

Original Research Article

Eclampsia at the university of Abuja teaching hospital: a ten-year review

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ABSTRACT

Background: Worldwide, eclampsia remains one of the major causes of maternal and perinatal morbidity and mortality. Pre-eclampsia/eclampsia is a multisystem disease and despite extensive research, no definitive etiology has been identified. This disease therefore continues to pose a challenge in obstetric practice, especially in developing countries like ours. We therefore set out to determine the prevalence, associated factors, and outcome of eclampsia at the University of Abuja Teaching Hospital, Abuja, Nigeria.

Methods: A descriptive retrospective review of cases of eclampsia managed at the University of Abuja Teaching Hospital, Abuja over a 10-year period. The case notes of these women were retrieved, and relevant data obtained included age, parity, booking status, type of eclampsia, gestational age at presentation, mode of delivery, maternal and perinatal outcome variables. Data was analysed using the statistical package for social sciences (SPSS Inc, Chicago) version 20 and outcome variables represented in simple percentages.

Results: Of the 22,945 deliveries conducted during that period, 257 cases of eclampsia were managed, putting the prevalence of eclampsia at 1.12%. Of these, 90.5% were unbooked, 67.6% were primigravidae and 88.2% were below 30 years of age. Antepartum eclampsia was the commonest form, occurring in 67.6% of the patients. Caesarean section was the mode of delivery in 82.2% of cases. Maternal and perinatal mortality were 4.6% and 11.1% respectively.

Conclusions: Eclampsia is still a major cause of maternal and perinatal morbidity and mortality in our environment. One intervention to reduce its impact is education on the importance of antenatal care attendance. It's also pertinent that this basic form of care be made more affordable and more easily accessible to those women who are socially disadvantaged.

Keywords: Eclampsia, Maternal mortality, Maternal morbidity, Perinatal outcome

INTRODUCTION

The International Society for the Study of Hypertension in Pregnancy (ISSHP) defines eclampsia as 'the occurrence of new-onset, generalized, tonic-clonic convulsions or coma in a woman with preeclampsia during pregnancy, labour or within 7 days of delivery and not caused by epilepsy or other convulsive disorders'.¹ It is termed atypical eclampsia when convulsion occur after

seven days of delivery or in absence of hypertension.^{1,2} Eclampsia remains one of the leading causes of maternal mortality and accounts for approximately 50,000 maternal deaths annually worldwide.³

In recent times, death rates have been significantly reduced in developed countries but still remain high, as much as 10-15% in low and middle income countries.⁴ Rates as high as 17% were reported in a study in South

Africa while other studies done in the Western and Eastern parts of Nigeria have reported similar death rates ranging from 12.4%-16.9%.⁵⁻⁸ A much more higher rate of 46.4% was however reported in Northern Nigeria.⁹ Reasons for these high figures still border around prevailing poor socio-economic standards coupled with unavailability or poor access to effective medical care. The prevalence of stillbirths and neonatal deaths in mothers who suffered eclampsia was 22.2/1000 and 34.1/1000 respectively in the UK with a higher incidence in developing countries.² The prevalence of eclampsia in our environment varies. Rates of 1.66% and 0.44% were reported in Lagos, Western Nigeria and Enugu, Eastern Nigeria respectively.^{10,11} In developed countries, its prevalence ranges from 0.02 to 0.08%.¹²

Pre-eclampsia is a multisystem disease and despite extensive research, no definitive etiology has been identified.^{3,9,13} The pathogenesis of eclamptic seizure is also poorly understood however, the possible causes of seizures include platelets thrombi, hypoxia due to localized vasoconstriction and foci of haemorrhage in the cortex.^{1,14,15} There are also suggestions that it could be attributed to acute rise in blood pressure leading to loss of cerebral blood flow autoregulation and hyper perfusion of the brain, leading to vasogenic edema formation and subsequent seizure.¹⁶ There is on the other hand a poor correlation between occurrence of seizures and severity of hypertension, making it hard to predict which pre-eclamptic woman may go on to convulse. Seizure may therefore occur in patients with only mild hypertension.¹

The present management of eclampsia aims to stop the convulsions and prevent recurrence, control the blood pressure, correct fluid and electrolyte imbalance and deliver the baby in the most expeditious route.^{4,12} The anticonvulsant and antihypertensive therapy should protect the woman and the fetus from deleterious effects of convulsion and should not expose either to additional risks from the therapy. Currently, Magnesium Sulphate is the recommended drug of choice for the prevention and control of eclamptic fits.^{7,17-19}

The aim of this study was to determine the prevalence, associated factors, and outcome of eclampsia at the University of Abuja Teaching Hospital, with a view to making recommendations aimed at reducing the occurrence and improving the management outcome of one of the leading causes of maternal morbidity and mortality.

METHODS

This was a retrospective cross-sectional study conducted over a period of 10 years (January 2008 to December 2017) by studying case files of inpatients at the University of Abuja Teaching Hospital, Abuja, Nigeria.

Women admitted with a diagnosis of eclampsia, based on the occurrence of generalized convulsions associated with

raised blood pressure and proteinuria after the second half of pregnancy, during labour or within 7 days of delivery were included. Women with other causes of convulsion were excluded.

There were 22,945 deliveries during the study period and 257 cases of eclampsia were identified from the hospital records. Of these, two hundred and thirty-eight (238) case notes were available for analysis giving a retrieval rate of 92.6%. Data recorded included age, parity, booking status, type of eclampsia, gestational age at presentation, mode of delivery, drug therapy and maternal and perinatal outcome.

The term 'unbooked patient' refers to patients who either did not register for antenatal care or were registered with other primary or secondary healthcare facilities but subsequently transferred to our hospital after they had convulsed. Social class was determined based on the woman's educational status and her husband's occupation.

Occupational social class was classified as: I (Professionals (e.g. doctors, lawyers, senior business executives), II (Other professionals (e.g. lecturers, nurses, teachers), III (Skilled non-manual workers (e.g. Secretarial and clerical staff, skilled technicians), IV (Semi-skilled workers (e.g. machine operators, farm workers) and V(Unskilled workers (e.g. labourers, cleaners, domestic workers, petty traders).

Data was analyzed using the statistical package for social sciences (SPSS Inc, Chicago) version 20. Frequency and percentages were calculated and presented.

RESULTS

There were 22,945 deliveries during the period and 257 cases of eclampsia were managed. This put the prevalence of eclampsia at 1.12%. Table 1 shows the clinical characteristics of the patients.

The age of the patients ranged from 15 to 41 years with a mean age of 23.7 years. Eclampsia was more common in the younger age group with 88.2% of the cases occurring below the age of 30 years.

The highest frequency of occurrence 79(33.2%), was in the 25-29 year age group and 67.6% of all the cases were primigravidae. Most of the patients (90.5%) involved were unbooked while 78.2% of the patients were of a low social class.

Table 2 shows the time of occurrence of fits in relation to pregnancy. It reveals that antepartum eclampsia was the commonest form, occurring in 67.6% of patients. Eight percent of the cases of had postpartum eclampsia.

Table 3 shows Interval between first convulsion and arrival in hospital. It reveals that about half (50.8%) of

the patients presented within 6 hours of having their first convulsion while 5.5% presented beyond 24 hours.

Table 1: Clinical characteristics of patients with eclampsia at uath abuja (n=238).

Characteristic	Frequency(n)	Percentage (%)
Age range		
15-19	57	23.9
20-24	74	31.1
25-29	79	33.2
30-34	24	10.1
35-39	3	1.3
≥40	1	0.4
Parity		
0	161	67.6
1	44	18.5
2	12	5.0
3	8	3.4
4	6	2.5
≥5	7	2.9
Booking status		
Booked	23	9.5
Unbooked	215	90.5
Social Class		
I	6	2.5
II	14	5.9
III	32	13.4
IV	72	30.3
V	114	47.9

Table 2: Types of eclampsia managed at uath, abuja (n=238).

Type	Frequency(n)	Percentage (%)
Antepartum	161	67.6
Intrapartum	58	24.4
Postpartum	19	8.0

Table 3: Interval between first convulsion and arrival in hospital of women with eclampsia at uath, abuja (n =238).

Interval (Hours)	Frequency(n)	Percentage (%)
<6 hours	121	50.8
7-12	81	34.0
13-24	23	9.7
>24	13	5.5

One hundred and eighty (82.2%) of the patients had emergency caesarean section mainly due to unfavourable cervix at presentation, 28 (12.8%) of the patients had spontaneous vaginal delivery, while only 10(4.5%) of them had second stage of labour assisted with either forceps or vacuum delivery. One patient died undelivered (Table 4).

Table 4: The mode of delivery of women with eclampsia at uath, abuja (n=219).

Mode of delivery	Frequency(n)	Percentage (%)
Caesarean section	180	82.2
SVD	28	12.8
Vacuum	6	2.7
Forcep	4	1.8

Table 5: Maternal complications of eclamptics managed at uath, abuja.

Maternal complication	Frequency(n)	Percentage (%)
Acute renal failure	18	7.6
Puerperal sepsis	12	5.0
Aspiration pneumonitis	5	2.1
Pulmonary oedema	7	2.9
Cerebrovascular accident	8	2.4
Congestive cardiac failure	5	2.1
DIC	5	2.1
Maternal mortality	11	4.6

DIC-Disseminated intravascular coagulopathy

Table 6: Fetal complications of eclamptics managed at uath, abuja (n=252).

Fetal complication	Frequency(n)	Percentage(%)
Prematurity	60	24.0
Birth asphyxia	31	12.3
Neonatal Sepsis	15	6.0
Stillbirth	14	5.6
Earl neonatal death	14	5.6

The maternal complications associated with eclampsia are shown in Table 5. Acute renal failure was the most frequently occurring complication seen in 18(7.6%) of cases. This was followed by puerperal sepsis in 12(5%) of cases and death in 11(4.6%) of cases. The case fatality rate was 4.6%. Cause of death was Acute Renal Failure in five (45.5%) cases, puerperal sepsis in 2(18.2%) cases, cerebro-vascular accident in another 2(18.2%) cases and DIC in 1(9.1%) patient. Antepartum eclampsia was responsible for the 8 cases of the death and the remaining 3 were due to intrapartum eclampsia. None with postpartum eclampsia died.

A total number of 252 babies including 10 sets of twins and 2 sets of triplets were delivered within the period. Prematurity was the commonest fetal complication and it occurred in 60(24.0%) cases. This was followed by birth asphyxia and neonatal sepsis in 31(12.3%) and 15(6%) of cases. Twenty-eight babies died within the perinatal period. Ten of these occurred due to prematurity following deliveries before 34 weeks of gestation (Table 6).

DISCUSSION

The prevalence of eclampsia in our study was 1.0%. The figures for eclampsia from various parts of the country vary as similar figures were reported in some parts of the North, while other parts reported figures as high as 4.3-9.4%.²⁰⁻²³ A previous study in our center reported a rate of 1.3% while in the eastern part of Nigeria, a prevalence rate of 1.57% was recorded.^{24,25} The difference in prevalence rates between the northern and eastern part of the country may be reflective of the differences in social and cultural practices which put women in the northern parts in a more disadvantaged position with regards to access to health care. Overall however, these figures are higher than figures from the developed world where there is higher attendance of antenatal clinics and where special management protocols have been employed.^{5,26} The lack of ANC attendance in developing countries like ours is clearly reflected in this study where 92.5% of patients were unbooked.

The age and parity distribution of the cases were similar to reports from other studies carried out in various parts of Nigeria.^{22,23,27,29,30} The peak incidence was found in primigravidae and this is similar to what was reported in other studies in India²⁸ and Nigeria.^{29,30} Also, 78.2% of patients who had eclampsia were either from low socio-economic group or of low educational status. This is similar to the work done in Lagos, Western Nigeria and further adds to the evidence that these factors are risk factors for eclampsia.¹⁰

Various reasons have been proffered for the late arrival of unbooked emergencies. These ranged from telecommunication barriers, transportation, social, cultural, financial and illiteracy.²⁴ This draws special attention to the need for female education so that they recognize the importance of antenatal care and safety of hospital delivery. This will help reduce the incidence and severity of this problem and its associated maternal and perinatal morbidity and mortality.

This study shows that about 67.6% of the cases had antepartum eclampsia. This is in agreement with reports from other centers, including earlier findings in this centre.^{21,24,25} It however differs from findings in developed countries where postpartum eclampsia tends to be more common.¹² This has been ascribed to improvement in prenatal care, earlier detection of pre-eclampsia and prophylactic use of magnesium sulphate in advanced countries.²⁴ About 72.2% of maternal morbidity and mortality and over 70% of perinatal morbidity and mortality were associated with antepartum eclampsia. This agrees with other reports that eclampsia which occurs antenatally carries more complications than when the condition develops in the intrapartum or postpartum period.^{10,28} This could be attributed to relatively longer duration or possibly repeated episodes of convulsion from the onset of the first fit which often increases the risk of mortality.

The fact that most cases of post-partum eclampsia occurred within 12 hours of delivery underscores need for vigilance and close monitoring of patients in the immediate postpartum period, especially in those with features of pre-eclampsia.³¹ The deliveries of all the patients with post-partum eclampsia were either at home or in a maternity home.

This review showed that 82.2% of the patients were delivered by an emergency caesarean section. This finding is in contrast to the report by Ola et al which recorded more vaginal deliveries than caesarean section.⁴ The relatively high rate of caesarean section may be due to the high number of antepartum presentations, many of whom at presentation had an unfavourable cervix and other confounding obstetric variables.^{12,16}

The case fatality rate of eclampsia also varies across the country and reasons for this is not very clear but may be connected to the differences in socio demographic profile of patients studied. Consequently, the findings in our study was comparable to findings from studies carried out in Western and Eastern Nigeria but less than reports from Northern Nigeria.^{10,25,22,27} All the deaths were recorded in unbooked patients, most of which were primigravidae. This was not surprising because the reported incidences of eclampsia is much higher in this group of patients.

Prematurity was the commonest neonatal complication, occurring in 24.0% of cases. Other complications which are similar to those observed by other researchers in other parts of the country include birth asphyxia and neonatal sepsis. There were 28 perinatal deaths in this study and half were fetal deaths, occurring at the time of admission of the patients while the other half were early neonatal deaths. This is similar to the reports from the study done in Lagos, western Nigeria.^{10,30} The poor fetal outcome in eclampsia is sequel to late presentation to the health facility. All of the patients that presented after 24 hours of onset of convulsion had still birth. This is suggested to be due to poor placental perfusion with reduced availability of oxygen to the fetus and abruption placentae.¹²

This study confirms that eclampsia is still a major cause of maternal and perinatal mortality in our environment especially among unbooked patients. Economic empowerment of women, public awareness on the need for early antenatal booking and adequate training of health care providers on how to recognize high risk patients so as to refer them early are suggested intervention measures.

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