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A FIVE-YEAR RETROSPECTIVE STUDY ON THE PREVALENCE OF ECLAMPSIA AMONG PREGNANT WOMEN AT THE UNIVERSITY OF MAIDUGURI TEACHING HOSPITAL, MAIDUGURI, NIGERIA

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Abstract:
This study was aimed at finding out the prevalence of eclampsia among pregnant women at the University of Maiduguri Teaching Hospital. This study is a retrospective study conducted at the Medical Record Department of the University of Maiduguri Teaching Hospital for the year January 2007 to December 2011. The data collected were of patients admitted within the year of study with no history of hypertension, diabetes, circulatory defect and no history of convulsion. The descriptive statistics of mean, standard deviation, frequencies and percentages were used to summaries the data. The total number of women who delivered within the 5 years period of study were 5191 out of

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which 294(5.66%) had eclampsia. Eclampsia occurs more among primigravidae 65.3%, those who do not attend antenatal patients 75.9%, during ante-partum 45.6%, women with no formal education 60.3%, those who are resident in high density areas 86.7%, within the age range of 20-29(48.3%), during third trimester 94.8%, more during the raining season 44.2%, and among women with previous history of eclampsia 2.8%. The outcome of this study shows that the prevalence of eclampsia at the University of Maiduguri teaching Hospital is high; it also shows increase in 2008, decrease in 2009 and 2010 and a marked increase in 2011 for the prevalence of eclampsia. It is therefore important that all levels of health care Intuitions be equipped and facilitated for the care and management of eclamptic women, women should also be encouraged and educated about the importance of ante natal care, physiotherapy should also be include as part of the ante natal care program.

Keywords: prevalence, eclampsia, pregnant women

1. Introduction

Eclampsia is a seizure activity or coma unrelated to other cerebral conditions in an obstetrical patient with preeclampsia. Preeclampsia is the combination of high blood pressure and protein in the urine (Oluwarotimi et al., 2008). Eclampsia does not occur in the absence of preeclampsia as preeclampsia precedes eclampsia or is the end stage of preeclampsia (Zwart et al., 2008). The clinical manifestation of eclampsia can occur anytime from the second trimester to the puerperium (Oluwarotimi et al., 2008).

Despite advances in the detection and management of eclampsia, it remains a common cause of maternal morbidity and mortality (Moodley, 1990). Eclampsia is a leading cause of maternal death worldwide (Oluwarotimi et al., 2008). It accounts for about 50,000 deaths worldwide at a ratio of 400 maternal deaths per 100,000 live births (Mosammat et al., 2004). According to Shafiq et al. (2002) every minute in Africa a woman dies during labour or delivery with mortality rates of one in sixteen in certain areas. There are however lower rates in the western nations (1 in 2000) births and higher rates in developing nations (1 in 1000) (Douglas and Redman, 1994). In Nigeria eclampsia is the third major causes of maternal mortality (Agida et al., 2010) and can be up to 330:100,000 ratios (Ikechebelu and Okolui, 2002). The incidence is lower in western nations ranging from 2.4:1000 deliveries this is due to improve antenatal care and early management (Zwart et al., 2008) and can be as high as 1 in 43 in developing nations like Nigeria (Igberase and Egbeigbe, 2004).

The pathogenesis of this condition remains unknown, although Roberts and Cooper (2001) suggested that placental hypoperfusion is a key process in the development of the condition. High blood pressure and kidney failure to filter protein in the urine are the major contributing factors to eclampsia (Sibai, 2005). Other factors include multiple pregnancies, primigravidae, young age (teenage pregnancy), lower

socio economic status, age over 35 years, lack of ante natal care (Agida et al., 2010), studies have shown significant variation in the incidence of eclampsia with weather (Agobe et al., 1981; Neela and Raman, 1993; Ugochuku et al., 2009 and Kristen and Zuber, 2011). The onset of eclamptic convulsion can be antepartum (38-53%), intrapartum (18-36%) and postpartum (11-44%) and the other are unknown (Sabai, 2005).

The management of the condition include control of convulsion using magnesium sulphate and diazepam and control of severe hypertension using hydralazine, oral nifedipine and methyl dopa (Ikechebelu and Okolui, 2002). Initiation of steps to effect delivery such as caesarean section, general nursing care like turning patient hourly, monitoring of maternal and foetal heart rate and placing of a rubber in the mouth to prevent tongue biting (Mosammat et al., 2004). To decrease the adverse outcome associated with eclampsia a community-based approach is needed to improve community health education, socioeconomic status and perinatal care. Delivery of proper health care system and emergency obstetrical care facilities are vital for preventing, early detection, proper management and hence to save both mother and child from such dreadful disease (Ayesha and Nargi, 1998).

Physical therapy plays an important role in the prevention of eclampsia especially in those women who show an indication of high blood pressure prior to their pregnancy; therefore, aerobic exercise contributes towards the control of arterial pressure and also lifestyle modification so as to diminish the risk factors (Souza et al., 2010). Regular exercise in people who are not pregnant is known to have general health benefit including increased blood flow and reduced risk of hypertension. So, there is the potential for exercise to help prevent pregnant women from developing preeclampsia (Meher and Duley, 2006). Exercising while pregnant does not only improve general wellbeing but it can help prevent excess weight gain and increase weight lost after delivery. It helps control blood glucose level which is valuable for the prevention and treatment of gestational diabetes. Research also suggest that women who exercise have a reduce risk for preeclampsia (pregnancy induce hypertension) (Jess, 2011). Exercise during early to mid-pregnancy stimulates placental growth and increase placental volume thereby reducing the risk of preeclampsia (Meher and Duley, 2006).

Eclampsia is a major cause of maternal morbidity and mortality in developing countries including Nigeria (Igberase and Egbeigbe, 2006, Agida et al., 2010). There said to be 150 deaths per month in Borno State due to one complication of pregnancy or the other (Ahmad, 2008), of which eclampsia is the leading cause in Maiduguri (Audu et al., 2010). It is one of the complications that lead to caesarean section in obstetrics and it also complicates 7.5% of foetal outcome in pregnancy (Geidam et al., 2010).

Despite all research on its cause, complication and treatment, eclampsia has continued to be a problem in the north east and in particular Maiduguri (Kullima et al., 2009). Studies on the prevalence of eclampsia have been carried out in developed nations and other developing nation, but there are few studies on the prevalence of eclampsia in

other parts of Nigeria and north eastern Nigeria in particular, but none has been carried out in Maiduguri. Therefore, this study will seek to answer the following questions;

1.1 Research Question

What is the prevalence of eclampsia between January 2007 - December 2011?

2. Significance of the Study

The outcome of this study may;

1) Provide information on the prevalence of eclampsia among pregnant women at the University of Maiduguri Teaching Hospital Maiduguri within the year 2007 - 2011.
2) Provide information on the risk factors of eclampsia among eclamptic women at the University of Maiduguri Teaching Hospital within the year 2007-2011.
3) The findings of this study will assist policy makers towards administration, direction and implementation of the right administrative policies which will aid minimization or alleviation and assistance of eclampsia.
4) Contribute to the existing body of knowledge.

3. Materials and Method

3.1 Participants

The secondary data of all eclamptic women aged 13years and above managed within the period of study, who were not on hard drug or previously hypertensive at the University of Maiduguri Teaching Hospital from January 2007 - December 2011 were collected. Data of all eclamptic patients not managed within the year of study were not considered. Women with the previous history of diabetes mellitus, malignancy, HIV, and other seizure disorders which could affect the results were not considered.

3.2 Materials

Patient folders for collection of patient data were used.

3.3 Study Procedure

The ethical approval and official permission of the University of Maiduguri Teaching Hospital was sought for and obtained prior to the commencement of this study by giving the that this study as well as the assurance that the information obtained will be used strictly for research purposes and also an introductory letter was written to the head, department of Obstetrics and Gynaecology where the researcher was given permission to access patient folders and the following were copied from patients folders:

1) booking status,
2) age,

3) parity,
4) onset of eclamptic fit (antepartum, intrapartum and postpartum),
5) trimester eclamptic fit occurred,
6) season at which eclamptic fit occurred,
7) previous history of eclampsia,
8) educational background,
9) residential area (address),
10) marital status.

3.4 Data Analysis

Descriptive statistic of mean and standard deviation, percentages and frequencies were used to summarise the data collected.

4. Results

4.1 Socio-Demographic Characteristics

There were 5,191 women who delivered at the University of Maiduguri Teaching hospital from 2007-2011 out of which 294 were diagnosed with eclampsia. The age of the women ranges from 13-40 with a mean age of 21.39± 5.12. Majority of the patients were resident at high density areas 86.7%, 89.4% were married and 60.3% had no formal education. The age range of 20-29(48.3%) had the highest prevalence (Table 1).

4.2 Prevalence of eclampsia

During the years 2007-2011, 294 had eclampsia giving a prevalence rate of 5.66% of the total deliveries. Eclampsia was more common amongst age group 20-29(48.3%) while primigravidea constituted 63.3%, the unregistered women had a higher rate of 75.9%, onset of eclamptic fit was common in antepartum (49.1%) and more at term (94.8%), higher rate also occur in women with no formal education (60.3%), and women residing in high density areas (86.7%). Most of the women were married (89.4%), a higher prevalence of eclampsia was recorded during the raining season (May - September) with a percentage of 44.2%; however, only 2.8% of the women had previous history of eclampsia (Table 1).

4.3 Prevalence of eclampsia in 2007

This study was carried out to determine the prevalence of eclampsia at the University of Maiduguri Teaching Hospital from January 2007 to December 2011. The total number of women that were diagnosed with eclampsia were 294, and lower occurrence was in 2007 with total of 31(10.5%), the prevalence in this year was more among age 13-19(45.2%), none of the women had a previous history of the condition and all were married. Higher rate was common among the unbooked (71.9%), primigravidae (61.3%), antepartum (41.9%), third trimester (80.6%). Higher prevalence was also common among women

with no formal education (61.3%) and those residents in high density areas (83.9%), women who delivered during cold season (October - January) have higher prevalence (61.2%) (Table 2).

4.4 Prevalence of eclampsia in 2008

The total number of eclamptic women in 2008 was 72(24.5%), more prevalence occurs among age 20-29(45.2%), unbooked (70.6%), primigravidae (63.9%). About 4.6% of the women had a previous history of the condition, 96.8% were married, higher rate also occur among antepartum and intrapartum (41.9%) as against postpartum (5.4%), there were more occurrence during third trimester (87.7%) more in hot season (February - April) (48.6%). Women with no formal education (67.7%) and those residents in high density areas had higher prevalence (88.9%) (Table 3).

4.5 Prevalence of eclampsia in 2009

The total number of women diagnosed with eclampsia were 57(19.4%),more occurrence was found among women aged 13-19(53.7%), unbooked (68.2%), primigravidae (70.4%), antepartum (44.4%) and third trimester (95.1%). About 2.4% of the women had a previous history of the condition, 95.1% were married. Higher rate also occurs among women with no formal education (68.3%), those residents in high density areas (88.5%) and during the raining season (May - September) (70.4%) (Table 4).

4.6 Prevalence of eclampsia in 2010

The total number of women diagnosed with eclampsia were 45(15.3%), out of which high prevalence was seen among women aged 20-23(51.1%), unbooked (75.0%), multigravidae (51.1%), antepartum (51.1%). Total (9.5%) of the women had a previous history of the condition, all of the women were married 100% and all of the women had eclampsia at third trimester 100%. Higher prevalence also occurs among women with no formal education (60.9%), those residents in high density areas (83.3%) and more during the cold season (October - January) (55.5%) (Table 5).

4.7 Prevalence of eclampsia in 2011

The total number of women diagnosed with eclampsia were 88 (29.9%) indicating higher prevalence as compared to the other years. eclampsia occurrence among women age 20-29 (54.5%), unbooked (83.0%), primigravidae (70.5%), antepartum (40.9%). Women with no formal education (89.8%), those residents in high density areas (90.9%) and those who were diagnosed during the cold season (October - January) (43.2%) had higher prevalence. All of the women were married and developed eclampsia at the third trimester 100%, about (1.1%) of the women had a previous history of the condition (Table 6).

Table 1: Characteristics of the women diagnosed with eclampsia (n=294)

Characteristics	Frequency	Percentage
Age (Years)		
13-19	122	41.5
20-29	142	48.3
30 above	30	10.2
Marital status		
Single	4	1.6
Married	247	89.4
Educational status		
No education	178	60.3
Primary	36	14.3
Secondary	26	10.4
Tertiary	11	34.4
Place of abode		
Low density area	34	11.8
High density area	254	88.2
Past history		
Have history	7	2.8
No history	243	97.2
Season		
February-April	57	19.4
May-September	130	44.2
October-January	107	36.4
Booking status		
Booked	67	24.1
Unbooked	221	75.9
Parity		
Primigravidae	192	65.3
Multigravidae	102	34.7
Trimester		
First	2	0.8
Second	11	4.4
Third	238	94.8
Onset of fit		
Antepartum	134	45.6
Intrapartum	111	37.8
Post	49	16.7

Table 2: Characteristics of the women diagnosed with eclampsia in 2007 (n=31)

Characteristics	Frequency	Percentage
Age (Years)		
13-19	14	45.2
20-29	16	51.6
30 above	1	3.2
Marital status		
Single	0	0
Married	31	100
Educational status		
No education	19	61.3
Primary	4	12.9
Secondary	6	19.4
Tertiary	2	6.5
Place of abode		
Low density area	5	16.1
High density area	26	83.7
Past history		
Have history	0	0
No history	31	100
Season		
February-April	6	19.4
May-September	6	19.4
October-January	19	91.2
Booking status		
Booked	9	29.0
Unbooked	22	71.0
Parity		
Primigravidae	19	61.3
Multigravidae	12	12.9
Trimester		
First	1	3.2
Second	5	16.1
Third	25	80.6
Onset of fit		
Antepartum	13	41.9
Intrapartum	19	32.3
Post	8	25.8

Table 3: Characteristics of the women diagnosed with eclampsia in 2008 (n=72)

Characteristics	Frequency	Percentage
Age (Years)		
13-19	28	38.9
20-29	37	51.4
30 above	7	9.7
Marital status		
Single	2	4.6
Married	63	96.8
Educational status		
No education	44	67.7
Primary	11	16.9
Secondary	6	9.2
Tertiary	4	6.2
Place of abode		
Low density area	7	9.9
High density area	64	90.1
Past history		
Have history	3	4.6
No history	62	95.4
Season		
February-April	35	48.6
May-September	9	12.5
October-January	48	38.9
Booking status		
Booked	20	29.4
Unbooked	48	70.6
Parity		
Primigravidae	46	63.9
Multigravidae	26	36.1
Trimester		
First	1	1.5
Second	7	10.8
Third	57	87.9
Onset of fit		
Antepartum	34	47.2
Intrapartum	34	47.2
Post	4	5.6

Table 4: Characteristics of the women diagnosed with eclampsia in 2009 (n=54)

Characteristics	Frequency	Percentage
Age (Years)		
13-19	29	53.7
20-29	19	35.2
30 above	6	11.1
Marital status		
Single	2	4.9
Married	39	95.1
Educational status		
No education	28	68.3
Primary	8	19.5
Secondary	3	7.3
Tertiary	2	4.7
Place of abode		
Low density area	6	11.5
High density area	46	88.5
Past history		
Have history	1	2.4
No history	40	97.6
Season		
February-April	6	11.1
May-September	38	70.4
October-January	10	18.5
Booking status		
Booked	14	31.8
Unbooked	30	68.2
Parity		
Primigravidae	38	70.4
Multigravidae	16	29.6
Trimester		
First	1	2.4
Second	2	4.8
Third	39	92.8
Onset of fit		
Antepartum	24	44.4
Intrapartum	20	37.1
Post	10	18.5

Table 5: Characteristics of the women diagnosed with eclampsia in 2010 (n=45)

Characteristics	Frequency	Percentage
Age (Years)		
13-19	16	35.6
20-29	23	51.1
30 above	6	13.3
Marital status		
Single	0	0
Married	23	100
Educational status		
No education	14	60.9
Primary	3	13.0
Secondary	4	17.4
Tertiary	2	8.7
Place of abode		
Low density area	7	16.7
High density area	35	83.3
Past history		
Have history	2	9.5
No history	21	90.5
Season		
February-April	7	15.6
May-September	13	28.9
October-January	25	55.5
Booking status		
Booked	11	25
Unbooked	33	75
Parity		
Primigravidae	22	48.9
Multigravidae	23	51.1
Trimester		
First	0	0
Second	0	0
Third	23	100
Onset of fit		
Antepartum	23	51.1
Intrapartum	15	33.5
Post	7	15.6

Table 6: Characteristics of the women diagnosed with eclampsia in 2011 (n=88)

Characteristics	Frequency	Percentage
Age (Years)		
13-19	33	37.5
20-29	48	54.5
30 above	7	8.0
Marital status		
Single	0	0
Married	88	100
Educational status		
No education	79	89.8
Primary	4	4.5
Secondary	4	4.5
Tertiary	1	1.1
Place of abode		
Low density area	8	9.1
High density area	80	90.9
Past history		
Have history	1	1.1
No history	87	98.8
Season		
February-April	23	26.1
May-September	27	30.7
October-January	38	43.2
Booking status		
Booked	15	17.0
Unbooked	73	83.0
Parity		
Primigravidae	62	70.5
Multigravidae	26	29.5
Trimester		
First	0	0
Second	0	0
Third	88	100
Onset of fit		
Antepartum	36	40.9
Intrapartum	31	35.2
Post	21	23.9

5. Discussion

The total prevalence of eclampsia was 5.66%, which concur with the result of (Kullima et al., 2009) in which a 5-year review of maternal mortality associated with eclampsia in a tertiary institution in Northern Nigeria shows a prevalence of 5.7%. The prevalence rate in the present study is lower when compared with the findings of (Tukur et al., 2007) in a tertiary health facility situated in a semi-rural town in Northern Nigeria 9.42%. The present study findings are however higher when compared with others including that of (Ibrahim et al., 2011) with a prevalence rate of 5.0% in Kano, that of (Ikechebelu et al., 2002) with a prevalence rate of 0.75% in South- Eastern part of the country and that of (Agida et al., 2010) with a prevalence rate of 13 per 1000 in Abuja. Studies carried out in other parts of the world also show lower prevalence of 6.2 per 10000 in Netherland (Zwart et al., 2008), 0.81% in Columbia and 4.9% in United Kingdom (Pallab et al., 2011).

The high prevalence rate of 44.2% obtained in this study during raining season is in agreement with the findings of (Ugochukwu et al., 2009) who reported association between occurrence of eclampsia and raining season. It is also in agreement with the findings of (Agobe et al., 1981) which reported that increasing humidity and a lower temperature is associated with the incidence of eclampsia.

The findings in this study reported that 2.8% of the women had previous history of eclampsia is in agreement with the findings of (Michael and Ronald, 2011) which reported that about 2% of women with eclampsia develops eclampsia with future pregnancies. The higher prevalence of eclampsia found among unbooked 75.9% can be compared with, unbooked 89.1% found in a study in Abuja by (Agida et al., 2010). In the same study the findings that the prevalence of eclampsia is high among primigravidae 60.9% and antepartum 73.9% can be compared with the findings of this study which also reported high prevalence among primigravidae 65.3%, antepartum 45.6%. The higher rate among women with no formal education 60.3% is in agreement with the findings of (Kullima et al., 2009) which reported that women with no formal education die more compared with those that had other forms of education 22.3%. This study reported the prevalence of 10.5% eclampsia in 2007 10.5%, an increase to 24.5% in 2008, a decrease in 2009 and 2010 to 19.9% and 15.3% respectively, the decrease in 2009 may be due to the crisis which might have prevented women from reporting to the University of Maiduguri Teaching Hospital, there was however a marked increase in 2011 with a prevalence rate of 29.9%. The high prevalence of eclampsia observed in this study is indicative of the poverty, illiteracy and ignorance regarding health care in this part of the country.

6. Conclusion

Based on the result of this study the following conclusion have been made:

1) The findings of this study indicated that the prevalence of eclampsia in pregnant women at the University of Maiduguri Teaching Hospital is high.

2) Eclampsia occurs more in women aged 20-29.
3) Eclampsia occur more in women with lower socio-economic status.
4) Eclampsia occur more in unregistered women.
5) Eclampsia occur more in primigravidae women.
6) Eclampsia occur more in the raining season (May - September)

6.1 Recommendations

Eclampsia is no doubt the major cause of maternal morbidity and mortality in developing countries including Nigeria, particularly in Maiduguri, Borno State in the North-east of Nigeria. To address eclampsia in the University of Maiduguri Teaching Hospital.

1) Proper care and attention are to be giving toward alleviation of eclampsia to women age 20-29, women that are primigravidae and women in third trimester of pregnancy.
2) Attention should be giving to women with low socio-economic status.
3) Women should be encouraged and educated on the importance of antenatal care.
4) Those that managed pregnancy and deliveries should take special cognizance of higher rate of eclampsia during the raining season (May-September).
5) All tertiary health institutions are to be sensitized and equip with equipment and personnel toward the management of eclampsia.
6) Facilities for management of eclampsia should be improved at all level of health care institutions.
7) Physiotherapy should be included into the ante natal care program of pregnant women in University of Maiduguri Teaching Hospital.
8) Further studies should be carried out to explore the effect of exercise on preeclampsia.

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