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Eclampsia At the University of Port Harcourt Teaching Hospital Port Harcourt, Nigeria.

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Abstract
Backround: *Eclampsia remains a significant cause of maternal and peri-natal morbidity and mortality worldwide, particularly in resource poor countries, Nigeria inclusive. It is to a great extent, a preventable obstetric complication and measures required for its prevention, to minimize adverse maternal and peri-natal outcome, are well known and inexpensive.*
Objectives: *To determine the socio-demographic profile, incidence and feto-maternal outcome of eclampsia at the University Of Port Harcourt Teaching Hospital.*
Method*: This was a prospective study of all pregnant women who presented with eclampsia to the University of Port Harcourt Teaching Hospital from April 1, 2010 to March 31, 2011. The data was collected on excel spreadsheet and analyzed using SPSS statistical package version 16.0.*
Results*: During the period under review, there were 61 cases of eclampsia out of 2792 deliveries, giving an incidence of 2.2%. Majority (77%) of cases occurred in the antepartum period before the onset of labour and more common in unbooked patients. The incidence of eclampsia in booked mothers of 2 per 1000 deliveries was significantly lower than that for unbooked mothers with 140 per 1000 deliveries (p value <0.05). Headache (80%) was the most frequent prodromal symptom and caesarean section was the mode of delivery in about two third of cases. There was one maternal death, giving a case fatality rate of 1.6%. Birth asphyxia was recorded in 39.3% and low birth weight in 26.2%. The stillbirth rate was 23%.*
Conclusion: *Eclampsia was commoner in unbooked patients and mostly during the antenatal period. The commonest mode of delivery was by caesarean section. Antenatal care and early identification of patients with pre-eclampsia, together with appropriate management of these cases will reduce the incidence of eclampsia in our environment.*
Keywords: *Eclampsia, Feto-maternal outcome, Port Harcourt, Nigeria.*

I. Introduction

Eclampsia is defined as the occurrence of generalized tonic-clonic seizures, not caused by coincidental neurological disease (e.g., epilepsy) in a pregnant woman whose condition meets the criteria for pre-eclampsia. It is an important cause of maternal and perinatal morbidity and mortality.[1-3]Worldwide eclampsia and preeclampsia account for about 63,000 maternal deaths annually.[4] In developing countries, case fatality rate of up to 14% is reported in relation to eclampsia compared to 0% to 1.8% in developed countries.[5] In Northern Nigeria, reports from different parts have sited eclampsia as the leading cause of maternal mortality.[6,7] This is variously attributed to cultural practices leading to early child bearing in the wake of poor maternity care services that are grossly under-utilised. In a report from Maiduguri North eastern Nigeria, eclampsia accounted for 46.4% of all maternal death. [6] In an earlier report from Port Harcourt, eclampsia accounted for 37.5% of all maternal death[8] while in Gwagwalada, northern Nigeria the incidence was 1.3%of all deliveries[9] and similar rates were reported across other parts of the country.[10] In developed countries, much lower incidences have been achieved through aggressive screening and management of preeclampsia. In Nigeria and in most of the developing world, the majority of patients did not receive antenatal care and so the diagnosis of preeclampsia was not made before the onset of fits. Eclampsia may be preceded by symptoms and signs of pre-eclampsia and therefore the incidence could be reduced by

improving the standards of antenatal and intra-partum care.[11-13] In general, only about 40% of patients with eclampsia have severe hypertension and about 20% have systolic blood pressure less than 140mmHg or diastolic blood pressure less than 90mmHg.[3] The presence of oedema and proteinuria among patients with eclampsia is variable. In addition, the signs and symptoms of severe pre-eclampsia may precede convulsions in a variable proportion of patients.[3] Eclampsia is a multi-system disorder. The complications include cerebrovascular accidents, cortical blindness, pulmonary oedema and aspiration pneumonitis, cardiac failure, renal failure and HELLP syndrome, which is an acronym for **H**aemolysis, **E**levated **L**iver enzymes and **L**ow **P**latelets. Other complications are liver rupture, liver failure and disorders of the coagulation mechanisms leading to disseminated intravascular coagulopathy. In the fetus preterm delivery, asphyxia, intrauterine growth restrictions and intrauterine fetal death are commonly associated with the disease.[4,9] Perinatal mortality is increased and neonatal intensive care admission is common. Perinatal mortality rates of up to 19.1% are reported from centres in Nigeria in association with eclampsia.[14] The purpose of this study therefore was to determine the socio-demographic profile and feto-maternal outcome of eclampsia in our hospital.

I. Materials And Methods

2.1 Study site: This study was carried out at the obstetric unit of the University of Port Harcourt Teaching Hospital. An average of 2,800 deliveries are conducted annually. It has the highest delivery rate among all the health facilities in Rivers State. The unit has a total of 135 beds, with 30 beds in the antenatal ward, 40 beds in the postnatal ward, 40 beds in the unbooked ward, 13 beds in the first stage room, 4 beds in second stage room, and 8 beds in private/semi-private rooms. There are five units and each unit has four consultant obstetricians, five specialist senior registrars and two registrars with many experienced nurses and midwives. It serves both urban and rural population within and outside the state.

2.2 Methods: This was a prospective study of 61 pregnant women admitted with eclampsia and managed at the Obstetric unit of the University of Port Harcourt Teaching Hospital, (UPTH) Nigeria, between April 1, 2010 and March 31, 2011. Eclampsia was diagnosed when convulsions occurred in association with syndrome of preeclampsia in the second half of pregnancy and the puerperium in patients without known history of convulsion, meningitis, or head injury. Each case of eclampsia was reviewed at presentation. All patients were screened for malaria on admission using peripheral blood film to exclude cerebral malaria. Socio-demographic data obtained included age, booking status, occupation, highest educational level attained, husband or partner's occupation and level of education, parity, LMP, EDD, gestational age and type of eclampsia. The mode of delivery, fetal condition and complications were compiled at discharge or following death of the mother. The exclusion criteria used in this study included cases of women with pre-existing neurological disorders such as epilepsy and other medical causes of convulsion and coma, and those with clinical diagnosis of cerebral malaria. The total number of deliveries during the study period was obtained from the labour ward and theatre registers.

2.3 Statistical Analysis: The Statistical package SPSS 16.0 was used for data analysis. The results are represented in simple percentages and tables.

III. Results

There were 61 cases of eclampsia and 2792 deliveries over the same period in the hospital, giving an incidence of 2.2%.Five cases (8.2%) occurred in booked patients while fifty six (91.8%) occurred in unbooked patients. The incidence of eclampsia in booked mothers was lower than for unbooked mothers (2 per 1000 deliveries vs140 per 1000 deliveries). The socio-demographic characteristics are shown in table 1.The premonitory symptoms such as headache, visual disturbances or epigastric pain were reported by 80%, 16% and 15% of patients respectively. The diastolic blood pressure ranged from 80 – 130mmHg and the systolic blood pressures from 140 – 230mmHg. Of the 57 patients with the records of the ward urinalysis done at presentation, 43 patients (75%) had proteinuria of 3+ on dipstick examination (table 2).Table 3 shows the type of eclampsia. Antepartum eclampsia was seen in 77% of the patients, while intra-partum and post-partum eclampsia occurred in 13% and 10% of the patients respectively. In only 21% of the women was a diagnosis of pre-eclampsia made before the onset of fits. Of the 61 cases of eclampsia, 52(85.3%) were undelivered at the time of presentation, 8(13.1%) had post-partum eclampsia and 1 (1.6%) had intrapartum eclampsia and subsequent vaginal delivery. Majority 35 (67.3%) of the women with antepartum eclampsia were delivered by emergency caesarean section and 17 (33.7%) had vaginal delivery. Five of the women (8.2%) had acute kidney injury, while cerebrovascular accident, abruption placentae and visual impairment were seen in 1.6% of the patients respectively. There was one maternal death due to cerebrovascular

accident and acute pulmonary oedema, giving a case fatality rate of 1.6%. (1600 per 100,000 deliveries).Consent for autopsy was declined by the relatives in keeping with the local customs of the people. The cause of death was based on the main clinical diagnosis prior to the death of the patient. The stillbirth rate was 23%. Sixteen (26.2%) babies had birth weight less than 2500g; of which 7 (11.5%) of them were preterm while twenty-four (39.3%) had low Apgar scores at 5 minutes. They were admitted into the special care baby unit for prematurity and birth asphyxia respectively (table 4).

Table 1: Socio-demographic characteristics of the patients

Variables	Number	Frequency (%)
Age (years)		
<20	9	14.8
20-24	15	24.6
25-29	22	36.1
30-34	9	14.8
≥ 35	6	9.8
Parity		
0	35	57.4
1	12	19.7
2-4	9	14.8
≥5	5	3.3
Marital status		
Married	36	59.0
Co-habiting	14	23.0
Single	11	18.0
Level of education		
Primary	5	8.2
Secondary	44	72.1
Tertiary	12	19.7

Table 2: Prodromal symptoms/signs

Symptoms	Number	Percentage (%)
Headache	49	80.0
Visual impairment	10	16.0
Epigastric pain	9	15.0
Vomiting	5	8.0
Chest pain	1	1.6
Reduced urinary output	1	1.6

Table 3: Types of eclampsia

Types of eclampsia	Number	Frequency (%)
Antepartum	47	77
Intra-partum	8	13
Post-partum	6	10
Total	**61**	**100**

Table 4: Maternal and Fetal outcomes

Outcomes	Number	Frequency (%)
Acute kidney injury	5	8.2
Abruptio placentae	1	1.6
CVA/Pulmonary edema	1	1.6
Cortical blindness	1	1.6
Maternal death	1	1.6
Apgar score <7 at 5 minutes)	24	39.3
Low birth weight	16	26.2
Preterm delivery	17	11.5
Admission in SCBU	31	50.8
Still birth	14	23.0

IV. Discussion

The incidence of eclampsia in this study was 2.2%. This is much higher than 3 per 1,000 deliveries reported from Calabar[1] and 17 per 1,000 deliveries in Sagamu[15] but lower than the incidence of 4.29% and 9.42% of deliveries in Sokoto and Birnin Kudu in Northern Nigeria.[2,16]It is however 7 – 10 times the rate reported from most

developed countries.[11-13] This may be because majority of our patients did not have any form of antenatal care, which would allow for early recognition and treatment of pre-eclampsia unlike in developed countries where routine antenatal care is the norm. It may also be due to their poor health seeking behavior either due to cultural or religious beliefs, thereby presenting late to the hospital .Similar finding have been reported by other workers.[1,2,15] Efforts at mitigating identified barriers to antenatal care attendance have been shown to improve uptake of antenatal and maternity care, with positive impact on morbidity and mortality, including eclampsia. Ignorance and poverty are at the root of most cases of eclampsia as well as in many other preventable causes of maternal morbidity and mortality in our sub-region. This was very apparent from the socio-demographic profile of patients. Only about a fifth had tertiary level of education. Most of them were either housewives, traders, students or artisans. It is well known that poverty, illiteracy and ignorance are significant contributors to adverse maternal and perinatal outcome in developing countries. Eclampsia is most common in young and nulliparous women. However, the frequency distribution is bimodal, with a second peak occurring in multiparous women greater than 35 years of age.[17] As expected; in this study, the highest incidence was found in nulliparous women who made up 57% of cases and the primiparas which contributed approximately 20% of cases.

Our findings also showed that the most common premonitory symptom was headache, this was followed by visual impairement and epigastric pain. However, some women had more than one premonitory symptom. Antepartum eclampsia was the most common type of eclampsia in our study. This is similar to the report from Calabar, [1] while in Birnin Kudu and Gombe, intra-partum eclampsia was the commonest clinical variety.[16,18] The reason(s) for the difference is unclear. Antepartum onset is said to carry a greater risk of morbidity and onset at less than 32 weeks of gestation is particularly dangerous to both mother and foetus.[19] Caesarean section remains the preferred mode of delivery in the face of unfavourable cervix at a gestation where the fetus has a reasonable chance of survival. In our centre, two-third (67.3%) of cases had caesarean section, which on a few occasions was done under local anaesthesia. This is not different from the experience in Enugu where 78% of patients had caesarean section.[20] More than half of the patients in Gombe had vaginal delivery because they presented with intra-partum eclampsia with favourable cervix. [18] Complications were recorded in 13% of the patients, with a case fatality rate (CFR) of 1.6%.The CFR was lower than the 10.6% reported from Birnin Kudu and 11.6% from Gombe, both in northern Nigeria.[16,18]Acute kidney injury, cerebrovascular accident, visual impairment and abruptio placentae were the complications observed in this study.

The stillbirth rate in this study was 23%, which is almost equivalent to the 21.4% reported in Benin.[10] However, our rate was low compared to 40% reported from a previous study. [21]The higher rate of perinatal deaths in our study and other similar studies. [10, 21] It could be explained by the three delays model.[22] Another contributing factor is the limitation in resources for managing extremely preterm infants. Our study revealed that the major indications for admission into the special care baby unit was severe birth asphyxia and prematurity. Other studies have reported similar findings. [2,10,23]

Limitation

The modest sample size in this study and lack of autopsy limit the ability to critically appraise the direct causes and associated factors for maternal death. Furthermore, the lack of follow up after hospital discharge for the patients means that the data on early neonatal morbidity and mortality as well as maternal outcome for the rest of the puerperium was not available for analysis.

V. Conclusion

Eclampsia remains a significant contributor to maternal and perinatal morbidity and mortality especially in unbooked pregnant women. There is need for increased access and uptake of quality antenatal care services in our environment. This will lead to the early diagnosis of and appropriate management of preeclampsia before the development of seizures.

Ethical Approval

All authors hereby declare that the study was approved by the hospital ethics committee and have therefore been performed in accordance with the ethical standards.

Consent Disclaimer

As per international standard or university standard, patient's written consent has been collected and preserved by the authors.

Competing Interests

Authors have declared that no competing interests exist.

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