the United States, eclampsia related maternal death has been brought below 1% for reasons of the promptness at presentation of cases and the quality of the care given.³

Quality prenatal care offers not only health talks on the right nutrition among other issues, but provides malaria chemoprophylaxis, hematinic, vitamins and other minerals to the deficiency of which some workers directly or indirectly ascribed the trigger role for eclampsia.^{24,27,28}

A minimum of four prenatal care visits has been recommended by World Health Organization (WHO) for maternal and foetal wellbeing.^{11,29} One particular study ascribed increased risk of preeclampsia to diet pattern high in processed meat, salty snacks and sweet drinks while diets on vegetables, fruits, vegetable oil, plant foods, are noted to be protective against preeclampsia.³⁰ Quality prenatal care inter alia, entails a combination of a compliant client and dedicated health provider to ensure regular evaluation to promptly detect rising blood pressure, proteinuria and prompt care before progression to seizure.

The majority of eclampsia group had caesarean delivery (55.8%). This corroborated similar findings of 54.2-74.6% in other reports.^{5,11,20} This was, however, in contrast to reports of fewer caesarean deliveries than

vaginal deliveries.^{12,13} The high rate of caesarean delivery was in an effort to save the salvageable preterm neonates and those with foetal distress frequent in cases of eclampsia. Most of the eclamptic mothers with viable fetus and unfavorable cervix are stabilized clinically and delivered by the safest and fastest route, in this case, largely caesarean section as many of the eclampsia cases are remote from term and are not in labour. Mothers who suffered eclampsia stayed longer in hospital admission due to high rates of preterm birth and severe maternal complications. Eclampsia is a significant contributor to iatrogenic preterm delivery (55.8%) in this data. This was comparable to the report by other researchers.²⁰ It was evident that the neonates of eclamptic mothers that were delivered by caesarean section had better neonatal survival when compared with those who had vaginal delivery.^{5,7} There was increased prevalence of anaemia among the eclampsia group corroborating another report.²⁴

This can be attributed to the increased incidence of caesarean delivery in the subset. About two out of every five neonates delivered to mothers who had eclampsia in this study data, required admission into special care baby unit (SCBU).

The various indications for special care baby unit admission from this study data included the over half of the neonates delivered preterm and premature (55.8%), about half that had birth asphyxia (41.9%), low birth weight (48.8%) and a quarter (25.6%) that suffered intrauterine growth restriction (IUGR). Eclampsia has been associated with high rates of preterm birth.^{1,14,20} This coincided with the high rate of prematurity recorded among the neonates of mothers who had eclampsia in this study. The high rate of perinatal death in eclampsia was attributable to the high incidence of prematurity inherent in neonates delivered to eclamptic mothers.

This is because the timely termination of pregnancy complicated by severe pre-eclampsia - eclampsia marks the beginning of the recovery from the eclampsia malady. Perinatal mortality of 30.2% in this study was comparable to 31.03% by another report¹, higher than 21.4-24.1%, but lower than a report from another region in Nigeria.^{5,9,14}

Values as high as 12% perinatal death is still obtainable in developed countries³ making eclampsia one of the leading global causes of perinatal morbidity and wastage. This study drew its strength in its study design and the randomized sampling technique. The conclusions thereof would have been more generalizable if the study were multicenter and data prospectively generated.

CONCLUSION

Eclampsia is a pregnancy-specific disorder with increased incidence and adverse obstetric outcome largely among young, unbooked, unmarried, poorly educated, low class

and nulliparous mothers. Women empowerment, family planning services for pregnancy timing, quality prenatal care to ensure early detection and management of preeclampsia before it progresses to eclampsia and its adverse outcome will substantially mitigate the negative impact of eclampsia to the level as obtains in the developed countries.

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