MAKING MOTHERHOOD SAFER IN ECLAMPTIC PATIENTS

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ABSTRACT

Context*: Eclampsia remains an important cause of maternal and perinatal morbidity and mortality throughout the world, particularly developing countries.*

Objective*: To determine the prevalence, socio-demographic predisposing factors, management modalities and outcomes of eclampsia with the aim of making motherhood safer in eclamptic patients..*

Study setting: *Retrospective analysis of case notes of patients managed for eclampsia at the Wesley Guild Hospital, Ilesa.*

Method: *Case notes of patient managed for eclampsia at Wesley Guild Hospital, Ilesa over a 10 year period from January 1, 1996 to December 2005 were analysed.*

Main outcome Measure*: Prevalence of eclampsia, sociodemographic predisposing factors, mode of delivery, drug therapy, maternal and perinatal outcome.*

Result*: The analysis showed that the incidence of eclampsia was 0.9% and unbooked patients accounted for 93.3%. 65.8% of them were primigraidae and 78.5% of them were below 30 years with a mean age of 23.4years. Intrapartum eclampsia was the commonest type of eclampsia, occurring in 46.7% of the patients. Convulsion was controlled with diazepam in 91.0% of cases. Vaginal delivery was the mode of delivery in 59.8% of cases. Maternal and perinatal mortality were 3.3% and 16.7% respectively.*

Conclusions*: Eclampsia is associated with significant maternal and perinatal morbidity and mortality especially among unbooked patients. Public awareness on the need for early antenatal booking and adequate training of health care providers on how to recognize high risk patients and early referrals will go a long way in reducing the incidence of eclampsia and making motherhood safer among patients.*

KEYWORDS: eclampsia, safe pregnancy outcome, maternal and perinatal outcome

INTRODUCTION

Eclampsia is defined as the occurrence of generalized tonic clonic convulsion in a pregnant woman with pre-eclampsia after the 20th week of gestation and within 7 days of delivery[1]. It remains an important cause of maternal and perinatal morbidity and mortality throughout the world, particularly in the developing countries[1-4]. The incidence of eclampsia varies from one part of the world to another. The incidence in the western countries, where there is excellent antenatal care, is low. However, in the developing countries like Nigeria with scanty or non existent antenatal care, especially in the rural areas and where sizeable percentage of pregnant women do not avail themselves of antenatal care, the incidence is quite high[5-7]. Various workers have reported incidences ranging from 0.25 to 1.2% in Nigeria as compared to 0.03 in Western countries[6,8-10]. The attending maternal mortality is reported as 0 to 20% and perinatal mortality between 10 to 28%. Although mortality is frequently reviewed, morbidity (maternal or fetal) is rarely mentioned. This is unfortunate because even the surviving infants are in jeopardy of life long handicaps with adverse social and economic consequences.

Although routine screening of all pregnant women will assist in early recognition of hypertensive disorders in pregnancy thereby reducing the incidence of eclampsia, this had not been possible in Nigeria [13,]. This is because most pregnant women do not receive antenatal care because of various socioeconomic reasons [3-5]. The resultant effect is that some women will present with eclamptic fits to the health care facility. The obstetrician must therefore be prepared to aggressively manage eclampsia with the aim of making motherhood safer among these women.

The aim of this retrospective study was to determine the prevalence, identify predisposing socio-demographic factors and to review the modalities of management and outcome of eclampsia at the Wesley Guild Hospital, Ilesa, with a view to making recommendations aimed at reducing the occurrence and making the outcome safer in eclamptic patients.

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MATERIALS AND METHODS

The case records of patients managed for eclampsia at the Wesley Guild Hospital Ilesa from January 1, 1996 to December 31, 2005 were reviewed. There were 13,325 deliveries during the period and 120 cases of eclampsia were seen. The case notes were retrieved from the Medical Records Department of the hospital. Relevant data on age, parity, booking status, type of eclampsia, mode of delivery, drug therapy, maternal and perinatal outcome were extracted from the case notes. Only diagnosis of eclampsia made during pregnancy, labour and within 7 days of delivery was included. Cases of convulsion occurring after 7 days of delivery were regarded as atypical eclampsia and were therefore excluded from the study. Classification of social class in this study is based on Olusanya and Amiegheme classification[14] . The term unbooked patient refers to patients who either did not register for antenatal care or were registered with various other health facilities of different degrees (from clinics to maternity homes, church clinics, health centers and private hospitals) but were transferred to our hospital after they had convulsed. Wet (rainy) season was considered to be from April to October while dry season was from November to March. The treatment of eclampsia involved maintenance of airways, control of fits and hypertension and delivery of the fetus by the most appropriate and expeditious route. Convulsions were usually controlled with intravenous infusion of 40mg diazepam in 500mls of 5% dextrose in water after an initial bolus dose of 10mg of diazepam. Lytic cocktail, a mixture of 50mg chlorpromazine, 50mg promethazine and 100mg pethidine was given intermittently in a few cases where control of fits and sedation were not adequate. Severe hypertension(diastolic blood pressure reading of 110mmHg and above) was managed with intravenous bolus injection of 5 to 10mg of hydralazine intermittently and occasionally intravenous infusion of 40mg in 500mls of normal saline given by titration to maintain diastolic blood pressure at 90-100mmHg when response to bolus doses were not appropriate. The data was analysed using EPI-INFO statistical package. Simple statistics, tables and charts were used where relevant.

RESULTS

There were 120 cases of eclampsia while the total number of deliveries during the 10 year period was 13,325, giving an incidence of 0.9%. One hundred and twelve patients (93.3%) were unbooked while only 8(6.7%) were booked patients (Figure 1). Majority (72.5%) of the patients were of low social class, while only 27.5% of patients were of high and middle social classes. Eclampsia occurred more in primigravidae who constituted 65.8% of cases. 89.4% of the pregnancies were singleton while twin pregnancy occurred in 10.6%. 50% of the multiple pregnancies occurred in multigravidae who developed eclampsia for the first time. There were more cases of eclampsia during the wet season with 69(57.5%) of the cases occurring during this period. 51(42.5%) occurred during the dry season which is significant ($p<0.05$) (Table 1). Intrapartum eclampsia was most prevalent with 47.0% of cases occurring in labour. 85% of the cases of postpartum eclampsia occurred within the first 12 hours of delivery. Half of the patients presented within 6 hours of having their first convulsion with only 5.0% presenting beyond 24 hours(Table 2).

All the 97 patients that presented with either intrapartum or antepartum eclampsia were delivered within 12 hours of admission with 86.9% of them delivering within 6 hours of admission into the hospital. 39(40.2%) of the patients had emergency caesarean section usually because of unfavourable cervix and rarely due to cephalopelvic disproportion. 42(43.3%) of the patients had spontaneous vaginal delivery while 16(16.5%) of them had their second stage assisted with either forceps or vacuum delivery (Figure 2). Majority (68.3%) of them were managed with diazepam infusion and hydralazine injection. Lytic cocktail was used only in 10% of cases (Table 3). All patients required supportive care monitoring in the eclamptic room at the peak of their illnesses. Acute renal failure and puerperal sepsis topped the list of maternal complications (Table 4). These were followed by psychosis. Maternal death occurred in 3.3%. One patient with intrapartum eclampsia was brought in a state of acute renal failure and died about 6 hours after admission. Another died of massive cerebrovascular haemorrhage. She had an emergency caesarean section for intrapartum eclampsia with unfavourable cervix but failed to recover from anaesthesia. The cause of death in the two other cases of maternal

mortality could not be ascertained, as relatives of the deceased did not consent to post-mortem examination. Birth asphyxia was the commonest fetal complication and it occurred in 20.0% of the cases(Table 5). This was followed by prematurity and early neonatal death. The perinatal mortality was 20(16.7%). Eighty percent of the patients were discharged within 2 weeks of admission. Only 4.5% stayed beyond three weeks. Average number of days spent on admission was 11.3 days. (Table 6).

DISCUSSION

The incidence of eclampsia reported here is 0.9%. This compares favourably with figures from other developing countries, including an earlier study conducted in Ile-Ife[5,6,15]. It is however clearly higher than figures from the developed world where there is higher attendance of antenatal clinics, established health insurance schemes and easy accessibility to specialist care[1,16]. The high incidence in this study may not be unconnected with the higher number of unbooked cases since 93.3% of the patients were in this category. This is not unusual as this centre is a referral centre for about three states in southwest Nigeria

The age and parity distribution of the cases were similar to the reports from other places[5,10,11]. The peak incidence was found in primigravidae and this is similar to that of other authors[5,6,11,17]. It is generally accepted by most authors that preeclampsia and eclampsia are commoner in the young primigravidae.

Eighty seven patients (72.5%) who had eclampsia were either from low socio-economic groups or of low educational status. This underscores the need for the education of women so that they recognize the importance of antenatal care and safety of hospital delivery, thus reducing the incidence and severity of this problem and associated maternal and perinatal morbidity and mortality.

The incidence of eclampsia has been reported by many authors to be influenced by seasonal variations though there is no agreement as to which seasonal factor is responsible for this. There is however some evidence that serial blood pressure is higher in cold weather, possibly due to increased peripheral vasoconstriction. This was confirmed in this review with 57.5% of the patients developing

TABLE I
SOCIO-DEMOGRAPHIC CHARACTERISTICS OF 120 ECLAMPTIC PATIENTS

VARIABLES	NUMBER	PERCENTAGES
Age(years)		
<19	18	15.0
20-29	76	63.4
30-41	26	21.6
Parity		
0	79	65.8
1	18	15.0
2	12	10.0
3+	11	9.2
Social Class*		
I	4	3.3
II	7	5.8
III	22	18.4
IV	37	30.8
V	50	41.7
Season of Occurrence		
Wet	69	57.5
Dry	51	42.5
Types of Eclampsia		
Antepartum	41	34.2
Intrapartum	56	46.7
Postpartum	23	19.1

* According to Olusanya and Amiegheme classification(1989)

eclampsia during the wet season. This agreed with the findings in Ilorin, Bauchi and earlier studies in Ile-Ife[5,6,11].

Although eclampsia has been documented as early as 16 weeks of pregnancy[10], it is usually seen in the second half of pregnancy, more commonly towards term[18].This study shows that about 47% of the cases were intrapartum eclampsia, followed by antepartum eclampsia. This is at variance with earlier findings in this centre which had antepartum eclampsia as the commonest type[6]. It is however in agreement with reports from other places[5,7,11] and it has been postulated that labour pains may trigger off eclamptic convulsions. About 50% of maternal morbidity and over 60% of neonatal morbidity and mortality were associated with antepartum eclampsia. This agrees with the statement that eclampsia which occurs antenatally carries more complications than when the condition develops in the intrapartum or postpartum period[17]. The fact that 85% of postpartum eclampsia occurred within 12 hours of delivery highlights the need for vigilance and close monitoring of patients in the immediate postpartum period, especially in those with features of preeclampsia[17].

This review showed that 40.2% of the patients were delivered by an emergency caesarean section. This figure is lower than the earlier study in this centre[6]. It is however higher than figures from other places[5,10,11]. The relatively high rate of caesarean section may be due to the high number of antepartum eclamptics, many of whom at presentation would have an unfavourable cervix. With a favourable cervix, vaginal delivery is the favoured mode of delivery unless there are obstetric contraindications to vaginal delivery in which caesarean section is recommended[19]. There is however a rising trend in the use of caesarean section in the delivery of eclamptics[20]. If the patient is planned for vaginal delivery, the second stage of labour should be assisted in order to avoid the rise in maternal blood pressure with each uterine contraction and bearing down effort[10,19].

Table 2: Interval between first convulsion and arrival in hospital

Interval (hours)	Number of Patients	Percentage (%)
≤6 hours	61	50.8
7-12	46	38.4
13-24	7	5.8
>24	6	5.0
Total	**120**	**100.0**

Table 3: Drug Therapy

Drug Treatment	Number of Patients	Percentage (%)
Diazepam only	26	22.7
Diazepam + Hydralazine	82	68.3
Lytic cocktail	12	10

Eighty two patients (68.3%) were managed with diazepam infusion and hydralazine injection. Control of fits was achieved in virtually all the cases and lytic cocktail was used in only 10 percent of the patients.

Magnesium sulphate is now the drug of choice for eclampsia[1,16,18]. In a study by Ola et al[4] reported that the use of magnesium was significantly associated with less serious morbidity in terms of recurrence of convulsions, respiratory, and renal complications and improvement in level of unconsciousness in comparism to diazepam. Its advantage is that it does not cause depression of the central nervous system of either the mother or the neonate. It however has a low therapeutic index[8,18].

The findings of acute renal failure and puerperal sepsis as the leading complications in eclampsia is in agreement with other studies[5,6,11,20-30].

The maternal mortality of 3.3% found in this study is lower than the findings in Kano where eclampsia was associated with 32.84% of maternal mortality[21] and an earlier study in this centre where the case mortality rate was 6.57%. Two of the four maternal deaths occurred in multiparous women. This confirms the claim that there is higher mortality rate in older multiparous eclamptic patients. This might be because of other medical conditions present as age advances and the additional risk of grandmultiparity[22]. Eclampsia is usually part of a multisystem disorder and the risk of maternal complications increases with repeated fits before presentation and heavy maternal sedation with diazepam and/or lytic cocktail upon arrival in hospital. Also, when considering abdominal delivery in eclamptics, general anaesthesia is recommended[18]. However, general anaesthesia is associated with exaggerated pressor response to intubation, increased risk of failed intubation, and potential aspiration of gastric content.

In the babies, asphyxia was the commonest complication, occurring in 20% of cases. Other complications which are similar to those of other series include prematurity, which occurred in 16.7% of cases, early neonatal death and neonatal sepsis[5,6,10,11.29]. Poor fetal outcome in eclampsia is attributable to impairment of placental perfusion, placental abruption, and a shift of the oxygen dissociation curve to the left, resulting in decreased availability of oxygen to the fetus[12]. The fact that 43.3% of the patients in this study were allowed to have spontaneous vaginal delivery while under sedation could also have contributed to the high birth asphyxia and neonatal death. Vigorous resuscitation which was performed on some of the babies at delivery may also account for the high incidence of neonatal sepsis. The average number of days spent on admission was 11.3 days with 80% of them discharged by the end of the second week.

Eclampsia is a highly preventable condition. Early booking with screening procedures such as the roll over test, stand up pressure test urinary calcium level and cellular fibronectin determination in the first trimester and uric acid level should be employed in high risk patients[14,17,23,24]. Low dose aspirin and calcium supplementation with prophylactic use of magnesium sulphate in pregnant mothers with severe hypertension are suggested ways of preventing eclampsia[25,26,27,28]. Improving the standard of living of the citizenry with provision of basic education is the corner stone of the pathway to future eradication of eclampsia.

Public awareness on the need to book early for antenatal care as well as the training and retraining of health workers and alternative health care providers on how to recognize high risk patients and prompt referrals will go a long way in eradicating the scourge of eclampsia in this community and thereby making motherhood safer in our environment.

Maternal Complication	Number of Patients	Percentage (%)
Acute renal failure	14	11.6
Puerperal sepsis	14	11.6
Psychosis	11	9.2
Aspiration pneumonitis	7	5.8
Pulmonary oedema	7	5.8
Cerebrovascular accident	5	4.2
Congestive cardiac failure	5	4.2
Maternal death *	4	3.3
Burst abdomen	4	3.3
Disseminated intravascular coagulopathy	3	2.5

TABLE 5 : Fetal Morbidity and Mortality

Fetal Complications	Number of Patients	Percentage (%)
Birth asphyxia	24	20.0
Prematurity	20	16.7
Early neonatal death	12	10.0
Neonatal sepsis	9	7.5
Stillbirth	8	6.7

Table 6: Duration of Hospital Stay

Duration	Number of Patients	Percentage (%)
< 7 days	35	29.2
8 - 14 days	61	50.8
15 - 21 days	19	15.8
22 days and above	5	2
Total	120	100.0

Fig 1: Booking Status of Eclamptic patients.

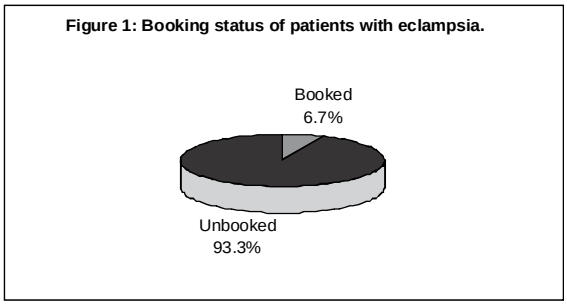
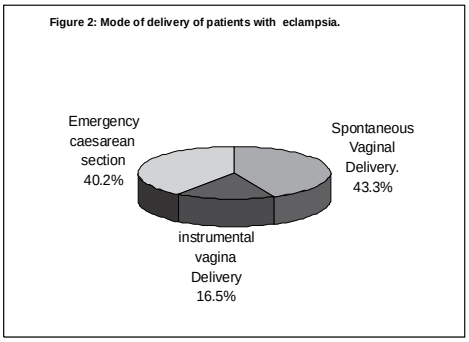


Fig 2 Mode of delivery of the 97 patients that presented with either antepartum or intrapartum eclampsia.



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