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MATERNAL OUTCOME IN ECLAMPTIC PATIENTS IN ABUJA. NIGERIA - A 5 YEAR REVIEW.

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ABSTRACT

Objective: To assess the outcome of women admitted with eclampsia in the National Hospital, Abuja, Nigeria.

Study Design/Setting: A retrospective analysis. The medical records register in the accident and emergency department, labour ward, maternity ward and the intensive care unit were searched to identify cases of eclampsia admitted at the National Hospital, Abuja (NHA) between 1st March 2000 and 28th February 2005.

Results: The incidence of eclampsia was 7.8 per 1000 deliveries. Eclampsia significantly occured in nulliparous and unbooked mothers ($p < 0.001$ & $p < 0.0001$ respectively). Most (71.5%) of mothers delivered by Caesarean section and the most common indication for this was an unfavourable cervix (cervix thick, firm and closed when assessed at presentation in the labour ward). Nineteen (41.3%) of mothers developed complications with HELLP (hemolysis, elevated liver enzymes, low platelets) occurring in six patients (31.6%). There were 13 maternal deaths giving a case fatality rate of 28.3% and a maternal mortality ratio for eclampsia of 222/100,000. HELLP syndrome was responsible for 46.2% of deaths in the study.

Conclusion: The maternal outcome of eclamptics in Abuja, Nigeria is poor and HELLP syndrome is a major contributor to the high fatality rate. Emphasis should be on primary preventive measures such as early, continuous, good antenatal care and improvement of intensive care facilities. More widespread use of Magnesium sulphate for anticonvulsant prophylaxis is advocated.

Key Words: Maternal, outcome, eclampsia, Abuja. *(Accepted 24 January 2007)*

INTRODUCTION

When generalized convulsions not caused by epilepsy or other convulsive disorders occur during pregnancy, labour or within seven days of delivery, the woman is said to suffer from eclampsia. Eclampsia is a Greek word which translates literally as 'shine forth' implying a sudden development.

The incidence varies from one part of the world to another. Eclampsia reportedly complicates about 1 in 2000 deliveries in the developed world [1,2], and varies widely in the developing world from 1 in 100 to 1 in 1700 deliveries [3]. Eclampsia is one of the leading causes of maternal morbidity and mortality [4-6]. This is even more significant considering that the etiology of the precursor condition (pre-eclampsia) is still not clear. Maternal mortality from eclampsia has shown significant reduction during recent years in the developed world, although significant morbidity still exists [7-8]. On the other hand in developing countries, eclampsia still contributes significantly to maternal morbidity and mortality [9-17].Deaths from eclampsia are usually due to complications such as renal failure, disseminated intravascular coagulation (DIC), cerebral hemorrhage or placental abruption leading to antepartum hemorrhage [5]. In view of the importance of this condition to maternal morbidity and mortality, this study aims to highlight the eventual outcome of eclamptic Patients admitted in our center with reference to that obtained in other centers.

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METHODOLOGY

The medical records register in the accident and emergency department, labour ward, maternity ward and the intensive care unit were searched to identify cases of eclampsia admitted at the National Hospital, Abuja (NHA) between 1st March 2000 and 28th February 2005. The following data were extracted from the case notes: maternal age, parity, booking status, timing of convulsions, mode of delivery, complications and maternal mortality. HELLP syndrome is a life-threatening complication of pre-eclampsia. Often, a patient who develops

HELLP syndrome has already been followed up for pregnancy-induced hypertension (*gestational hypertension*), or is suspected to develop pre-eclampsia(high blood pressure and proteinuria).

There is gradual but marked onset of headache (30%), blurred vision, malaise (90%), nausea/vomiting (30%), "band pain" around the upper abdomen (65%) and tingling in the extremities. Oedema may occur but its absence does not exclude HELLP syndrome. Arterial hypertension is a diagnostic requirement, but may be mild. Rupture of the liver capsule and a resultant hematoma may occur.

Patients who present symptoms of HELLP can be misdiagnosed in the early stages, increasing the risk of liver failure and morbidity [18].

In a patient with possible HELLP syndrome, a batch of blood tests is performed: a full blood count, liver enzymes, renal function and electrolytes and coagulation studies. Often, *fibrin degradation products* (FDPs) are determined, which can be elevated. Lactate dehydrogenase is a marker of hemolysis and is elevated (>600 U/liter)[18] Proteinuria is present but can be mild.The diagnosis of HELLP syndrome was made based on clinical suspicion and confirmed by laboratory investigations: The three chief abnormalities found in HELLP syndrome are hemolysis, elevated liver enzyme levels and a low platelet count. These criteria were employed in this review study. The hematocrit may be decreased or normal and is typically the last of the three abnormalities to appear. The finding of a decreased serum haptoglobin level may confirm ongoing hemolysis when the hematocrit is normal. The serum transaminase levels may be elevated to as high as 4,000 U per L, but milder elevations are typical. Platelet counts can drop to as low as 6,000 per mm^3 (6 3 $x10^9$ per L), but a platelet count less than 150 per mm^3 was used as the diagnostic criteria for the purposes of this study. Classification: The platelet count has been found to be moderately predictive of severity: under 50million/L is class 1(severe); between 50 and 100 million is class 2 (moderately severe) and > 100 million is class 3 (mild). This is termed the Mississipi classification [19]. Alternatively, HELLP syndrome can be classified based on the number of abnormalities present: hemolysis, low platelets or elevated liver enzymes. If 2 are present it is partial HELLP while if all 3 abnormalities are present, it is termed full HELLP syndrome.

The favourability of the cervix for vaginal delivery had been assessed for the women with antepartum and intrapartum eclampsia. The cervix was termed unfavourable if it was thick, firm and closed.Level of significance was set at $p < 0.05$ (95% confidence interval).

RESULTS

Incidence: During the study period, a total of 46 cases of eclampsia were seen and treated. The total number of deliveries was 5868, giving an incidence of 7.8 per 1000 deliveries.

Age and Parity: The mean age of the patients was 28.5 +/- 6.7 years with a range of 17-40 years. Tables 1 and 2 show the age distribution and parity of the patients. Eclampsia significantly occurred in nulliparous mothers ($p < 0.001$, $X^2 = 12.37$, 1df).

Clinical Features: Majority of the patients were unbooked for antenatal care. Thirty-nine (84.8%) were unbooked while seven (15.2%) were booked patients. Eclampsia significantly ($p < 0.0001$, $X^2 = 23.9$, 1df) occurred in unbooked mothers.Forty-three (93.5%) of the deliveries were singleton while the remaining three (6.5%) were multiple (twin) deliveries.

Twenty-seven (58.7%) of the patients had antepartum eclampsia, twelve patients (26.1%) had postpartum eclampsia while seven (15.2%) had intrapartum eclampsia.

Maternal Outcome: Thirty-five patients (71.5%) were delivered by Caesarean section. Ten (21.7%) had spontaneous vertex deliveries while 1 patient had a forceps delivery. The most common indication for a Caesarean section was an unfavourable cervix. These are shown in Tables 3 and 4.In the majority (95.7%) of cases, Diazepam was used to control fits and for anti-convulsant prophylaxis. Magnesium sulphate was employed in two (4.3%) of the patients. Hydrallazine was used to control the hypertension particularly in the intensive care unit, while Nifedipine and alpha Methyl dopa were used when the blood pressure was better controlled. All the eclamptics, except two received oxygen enriched air via a Newport ventilator or nasal prongs.

Nineteen (41.3%) of the patients developed complications which included HELLP (hemolysis, elevated liver enzymes, low platelets) syndrome, acute renal failure, DIC (disseminated intravascular coagulation), septicaemia, lobar pneumonia, pulmonary edema, cerebral hemorrhage, cerebral damage and quadriplegia (Table 5). All of those with HELLP syndrome were of the full variety. According to the Mississipi classification 5 were class 2 while one developed the class1 variety. The patient with brain damage suffered two cardiac arrests in the referring hospital due to a dislodged endotracheal tube; and was successfully resuscitated before

coming to the National Hospital, Abuja. As at the time of discharge, she still had paresis of both upper and lower limbs. This patient and the quadriplegic patient continue to receive care at the physiotherapyDepartment.There were thirteen maternal deaths giving a case fatality rate of 28.3%, and a maternal mortality ratio for eclampsia of 222/100,000. Twelve (92.3%) of the deaths were in unbooked patients while one (7.7%) booked at NHA. The booked patient died of HELLP syndrome. Other causes of death include acute renal failure, DIC, septicaemia , cerebral hemorrhage and lobar pneumonia.

Table 1 **Age distribution of patients with ecalmpsia**

Age group	Number	Percentage
16-20	5	10.9
21-25	8	17.3
26-30	12	26.1
31-35	16	34.8
36-40	5	10.9
Total	**46**	**100**

Table 2 **Parity distribution of patients**

Parity	Number	Percentage
0	29	65.9
1-2	9	20.5
3-4	3	6.8
5	3	6.8
***Total**	**44**	**100**

* The records of 2 cases were incomplete.

Table 3 **Mode of Delivery in Eclamptic patients**

Mode	Number	Percentage
Caesarean section	35	76.1
Spontaneous vertex delivery	10	21.7
Forceps delivery	1	2.2
Total	**46**	**100**

* By maternal effort; these patients developed postpartum eclampsia

Table 4 **Indications for Caesarean section**

Indication	Number	%
Unfavorable cervix	36	78.2
Multiple gestation with eclampsia	3	6.5
Failed induction	3	6.5
Severe pregnancy-induced hypertension + intrauterine growth restriction	2	4.4
Cephalo - pelvic disproportion	1	2.2
Fetal distress	1	2.2
Total	**46**	**100**

*Initial indication for caesarean section was severe PIH + IUGR. Patients developed postpartum eclampsia.

Table 5 **Complications in Eclamptics**

Complication	Number	%
HELLP syndrome	6	31.6
Acute renal failure	2	10.5
DIC	2	10.5
Septicaemia	2	10.5
Cerebral hemorrhage	2	10.5
Pulmonary edema	2	10.5
Cerebral damage	1	5.3
Quadriplegia	1	5.3
Lobar pneumonia	1	5.3
Total	**19**	**100**

DISCUSSION

This study revealed a prevalence of 0.78% for eclampsia. This is lower than the study of Onuh and Aisien in Benin-City [9] but still comparable to other studies carried out in Nigeria [12,13,20]. There has been no previous study of this nature in this center or region to show the nature or trend of the condition. However, in developed countries, the incidence of eclampsia has fallen in recent years [2,8].

The age distribution in this study is similar to previous observations [9,11], but differs slightly in the age bracket distribution. Though majority of cases (60.9%) were in the 26-35 age bracket, more cases were observed in the 31-35, compared to the 26-30 age brackets. With regard to parity distribution, the findings confirmed previous observations that eclampsia is significantly

commoner among nulliparous patients.
The incidence of eclampsia among the unbooked patients was significantly higher than in the booked ones, suggesting that adequate antenatal care enables early identification and timed intervention [9,13,14,21].
Eclampsia was observed to be commonest in the antepartum period, as observed in other studies [5, 14]. However, contrary to what obtained in these studies, postpartum occurrence of eclampsia in this study was commoner than the intrapartum variety.
The mainstay of the management of eclampsia is immediate control of convulsions, and the reduction of elevated blood pressure. Delivery is then effected as soon as possible to remove the foeto-placental unit. Delivery of the fetus should be by the most appropriate and expeditious route. Caesarean section accounted for 71.5% of the births in this study, mostly due to an unfavourable cervix. The rest had vaginal deliveries (1 assisted) emphasizing the fact that it's not mandatory to deliver all eclamptics surgically. It is to be noted that eclamptics who present in labor usually have a short course [9,22].
Morbidity and mortality in this study were high which was similar to what was found in Benin by Onuh and Aisien. Almost half of all the patients developed complications, and these were fatal in 68.4% of the group. The main complications in this series included HELLP syndrome, acute renal failure, DIC, cerebral hemorrhage, septicaemia and pulmonary edema. Transient blindness was reported by Onuh and Aisien in Benin, Nigeria [9]. Though this was not found here, the aetiopathogenesis of that and the quadriplegia reported here are likely similar, that is of ischaemic origin probably due to blockage in the respective vasculature.The maternal case fatality rate of 28.3% obtained in this study is high compared with figures from developed countries[2,5], and even higher than that of the study in Benin, Nigeria. This may be attributed to the lower ratio of unbooked : booked patients in that study and the high frequency of HELLP syndrome (31.6%) as a complication in this study, apart from the fact that most of the HELLP syndrome cases were categorised as full HELLP syndrome and severe. The main causes of death were HELLP syndrome, acute renal failure, DIC, as reported in other centers [9,12,13]. Others were septicaemia, cerebral hemorrhage and lobar pneumonia, but HELLP syndrome was responsible for the majority (46.2%) of deaths in this study. Pritchard et al reported only one maternal death in 245 women with eclampsia treated in Dallas over 30 years by a standard protocol using a combination of intravenous and intramuscular magnesium sulphate and hydrallazine. It has been said that maternal mortality should be rare in women with eclampsia who are admitted to hospital, not in coma, and are given prompt intensive skilled treatment [22]. The low incidence of use of Magnesium sulphate in this study gives cause for concern since it has been shown in a large multicentre trial, that it is superior to diazepam, phenytoin and the lytic cocktail in the management of eclampsia [23].
The high case fatality rate in this study could also be attributable to the fact that most patients were unbooked and arrived in very bad condition.

CONCLUSION

The maternal outcome of eclamptic patients in Abuja is poor. HELLP syndrome is a major cause of mortality in eclampsia as seen in this study population.
Eclampsia remains an important cause of maternal morbidity and mortality due to the high fatal complication rate. Therefore measures to reduce the likelihood of the condition developing should be pursued in the first instance such as early registration for antenatal care and continuous quality antenatal care. Also, intensive care facilities need to be very well equipped in human and material resources for adequate management of the condition and its complications. More widespread use of Magnesium sulphate for anticonvulsant prophylaxis is advocated.

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