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# Eclampsia and Pregnancy Outcome at Jos University Teaching Hospital, Jos, Plateau State, Nigeria

Anyaka Charles, Pam Victor, Karshima Jonathan, Pam Ishaya

Department of Obstetrics and Gynaecology, University of Jos / Jos University Teaching Hospital, Jos, Nigeria

## Email address:

charlesanyaka@yahoo.com (A. Charles)

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**Abstract:** Context: Eclampsia contributes significantly to maternal and perinatal mortalities globally. The objective of this study is to review the maternal and foetal outcome of eclampsia in Jos University Teaching Hospital (JUTH), Jos Plateau, Nigeria. Study design: A retrospective study that reviewed records from labour ward and the Medical Records Department, of cases of eclampsia managed at JUTH over a 9 year period from 1st January 2008-31st December, 2016. Results: There were 145 cases of eclampsia out of a total of 17,169 deliveries within the study period, giving a prevalence of 0.84%. It was most common, 22 (24.8%), in the 25-29 year age group. The nulliparous women, 58 (40%) were more commonly affected. The prevalence was higher in the un-booked patients 86 (59.3%), and antepartum eclampsia was the commonest type 133 (91.7%). Headache with blurring of vision 106 (73.1%) was the commonest symptom. The case fatality rate was 5.5%, low birth weight was seen in 78 (53.8%) while Perinatal death was 18 (12.4%) Conclusion: Eclampsia occurred mainly in un-booked and primigravid patients in this study. Early registration of pregnant women, especially primigravida, in health facilities for effective antenatal care and supervised hospital delivery will significantly reduce the prevalence and complications of eclampsia.

**Keywords:** Eclampsia, Pregnancy Outcome, JUTH, Jos Nigeria

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## 1. Introduction

Pre-eclampsia is one of the most common complications of pregnancy and continues to be a leading cause of death and disability globally [1]. Pre-eclampsia is characterized by new onset of hypertension and proteinuria after 20 weeks gestation [2]. It may progress to eclampsia; a potentially lethal complication characterized by convulsions requiring an emergency response [3]. Eclampsia which is often considered a complication of severe pre-eclampsia, is commonly defined as new onset of grand mal seizures and/or unexplained coma during pregnancy or post partum in a woman with signs and symptoms of pre-eclampsia in the absence of any neurological disease [4, 5].

There are variations in the reported incidence of eclampsia in different parts of Nigeria. The reported incidence of eclampsia was 1.6% in Jos [6], 1.2% in Kano [7], 4.29% in Sokoto [8], 5.7% in Nguru [9], 0.91% in Nnewi [10], 0.80% in Aba [11], 2.52% in Irrua [12], 0.91% in Ile-Ife [13].

The World Health Organization estimates that 14 % of all maternal deaths result from the hypertensive disorders of

pregnancy (HDP); it is also associated with a high risk of newborn death [1]. Most of the over half a million maternal deaths that occur annually are in developing countries like Nigeria [14]. Nigeria and India are estimated to account for over one third of all maternal deaths worldwide in 2015, with an approximate 58,000 maternal deaths (19%) and 45,000 maternal deaths (15%) respectively. Eighteen other countries, all in sub-Saharan Africa, are estimated to have very high maternal mortality ratio (MMR) in 2015, including Nigeria (814) and Malawi (634) [15]. Nigeria also has a high prevalence of pre-eclampsia and eclampsia of between 2% to 16.7% [16]. Worldwide eclampsia and preeclampsia account for about 63 000 maternal deaths annually [17].

Eclampsia contributes 31.3% - 43.1% to maternal death in the Northern part of the country with maternal mortality ratio of 1,200 per 100,000 live births [9, 18], whereas in the South West and Niger-Delta region of the country with much lower MMR of 500/ 100,000 live births, eclampsia accounts for 27.5% to 40% of deaths [19]. The high maternal morbidity and

mortality associated with this condition in this environment result from low utilization of health facilities and the poor quality of antenatal care in most of the referring health facilities. This was evidenced by self referral in patients who delivered at home or referral from traditional birth attendants (TBA) and faith based maternity facilities where basic screening tests could not be carried out [20]. Even in tertiary health facilities in Nigeria, case fatality rate is still significantly higher compared with developed settings where high profile life support care is readily available [21].

Several theories exist on the pathogenesis of preeclampsia, but at present, it is suggested that the placenta is the primary agent in the development of preeclampsia, hence, removal of the placenta (by termination of the pregnancy is the sole method of treating the condition [22]. Studies continue to suggest the increasing burden of HDP around the world making it a growing public health problem [23]

It should be noted that the adverse effects of preeclampsia and eclampsia are not only limited to the mother but also to the foetus with several complications ranging from intra-uterine growth restriction to intra-uterine foetal death [24]

Eclampsia is a very serious but preventable complication of pregnancy responsible for high maternal and perinatal mortality. So this study was conducted to see different factors associated with eclampsia.

## 2. Methodology

The study was carried out in Jos, Plateau State, North Central Nigeria.

It was a descriptive cross-sectional retrospective 9 year study, which was carried out among women with eclampsia in the Department of Obstetrics and Gynaecology, Jos University Teaching Hospital (JUTH), Jos, Plateau State from January 2008 to December 2016. Data of women who had eclampsia as defined by systolic blood pressure of  $\geq 140$ mmHg, diastolic blood pressure of 90mmHg, proteinuria of at least 2 plus and convulsions in patients with no background history of seizure disorder was collected and analysed. Meningitis and other causes of coma were excluded. Analysis of patient's age, occupation and educational status, booking status, parity, gestational age, symptoms observed prior to eclampsia, mode of delivery, types of complication, feto-maternal outcome and prognosis. Ethical approval was taken from the hospital authority. The data was collected from the labour ward medical record section and analyzed using simple percentages.

As a departmental protocol, all the patients were treated with magnesium sulphate according to the Pritchard regimen for controlling fit and anti-hypertensives (hydrallazine, nifedipine and methyldopa) were given for controlling hypertension. Nutrition and fluid balance were maintained.

Purpose of this study was to review all cases presenting in the department diagnosed as eclampsia, describe the current frequencies of eclampsia and study the feto-maternal outcome.

**Table 1.** Maternal characteristics and perinatal outcomes for gestations complicated by eclampsia.

Variables	Numbers	Percentages
AGES (YEARS)		
< 19	13	9.0%
20 – 24	33	22.8%
25 – 29	36	24.8%
30 – 34	35	24.1%
35-39	20	13.1%
> 40	8	5.5%
PARITY		
0	58	40.0%
1 – 4	47	32.4%
$\geq 5$	40	27.6%
EDUCATION		
Primary	79	54.5%
Secondary	39	26.9%
Tertiary	27	18.6%
PLACE OF ANC		
Unbooked	86	59.3%
JUTH	12	8.3%
Others	47	32.4%
Gestational age at delivery		
< 37 weeks	79	54.5%
> 37 weeks	66	45.5%
Symptoms prior to eclampsia		
Headache with blurring of vision	106	73.1%
Restlessness	24	16.6%
Nausea and vomiting	9	6.2%
Epigastric pain	6	4.1%
Maternal outcome Post partum hemorrhage	12	8.3%
Maternal death	8	5.5%
Mode of delivery		
Caesarean section	109	75.2%
Vaginal delivery	28	19.3%
Instrumental vaginal delivery	8	5.5%
Fetal outcome Birth weights (kg)		
< 2.5	78	53.8%
> 2.5	67	46.2%
Total live births	127	87.6%
Peri-natal death	18	12.4%
Babies with Low APGAR scores at 5minutes	20	13.7%
Babies admitted into SCBU	24	16.6%
Type of eclampsia		
Ante-partum	133	91.7%
Post-partum	12	8.3%

## 3. Results

There were seventeen thousand one hundred and sixty nine (17,169) deliveries at Jos University Teaching Hospital, Jos Plateau State during the study period (2008-2016) and 145 (0.84%) women presented with eclampsia.

Mean age was 26.9 years (17-44 years), majority of the parturients were above 20 years, 132 patients (91.0%); while only 13 patients (9.0%) were teenage mothers. With regards to parity, mean was 2.5 (0-5). There was disparity in the distribution of the study population with nulliparas 58 (40.0%) and multiparas 47 (32.4%) and grand-multiparas accounting for 40 (27.6%) of the patients.

Most of the patients presenting with eclampsia have primary education 79 (54.5%), while those with secondary

and tertiary education formed 26.9% and 18.6% respectively.

Most of the patients analysed did not book for ANC 86 (59.3%), 12 patients (8.3%) booked for ANC in JUTH and others 47 (32.4%) accounted for admissions from elsewhere (PHC's, General Hospitals and private clinics).

Headache with blurred vision was the commonest symptom prior to eclampsia in 73.1% of patients, followed by restlessness in 16.6%, nausea and vomiting in 6.2% and epigastric pain in 4.1%.

When foeto-maternal outcomes were analyzed, the following were noticed; regarding the gestational ages of patients managed, 79 patients (54.5%) were below 37 weeks of gestation and 66 patients (45.5%) were above 37 weeks of gestation. 78 (53.8%) patients had low birth weight (< 2.5kg). 109 patients (75.2%) underwent caesarean delivery, 28 patients, (19.3%) had spontaneous vaginal delivery and 8 patients (5.5%) had instrumental vaginal delivery. In this study 122 (84.1%) babies were born alive, 79 babies (54.5%) were born preterm (before 37 weeks of gestation), 17 of these babies (14.0%) had neonatal asphyxia requiring SCBU admission and there were 23 (15.9%) peri-natal deaths. 8 mothers died (case fatality rate 5.5%) from complications of the disease and 12 women (8.3%) had post partum hemorrhage.

Majority of the women had ante- partum eclampsia 133 (91.7%), while post-partum eclampsia accounted for 12 (8.3%) of the patients.

## 4. Discussion

The incidence of eclampsia varies from one geographical area of Nigeria to another. The incidence in the study population was 0.84% is similar to 0.80% reported in Aba [11] but is lower than that the 5.7% reported in Nguru [9], 4.29% in Sokoto [8], 2.52% in Irrua [12], 1.3% in Benin [20], 1.2% in Kano [7] and 0.91% in Nnewi [10] and Ile-Ife [13] respectively. The mean age of eclamptic women in the study 26.9 years was similar to the reports from Benin [20], Nnewi [10] and Aba [12] where eclampsia occurred mostly in the 25-29 year group. The patients who are primigravidae constituted most of the women with eclampsia in the study with 40.9%. This finding is similar to reports from Nnewi [10], Aba [12], Irrua [13], Ile-Ife [17] and Benin [20].

This study also shows that majority of patients (59.3%) presenting with eclampsia had not booked for antenatal care. This is consistent with the findings in other centres in Nigeria [7, 9, 10, 12, 13] where lack of quality antenatal care is identified in most patients with eclampsia. Reducing recognised obstacles to antenatal care attendance have been shown to favour the uptake of antenatal and maternity care, with positive impact on morbidity and mortality, including eclampsia.

The finding that majority of patients (91.7%) had ante-partum eclampsia which is more than postpartum (8.3%) is in support of reports from other centres in the country [9, 10, 17]. This implies that prompt and proper management of the situation early on in the pregnancy or expedited referral to a

tertiary center may help to improve foeto-maternal outcome in the study population.

Majority of the patients were delivered via caesarean section (75.2%) which is similarly supported by other studies [10, 12, 13].

The case fatality rate in this study was 5.5% which is lower than the 8.0% reported in Ile-Ife [17], 10.7% in Benin [20], 11.7% in Kano [7] and 22.97% in Irrua [12]. However, this is unacceptably higher than the maximum recommended 1% by the United Nations [25]. A decade before this current study, the case fatality rate for eclampsia was significantly higher with 22.3% [8] reported in the Northern part of the country. This can be attributed to the fact that diazepam was the anti-convulsant available for management of eclampsia. The improvement observed in this study may be as a result of intensive care management of eclampsia patients in the ICU and the administration of magnesium sulphate. However a lot more needs to be done to reduce high fatality rate in the environment.

The perinatal mortality rate of 12.4% reported in this study was lower than the 24.3% reported in Benin [20]. The use of magnesium sulphate could be a key contributor to the improved neonatal outcome seen in this study. This further stresses the benefit of magnesium sulphate for better neonatal outcome.

## 5. Conclusion

Effective management of pre-eclampsia/eclampsia is one of the signal functions of Emergency Obstetric and Newborn Care to prevent and promptly treat complications, avert maternal and newborn deaths and consequently contribute to the attainment of Millennium Development Goals (MDGs) 4 and 5 and to the post-2015 development agenda.

If it is desired to reduce the maternal and peri-natal mortality associated with eclampsia, efforts should be put to improve the socio economic condition, there is a great need for public health education expansion of education and training of personnel in the best professional techniques of maternal and neonatal care. When eclampsia is established, immediate hospitalization with best available nursing care and medical management with early termination of pregnancy should be done. If vaginal delivery is not anticipated shortly, caesarean section should be performed after correcting the haemo-dynamic status in best possible set up, only then the desired results can be achieved.

All the patients were treated with magnesium sulphate and this improved maternal and peri-natal outcome compared to other studies and most patients underwent caesarean section for delivery.

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