

## Eclampsia And Its Fatality Associations In Nnamdi Azikiwe University Teaching Hospital, Nnewi

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### Abstract

**Background:** Eclampsia is one of the most feared obstetric emergencies and a major contributor of maternal and fetal death from hypertensive disorders. Some suffered it and died while some live to tell their stories; what determines who dies?

**Objective:** 1). To determine the pattern of eclampsia in NAUTH. 2). To demonstrate the maternal and fetal associations

**Methodology:** The case notes of eclamptic patients that presented at NAUTH between 2010 and 2014 were retrieved, studied and analyzed.

**Result:** During the period of study, a total of 54 maternal deaths occurred and 8 of these were due to eclampsia, contributing 15.3% to maternal mortality. There were a total of 52 cases of eclampsia and 4,146 deliveries (incidence of 1.25 %). Out of these 52 cases only 45 case notes were found for analysis and there were total of 8 maternal deaths (case fatality rate of 17.7%). Eleven cases (nine singletons plus a set of twins) of fetal death were recorded (fetal fatality rate of 22.2%). Most of this eclampsia occurred antepartum 32 (71.1%) with age range of 30-34, 19 (42.2%) and were mostly primigravidae 22 (48.9%). Majority of patients had loss of consciousness 25 (55.6%) and blood pressure at severe range 34 (75.5%) at presentation. Most of these patients had c/s 30 (66.7%), preterm delivery 19 (42.2%) and low birth weight 30(66.7%). The association of maternal death were fetal death (p-value 0.000) and multiparity (P-value 0.044), while the associations of fetal death were maternal death (P-value 0.000), unconsciousness (P-value 0.044), and multiple episodes of seizure (P-value 0.030).

**Conclusion:** Case fatality rate of eclampsia was high and fatality was associated with multiparity, multiple seizures, unconsciousness, and fetal or maternal death.

**Keywords:** eclampsia, obstetrics, association, fatality

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### I. Introduction

Eclampsia is a grave obstetric emergency. It is defined as the occurrence of one or more convulsions, not attributable to any other cause than pregnancy related hypertension, in a pregnant woman or during the puerperium. It is one of the major causes of maternal mortality alongside haemorrhage, infection, unsafe abortion in the developing world. Severe preeclampsia and eclampsia related deaths are common causes of preventable maternal death with 99% of these deaths occurring in low and middle resource countries It carries high maternal and perinatal death rates. The high maternal mortality figures recorded in cases of eclampsia usually result from cerebrovascular haemorrhage, cardio pulmonary failure, disseminated intravascular coagulation and acute renal failure.<sup>6,7</sup>

Worldwide, eclampsia contributes to about 50,000 maternal mortality annually. In spite of the several global and regional intervention and initiatives from governmental and other concerned agencies, the mortality from it continue to rise, especially in the sub Saharan Africa, where most of the patients are unbooked and from a low socioeconomic background and had received little or no antenatal care either in a maternity home or prayer house and rushed to the hospital when she develops convulsion<sup>11</sup>. The aim of this study is to determine the pattern and the factors associated with fatality among eclamptic patients.

### II. Methodology

This is a retrospective study where the case notes of eclamptic patients that presented at NAUTH between 2010 and 2014 were retrieved. The information obtained were the age, parity, gestational age, type of eclampsia, number of fits, level of consciousness, severity of blood pressure, route of delivery, birth weight, fetal and maternal death. These were compared between those that survived and those that died using chi-square. P- Value < 0.05 was considered significant. The analysis was done with SPSS version 21.

III. Results

Variables	No (%)
<b>Age</b>	
20-24	14(31.1%)
25-29	9(20.0%)
30-34	19(42.2%)
>35	3(6.7%)
<b>Parity</b>	
0	22 (48.9%)
1-4	19 (42.2%)
>4	4 (8.9%)
<b>GA</b>	
Preterm	19 (42.2%)
Term	9 (20.0%)
Unknown	17 (37.8%)
<b>BOOKING STATUS</b>	
Unbooked	45 (100%)
Booked	0 (0.00%)

**Note:** Mean age 28.0 ±5.087; Age range 20-38 years; Mean GA 33.6±4.366 weeks; GA range 26-40 weeks

Variable	No (%)
<b>1. Fit only</b>	20 (24.4%)
Unconsciousness	25 (55.6%)
<b>2. Blood pressure</b>	
Severe	34 (75.6%)
Mild	10 (22.2%)
unmeasurable	1 (2.2%)
<b>3. Episodes of fits</b>	
Single	11(24.4)
Multiples	34(75.6)
<b>4. Route of delivery</b>	
c/s	30 (66.7%)
vaginal	15 (33.3%)

**Table 3: Associations of Maternal Death**

Variable	dead No (%)	alive No (%)	Chi square	P-value
<b>1. Age</b>				
□ 30yrs	5	17		
<30yrs	3	20	0.721	0.396
<b>2. G. A</b>				
preterm	3 (60)	16 (69.6)	1.720	0.678
term	2 (40)	7 (30.4)		
not recorded	17			
<b>3. Blood pressure at severe range</b>				
Yes	7 (87.5)	15 (78.9)	0.814	0.666
No	1 (12.5)	6 (85.7)		
<b>4. Type of eclampsia</b>				
ante-partum	5 (62.5)	27 (73.0)	3.331	0.191
intra-partum	0 (0.00)	5(13.5)		
post-partum	3 (37.5)	5(13.5)		
<b>5. Parity</b>				
Multiparity	2 (25)	20(60.6)	4.038	0.044 *
Nullipara	6 (75)	11(39.4)		

<b>6. fit/unconsciousness</b>				
fit	2 (25.0)	18(48.6)	1.490	0.220
unconscious	6 (75.0)	19(51.4)		
<b>7.Route of Delivery</b>				
C/S	5 (62.5)	25(67.6)	0.075	0.783
Vag	3 (37.5)	12(32.4)		
<b>8. Fetal demise</b>				
Yes	7 (87.5)	4(10.8)	20.946	0.000*
No	1 (12.5)	33(89.2)		
<b>9. Seizure Episodes</b>				
Multiple	8 (100.0)	26(70.3)	3.148	0.076
Single	0 (0.00)	11(29.7)		

**Table 4: Associations of Perinatal Death**

Variable	dead Nos	alive Nos	chi square	P-value
<b>Maternal Age</b>			0.000	0.988
≥30yrs	6	19		
<30yrs	5	16		
<b>Severe Hypertension</b>				
Yes	9 (81.8)	25 (73.5)	4.296	0.117
No	1 (9.1)	9 (26.5)		
<b>Route of Delivery</b>				
C/S	6 (54.5)	24 (70.6)	0.963	0.370
Vag	5 (45.5)	10 (29.4)		
<b>Birth weight</b>				
<2.5kg	8 (72.7)	22 (64.7)	3.953	0.139
≥2.5kg	2 (18.2)	12 (35.3)		
<b>Type of eclampsia</b>				
Antepartum	8 (72.7)	24 (70.6)		
Intrapartum	0 (0.0)	5 (14.7)	2.361	0.307
Post-partum	3 (27.3)	5 (14.7)		
<b>Parity</b>				
Multiparity	7 (63.6)	10(35.7)	2.504	0.114
Nulliparous	4 (36.4)	18(64.3)		
<b>Gestational Age</b>				
Preterm	5 (62.5)	14(70.0)	0.147	0.701
Term	3 (37.3)	6(30.0)		
<b>Presentation</b>				
Unconscious	9 (81.8)	16(47.1)	4.067	0.044*
Fits only	2 (18.2)	18(52.9)		
<b>Seizure episodes</b>				
Multiple	11(100.0)	23(67.6)	4.710	0.030*
Single	0 (0.00)	11(32.4)		
<b>Maternal Death</b>				
Yes	7 (63.6)	1 (2.9)	20.946	0.000*
No	4 (36.6)	33 (97.1)		

#### IV. Result

The age of the patients ranged from 20 – 38 years with a mean age of 28.0 (± 5.09) yrs. The parity ranged from 0 – 8 with a modal parity of zero (48.9%). The gestational age at presentation ranged from 26 to 40 weeks with a mean value of 33.6 (± 4.37) wks. During the period of study, a total of 52 maternal deaths occurred and 8 of these were due to eclampsia, contributing 15.4% to maternal mortality, with maternal case fatality rate of 17.7%. Table 2 demonstrates the presentation and the route of delivery. Twenty of the patients (24.4%) had fits only while 25 (55.6%) presented with loss of consciousness. Thirty four of the patient (75.5%) had blood pressure on the severe range at presentation, 10 (22.2%) had mild hypertension while 1 patient had unrecordable blood pressure.

**Table 3:** Demonstrated associations of maternal death.

Maternal age ( $x^2=6.113$ ; P-value=0.100), gestational age (60 vs 40%; P-value=0.678), blood pressure at presentation (87.5 vs 12.5; P-value=0.666) were associated with maternal death. Type of eclampsia ( $x^2=3.331$ ; P-value=0.191), number of fits ( $x^2=3.148$ ; P-value=0.076), and route of delivery ( $x^2=0.075$ ; p-value=0.783) were also not associated with maternal mortality. Multiparity (75 vs. 25%; P-value=0.044), and fetal death ( $x^2=20.946$ ; P-value=0.000) were associated with maternal mortality. Maternal age ( $x^2=2.662$ ; P-value=0.447), blood pressure at presentation (81 vs. 9.1%; P-value=0.117) and birth weight ( $x^2=3.953$ ; P-value=0.139) were not associated with perinatal death as shown in table 4. Type of eclampsia ( $x^2=2.361$ ; P-value=0.307) and route of delivery (45 vs. 54.5%; P-value=0.370) were not significant associations of perinatal death. hile multiparity (75 vs. 25%; P-value=0.044), unconscious state (81.8 vs. 18.2%; P-value= 0.044), multiple episodes of fits (100 vs. 0%; P-value=0.030) and maternal death (63.6 vs 36.4%; P-value=0.000) were associated with perinatal mortality.

## V. Discussion

The prevalence of eclampsia in this study was (1.23%). It was higher than that reported by Ikechebelu et al <sup>7</sup> earlier in the same centre, as well as what Obiechina et al (0.65%) reported in Onitsha Anambra State. It was also higher than the findings in Enugu and Benin City However; it was lower than that in Kano (5%) and Uyo (1.96%). The prevalence of Eclampsia in NAUTH has increased over the years and this may be due to the fact that private hospitals in Nnewi have known that the teaching hospital uses  $MgSO_4$  in the treatment of eclampsia. This makes them refer more cases to the Teaching hospital for expert management. More so, during the previous study, there were series of incessant instability in the public health sector, hence reduced referral to NAUTH. Unlike the previous study where 83.7% <sup>7</sup> of the eclamptic patients were unbooked, all the patients (100%) in this study were unbooked.

Most of the patients were in the age bracket of 30-34 (42.2%). It contrasted with the finding in Ilorin, which showed the majority of eclamptic patients to be between 20-29yrs. This may be because most women (south-east) delay child bearing due to career. They were mostly primigravidae (48.9%). This is in line with previous studies <sup>7, 11, 19, 15</sup> Majority of the patients presented with multiple fits and loss of consciousness; and caesarean section was the commoner route of delivery (66.7%). This was similar to the findings in Nnewi <sup>7</sup>, Onitsha <sup>11</sup> Kano <sup>14</sup>, Ilorin and Uyo <sup>12</sup>. It was also noted that post-partum eclampsia was second to antepartum eclampsia. This is in contrast with already documented fact; where intrapartum was second to antepartum. <sup>7, 11</sup>. The choice of caesarean section as the route of delivery may be because; time is of essence in the management of eclampsia, as the definitive treatment is the delivery of the placenta.

In this study, eclampsia contributed to 15.3% of maternal mortality. This is lower than that reported earlier in Nnewi (21.1%)<sup>7</sup>, in Kano (28.5)<sup>14</sup> and in Ife. This may be as a result of the use of  $MgSO_4$  for seizure management. The study recorded maternal case fatality rate of 17.7% which is slightly lower than that reported in Northern Nigeria (22.3%) but higher than that in Jos (16.9%) and Benin (10.7%). Surprisingly the figure is higher than the one reported in our center previously (9.3%)<sup>7</sup>. In the same vein, eleven cases (nine singletons plus a set of twins) of fetal death were recorded (fetal fatality rate of 22.2%). Maternal age did not significantly influence both the maternal and fetal death in the study and this agrees with the finding in the northern part of Nigeria<sup>17</sup>. Thirty four (75.6%) had blood pressure on the severe range at presentation; this in keeping with findings in previous studies <sup>19, 7, 11</sup>. It was surprise to note that the severity of the blood pressure did not significantly affect the maternal or fetal outcome. It was in sharp contrast to the findings reported in India, where the perinatal outcome was significantly affected by the severity of systolic blood pressure. Also noted in the study was that neither gestational age nor birth weight significantly affects the maternal or fetal outcome.

Multiparity is associated with maternal death (although more primigravidae had this disease), this may be because multipara may have other underlying factors in addition to pregnancy that may worsen the eclampsia. This also concurs with a finding reported in Northern Nigeria where maternal mortality among eclamptic patients was significantly affected by multiparity.

Like the study done at Kano<sup>14</sup>, there is no difference in the maternal outcome between those that delivered vaginally and those that delivered through Caesarean section (P-value= 0.783). There is no significant association between the fetal demise and the route of delivery unlike the work in Kano <sup>14</sup>. It is worth trying vaginal delivery by induction of labour using misoprostol than to rush to caesarean section provided the induction delivery interval is anticipated not to be prolonged.

It was noted with surprise that the type of eclampsia did not affect both the fetal and maternal mortality. It is worthy of note that there was no case of maternal death following intrapartum eclampsia in this study. This may be because there was close monitoring of the patients during intrapartum period. Multiple fits and loss of consciousness did not significantly influence the maternal death; but both negatively affected the fetal outcome. This is to say that there is need to prevent multiple fits and loss of consciousness in order to prevent fetal mortality that may result from it. Maternal and fetal demise negatively affect each other; when

there is fetal demise, there is the likelihood of maternal death and vice-versa and this may be due to the severity of the disease that may affect both of them.

In conclusion, the prevalence of eclampsia as well as case fatality rates for both mother and baby were high. Antepartum eclampsia remains the commonest followed by post partum type as against being followed by intra-partum eclampsia in the previous studies. Multiparty, multiple fits, loss of consciousness, and maternal and or fetal deaths were associated with fatality in eclamptic patients. There is need for antenatal care where preeclampsia can be detected and treated on time as all patients in this study were unbooked. Also, there is need for close monitoring of patients in postpartum period.

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