

OUTCOME OF ECLAMPSIA AT THE OBAFEMI AWOLOWO UNIVERSITY TEACHING HOSPITAL COMPLEX, ILE-IFE.

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ABSTRACT

Objective: Eclampsia is a serious obstetric complication with attending high maternal and perinatal morbidity and mortality. There is need for periodic audit of our management of these cases so as to identify potential areas for possible intervention aimed at improving the management outcome of this pregnancy complication.

Methods: The records of cases of Eclampsia managed at the OAUTHC Ile-Ife between January 1, 1994 and December 31, 2003 were retrospectively analysed.

Results: The incidence of Eclampsia was 0.91% of total deliveries. It was highest in teenagers and young adults who are less than 25 years (1.56%), who were carrying their first pregnancy (2.64%) and were unbooked (6.3%). Headache was the commonest symptom (100%), while hypertension and fever were the commonest signs being present in 75% and 20.2% of the patients respectively. Antepartum Eclampsia accounted for 56.5% of the cases and majority was delivered by emergency caesarean section. Maternal and perinatal mortality were 8.0% and 19.1% respectively.

Conclusion: Provision of good quality and widespread antenatal care, improving the capacities of the hospitals to handle emergencies and intensive care unit management of all cases of Eclampsia are measures that could reduce the burden of Eclampsia in this environment

Key Words: Eclampsia, Morbidity and Mortality.

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INTRODUCTION

Eclampsia is an unpredictable, multi-organ disorder unique to human pregnancy^{1, 2}. It is defined as the occurrence of generalized convulsion(s) associated with signs of preeclampsia during pregnancy, labour, or within seven days of delivery and not caused by epilepsy or other convulsive disorders^{1, 2, 3}. In the absence of a high blood pressure or if the convulsion occurs after day seven postpartum, the condition is referred to as atypical eclampsia².

Eclampsia and its precursor pre-eclampsia remain serious obstetric catastrophe and it is associated with significant maternal and foetal morbidity and mortality worldwide^{4,5,6,7}. However, eclampsia is a preventable condition if pre-eclampsia is detected early and treated promptly.^{5, 6, 7} although, this disorder is rare in developed countries. It remains a major cause of maternal and perinatal mortality in the developing countries.^{5,7} Incidence ranging from 0.25 to 1.2% have been reported in Nigeria compared to 0.0003 to 0.03 in western countries^{8,9}. The higher rate of morbidity and mortality associated with this condition in the developing countries has been attributed to the lack of efficient antenatal care, poor transport facilities, delay in effecting treatment and administrative problems^{1,10}.

The treatment of eclampsia remains a challenge to even the most experienced Obstetricians, mainly because the exact aetiology is not known^{1, 2, 11, 12}. Preeclampsia/Eclampsia is a disorder of theories, however, the concept of 'generalized maternal endothelial cell dysfunction' as a primary part of the pathogenesis of preeclampsia/eclampsia is widely accepted as central to other theories^{2,12}.

Since the cause of pre-eclampsia / eclampsia remain speculative, the treatment is at best empirical and the outcome not very satisfactory.^{7,11,12} Recently there has been innovation in its prevention by the use of quality antenatal care and the advent of newer drugs including magnesium sulphate (MgSO₄) all leading to significant decrease in the incidence of eclampsia.⁷ This retrospective study is aimed at highlighting the problems associated with this condition in the areas of incidence, clinical course and management outcome with a view of using the data for further improvement in the management of this disorder in our environment.

MATERIALS AND METHOD

The case records of a total of 124 patients whose pregnancies were complicated by eclampsia at Ife Hospital Unit of the Obafemi Awolowo University

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Teaching Hospitals Complex, Ile-Ife from 1st of January 1994 to December 31 2003 were retrieved. There were 13, 682 deliveries during the study period. Biological, obstetrics and social data were extracted from the case notes of the patients. The diagnosis of eclampsia was made based on the occurrence of generalized tonic clonic convulsion during pregnancy and within seven days of delivery after excluding other neurological causes of convulsion^{1,2,13}. Booked patients were defined as those who registered for and attended antenatal care and delivered in the hospital while unbooked referred to all categories of patients transferred from outside to the hospitals after onset of the symptoms.

The treatment of eclampsia include securing and suctioning of the airway, maintaining a patent intravenous access, control of convulsion with the initial 10mg slow intravenous push of Diazepam and infusion of 40mg of Diazepam in 500mls of 5% Dextrose water and titrated to keep the patient sedated but arousable. Lytic cocktail, a mixture of 50mg Chlorpromazine, 50mg Promethazine and 100mg Pethidine was given intermittently in few cases where sedation and convulsions were not adequate. Foetal asphyxia is diagnosed if the baby has a one minute Apgar score of less than 7.

Severe hypertension (diastolic blood pressure of 110mmHg and above) were treated with intermittent bolus injection of intravenous Hydrallazine 5 to 10mg and repeated after 30minutes, if diastolic blood pressure is still equal to or above 110mmHg.

The patients were either managed after delivery in the eclamptic room and in some critical situation transferred to intensive care unit being co-managed with the Physicians and Anaesthesiologists.

RESULTS

There were 124 cases of Eclampsia while the total number of deliveries during the ten year study period was 13,682, giving an incidence of 0.91% (1/110 deliveries). There was no consistency in yearly trend as graphically represented in figure 1.

Eclampsia was about forty times commoner in unbooked patients than the booked patients, 112 cases out of 1779 deliveries (6.3%) for the unbooked patients versus 20 cases out of 11903 deliveries (0.16%) for the booked patients during the period of review.

Figure 2 show that eclampsia is highest in the younger age group. The highest incidence is found among age group 20-24 years (1.62%) and lowest above 40 years (0.32%). The age range of the patients is between 16 to 45 years with a mean age of 23.4 years.

Figure 3 shows that the incidence of Eclampsia decreases with increasing parity. The incidence is highest in nullipara (2.64%) and lowest in the Para. 5 and above (0.11%).

Eclampsia occurs predominantly in the last trimester with the majority (65.3%) occurring from 36 weeks upwards.

Majority(82.2%) of the eclamptic patients had 2 or more convulsions before institution of therapy, table 1.

30.6% of the patients presented with oedema, 75% presented with severe hypertension and 20.2% had fever. Thirteen (31%) of the forty-two eclamptic patients who had their random blood sugar estimated had hypoglycaemia representing 10.5% of total eclamptic patients.

Sixty nine (55.3%) of the patients had emergency abdominal delivery due to unfavorable cervix, 46 (37.5%) achieved vaginal delivery while the remaining 9 (7.2%) had instrumental vaginal delivery.

The morbidity and mortality pattern of the different types of Eclampsia are as shown in table 2. Acute renal failure, pulmonary oedema and aspiration pneumonitis are the leading causes of maternal morbidity. Maternal death occurred in 8.0% of the patients. Three of the patient died undelivered. None of the patient had postmortem done because the relations refused consent.

Table 1: Clinical Types of Eclampsia and Number of Convulsions before Institution of Therapy.

Clinical Type of Eclampsia	No of Convulsion before Institution of Therapy			Total (%)
	1	2	3 and above	
Antepartum	12	32	26	70
Intrapartum	5	11	15	31
Postpartum	5	16	12	23
Total	22	49	53	124
	17,7%	39.5%	42,7%	100%

Table 2: Maternal Morbidity and Mortality in Eclampsia.

Complications	Antepartum	Intrapartum	Postpartum	No	%
Pulmonary	6	5	2	13	10.6%
Oedema				7	5.6%
Aspiration pneumonitis	4	2	1	7	5.6%
Eye injury e.g. cornea laceration	-	-	1	1	0.86%
Acute renal failure	7	5	3	15	12.1%
Cerebrovascular Accident	1	2	-	3	2.4%
Psychosis	-	2	3	5	4.0%
Blindness	-	1	-	1	0.86%
Bleeding dyscrasia	4	2	-	6	4.8%
Burst Abdomen	4	2	-	6	4.8%
Placental Abruptio	-	2	-	2	1.6%
Maternal deaths	5	1	4	10	8.0%

Table 3: Foetal Outcome in Eclampsia

Clinical Type of Eclampsia	Sex		Birth Weight (KG)		Apgar Scores At 5 Minutes		
	F	M	<2.5	≥2.5	0-3	4-6	7 & above
Antepartum	40	37	54	23	7	43	27.
Intrapartum	18	13	13	18	9	15	7
Postpartum	17	6	8	15	-	12	11
Total	75	56	75	56	16	70	45

Figure 1: Graphical Representation of the Yearly Trend.

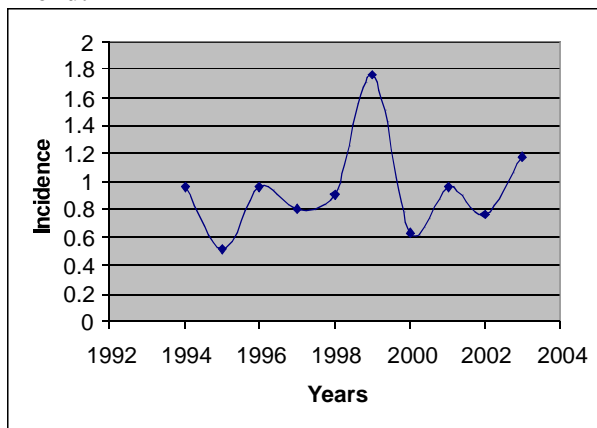


Figure 2: Age Distribution and Incidence of Eclampsia

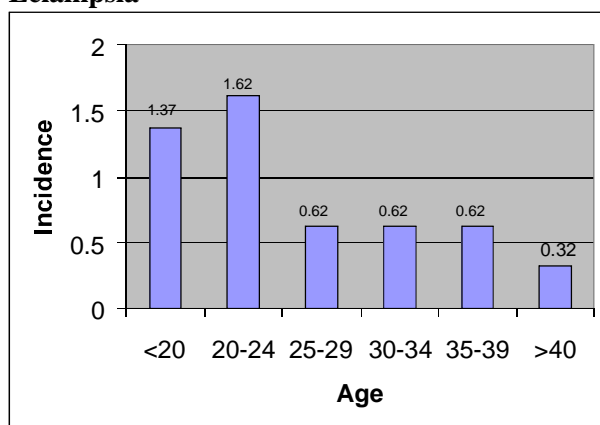


Figure 3: Parity Distribution and Incidence of Eclampsia.

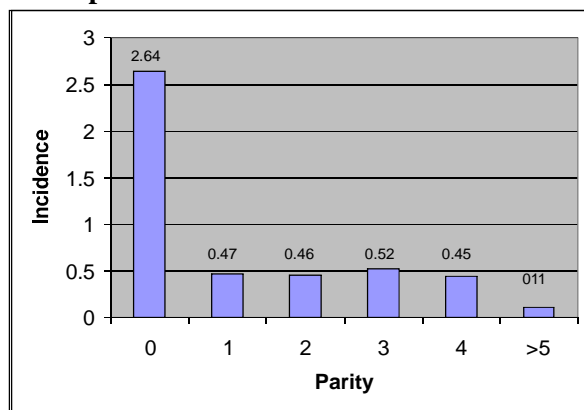


Table 3 shows fetal outcome in eclamptic patients: One patient delivered a set of triplets at 32 weeks weighing 1.9, 1.8 and 1.6 kg respectively with good maternal and fetal outcome. Male: Female ratio equals 1:1.3. Fifty seven point three percent had low birth weight (less than 2.5kg). Sixty five point six percent of the newborn had Apgar score of less than 7 at 1 minute with 3.8% severely asphyxiated at birth(Apgar score of 3 or less). There were 25(19.1%) perinatal deaths with 11 (8.4%) occurring as stillbirth.

DISCUSSION

The incidence of Eclampsia reported in this study is 0.91% which is comparable to other figures from developing countries and earlier studies conducted in this centre^{5,6,7,10}. It is much higher than figures from developed nations^{14,15,16}. Like in most other developing countries, eclampsia is one of the leading causes of maternal mortality in Nigeria^{3,5,14}. In fact, maternal mortality provides one of the worst differentials in health indices between the developed and developing countries¹⁴.

This study shows that Eclampsia is about forty times commoner in unbooked patient than booked patient. This is higher than figure from an earlier study which is probably due to the strict criteria used to define booked patient in this study⁷.

The high incidence of Eclampsia in women of younger age group and in the nulliparous patients has been reported in similar studies.^{5,6,11} The incidence of eclampsia decreases gradually with increasing parity with the lowest incidence in para five and above. It is important to note the slight increase in incidence in women of para three category (0.52%) shown in this study. Earlier studies had clearly showed that eclampsia is no longer entirely a disease of the nulliparous.^{7,17} Attention must therefore be paid to multiparous women who are also predisposed probably due to change of husband or increasing incidence of hypertension in older parous women.

The review also shows that eclampsia is common at or near to term. This means that greater percentage of eclampsia 62.5% in this study which occurred after 36 weeks of gestation could easily have been prevented by instituting therapy and delivery of healthy matured babies if we have acceptable, accessible and functional antenatal care^{5,18}.

That most eclamptic patients presented after several convulsion as revealed in this study is in agreement with earlier study in this centre^{5,6}. This also affected the management outcome as it was found that morbidity and mortality is directly proportional to the number of convulsions.

Headache, a classical prodromal symptom of eclampsia was present in all patient from whom

history could be obtained. Hypertension occurred in 75% of eclamptic patients in this study. This underscores the need for effective blood pressure monitoring of the pregnant women^{1,18,19}.

Fever occurred in 20.2% of patients in this series. Similar result has earlier been reported⁷. This could be from infective origin as it was commoner in those patient referred from traditional and religious birth homes where little attention is paid to aseptic procedures and where multiple vaginal examination would have been performed.

It was discovered in this study that hypoglycaemia was a major biochemical complication of eclampsia in this centre. Thirteen out of forty two patients who had their Random blood sugar estimated because they were brought in with coma had Random blood sugar less than 2.5mmol/litre which is 30.95% of such cases. A similar feature has earlier been shown by Obed et al¹⁹. The reasons adduced for hypoglycaemia include unsupervised labour, Labour lasting more than 14 hours, obstructed labour and maternal hyperpyrexia.

This study showed that 56.4% of the cases occurred in the antenatal period. This is in agreement with earlier finding in this center and other studies in other places^{5,6,7}. However, in some studies, intrapartum eclampsia was the commonest¹¹. About 50% of maternal mortality associated with eclampsia occurred in the antepartum period.

Seventy six point five percent of the patients had their convulsions controlled with intravenous Diazepam. The failure in the rest of the patients could possibly be attributed to non-availability and inadequate supply at critical times of need and also the fact that faked brands of diazepam might have been used in situations where the relations have to purchase the drugs from outside the hospital as a result of the drug being out of stock in the hospital pharmacy. Magnesium sulphate (Mg SO₄) has however replaced diazepam in most centres both as prophylactic and therapeutic anticonvulsants for eclampsia^{1,7,13,16}. It has the advantage of reducing cerebral vascular spasm, improving cerebral blood flow and not depressing the cardio-respiratory centers of both the mother and the neonate. It however, has a low therapeutic index and requires close clinical monitoring or estimation of plasma concentration^{2,8}. A protocol is being set up in our centre to compare its use with that of diazepam.

A major factor in the successful management of eclampsia is delivery of the baby. Caesarean section was the commonest mode of delivery in this study accounting for 55.3%. This figure agrees with other earlier reported figures from

other centers^{7,10,11} but lower than earlier study in this center⁶. The reason for this high caesarian section rate may not be unconnected with high number of antepartum eclampsia with unfavourable cervix. Nevertheless, the choice of mode of delivery is determined by the prevailing circumstances and the fastest route of delivery that is premised on the best outcome for both the mother and the fetus is usually taken²⁰.

The findings of acute renal failure and pulmonary oedema as the most common complications of eclampsia are in agreement with other authors^{5,7,13}. Aspiration pneumonitis also presented high occurrence in this study (5.6%). It probably would have been the commonest cause of death in those that died within few hours of presentation in the hospital because the primary places of care have little or no knowledge of its prevention.

The maternal mortality of 8% found in this study is slightly higher than 6.57% earlier reported in this centre⁶. It is however low compared to 32.84% and 44.2% reported in Kano and Kaduna respectively^{7,21}. These figures are in sharp contrast to those from developed countries^{1,15,16}. This is a reflexion of the unacceptable large number of people living below poverty level, high level of corruption and misplaced government priorities. It was also found out in this study that the five patients that were managed in the intensive care unit due to multiple organ damage all recovered and were discharged. This is due to the intensive nature of care²² and more commitment of staff unlike in the eclamptic room where they are usually kept which is been overseen by labour ward staff who are already over stretched.

The fetal outcome in this study reveal a M:F ratio of 1:1.3 which shows that the sex of the fetus has no correlation on the development and severity of eclampsia. However, eclampsia has a deleterious effect on the fetus as 57.3% of the neonate had low birth weight (<2.5kg) due to the fact that some of them were delivered prematurely, suffered intrauterine growth restriction due to placental insufficiency and placental abruption¹². These were responsible for the high perinatal mortality of 19.1% seen in this study. It was largely due to problems of prematurity, birth asphyxia and neonatal sepsis^{5,6,10,11}.

That the high level of maternal mortality in Nigeria is unacceptable has been emphasized by many researchers^{3,14,21}. Eclampsia, being one of the leading causes of maternal mortality in this environment, every effort geared towards, its reduction will reduce the maternal mortality in the developing nations. Provision of quality antenatal care where high risk patients can be screened, improving the standard of living of the citizenry,

education and empowerment of women will no doubt lead to reduction in the incidence of eclampsia^{14, 24,26}. These are however long term measures as the acceptability and accessibility of the current structure of the antenatal care is still low due to reasons earlier mentioned. There is need to put in place a very effective and well articulated plan to prevent death of mothers that will come with eclampsia. Essential obstetric care should be strengthened, prompt attention to the eclamptic patients and regular drills of members of staff on management of eclamptics are necessary²⁷. Intensive care management of all eclamptic patients is advocated since the disease imposes multiple organ damage which requires supportive care for the patients²². Availability and sustainability of emergency drugs for the management of eclampsia should be put in place to prevent further morbidity and mortality due to unavailable and faked drugs. All these should be in place while we continue to put concerted efforts into reorganization of our health services in order to prevent the scourge of Eclampsia at the primary and secondary levels^{18,27}.

REFERENCES

- Itam HI, Ekabua JE.** A review of pregnancy outcome in women with Eclampsia at the University of Calabar teaching hospital, Calabar. *Trop J Obstet Gynaecol* 2001, 18(2):66-68
- Paruk F, Moodley J.** Treatment of severe pre-eclampsia/eclampsia syndrome. In: progress in Obstetrics and Gynaecology, vol. 14 (Ed. John Studd). Churchill Livingstone, London. 2000; 101-119.
- Fasubaa OB, Ogunniyi SO, Ezechi OC.** Maternal mortality in Obafemi Awolowo University Teaching Hospitals Complex, Ile-ife. A comparison of maternal death in young and the older women. *Nig J Med* 1999; 8(2): 147-151.
- Unuigbo JA, Misra P.** An assessment of Twelve cases of HELLP syndrome. Treated at the king Fahad Central Hospital, Gizan, Saudi Arabia. *Afr J Reprod Health* 1999; 3(2): 68-78.
- Ogunniyi SO.** Eclampsia: a continuing obstetric catastrophe the experience in Ile-Ife, Nigeria. *J Obstet Gynaecol* 1999; 19(1): 26-29.
- Dare FO, Eniola OA, Bariweni AC.** Eclampsia revisited. *Nig J Med* 1998; 7(4): 168-171.
- Onwuhafua PI, Onwuhafua A, Adze J, Mairami Z.** Eclampsia in Kaduna state of Nigeria- A proposal for a better outcome. *Nig J med* 2001; 10(2):81-84.7.
- Diejomoah FME, Omene JA, Omu AE,** Preeclampsia eclampsia at the university of Benin teaching hospital A review of 226 cases. In: proceedings of an international conference organized by the society of Gynaecology and Obstetrics of Nigeria, Ibadan. (Eds OA Ojo, VE Aimakhu, O. Akinla, LA Emmanuel, WO Chukwudebelu). Broderna Eksterands Trycheri, AB Lond. 1997:29-35.
- RCOG Guideline no-10. Royal college of Obstetrics and Gynaecology 1996.
- Okpere E.** Eclampsia. In: Clinical Obstetrics. 1st edition (Ed. Eugene Okpere). University of Benin Press, Benin City, Nigeria. 2004: 185-190.
- Onyiriuka NA, Okolo AA.** Perinatal outcome in patients with preeclampsia in Benin City, Nigeria. *Trop J Obstet Gynaecol* 2004; 21(2):148-152.
- Redman CWG, Sacks GP, Sargent IL.** Preeclampsia: An excessive maternal inflammatory response to pregnancy. *Am J Obstet Gynaecol* 1999; 180(2): 499-506.
- Ola ER, Odeneye OT, Abudu OO.** Eclampsia: A randomized double blind trial of magnesium sulphate and Diazepam in Lagos, Nigeria. *Trop J Obstet Gynaecol* 2004; 21(2): 142-147.
- Uzoigwe SA, John CT.** Maternal Mortality in the university of Port Harcourt Teaching Hospital, Port Harcourt in the last year before the new millennium. *Nig. J Med* 2004; 13(13):32-35.

15. **Leitch CR, Cameron AD, Walker JJ.** The changing Pattern of eclampsia over a 60- year period. *Br J Obstet Gynaecol* 1997; 104:917-922.
16. Eclampsia Trial Collaborate Group. Which Anticonvulsant for women with eclampsia? Evidence from collaborative Eclampsia Trial. *Lancet* 1995; 345:1455-1463.
17. **Pierre- Yves R, Gustaaf AD, Thomas CH.** Revisiting the epidemiological standard of preeclampsia: primigravidity of primiparity. *Europ J Obstet Gynaecol Reprod Biol* 1999; 84: 37-41.
18. **MacGillivray I, McCaw-Binns AM, Ashley DE, Fredrick A, Golding J.** Strategies to prevent eclampsia in a developing country: II. Use of a maternal pictorial card. *Int J Gynaecol Obstet* 2004; 87(3):295-300.
19. **Obed YT, Dah AS, Weerashingbe EA, Solomon J.** Hypoglycaemia: a major complication in eclampsia- its risk factors and prognostic value. *J Obstet Gynaecol* 1997; 17(6):535-539.
20. **Onah HE, Okoro JM.** Caesarean section in the delivery of Nigeria Eclampsia. *Trop J Obstet Gynaecol* 2001; 18(1):34-37.
21. **Onwuhafua PI, Onwuhafua A.** Maternal Mortality. A continuing challenge in tropical obstetrics practice. A report from Kano, Northern Nigeria. *Nig J Med* 1999; 8(2): 66-68.
22. **Clegg DR, Walters DAK.** Intensive care management of eclampsia and severe preeclampsia. *Postgraduate doctor Africa* 1998; 12(4):79-85.
23. **Salako BL, Odukogbe AA, Olayemi O Adedapo KS, Aimakhu CO.** prevalence of hypertension at antenatal booking and delivery in Ibadan. *Trop J Obstet Gynaecol* 2003; 20: 49-51.
24. **Taner CE, Hakverdi AU et al.** Prevalence. Management and outcome in eclampsia. *Int. J of Gynaecol Obstet.* 1996; 53:11-15.
25. CLASP Collaborate Group: a randomized trial of low-dose aspirin for the prevention and treatment of preeclampsia among 9364 pregnant woman. *Lancet* 1994; 3433: 619-29.
26. **Chein PFW, Khan KS, Arnott N.** magnesium sulphate in the treatment of eclampsia and preeclampsia: an overview of the evidence from randomized trials. *Br J Obstet gynaecol* 1996; 103: 1085-1091.
27. **McCaw-Binns AM, Ashley DE, Knight LP, MacGillivray I, Golding J.** Strategies to prevent eclampsia in a developing country: I. Reorganization of maternity services. *Int J Gynaecol Obstet* 2004; 87(3): 236-294.