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PRESENTATION AND OUTCOME OF PREECLAMPSIA: A FIVE –YEAR REVIEW IN UDUTH, SOKOTO

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ABSTRACT

Background: Hypertensive disorders in pregnancy are multi-organ, heterogeneous disorder of pregnancy associated with significant maternal and neonatal morbidity and mortality. Pre-eclampsia is a condition which typically occurs after 20 weeks of gestation and is characterized by high blood pressure and significant proteinuria.

Objective: The aim of the study was to find out the outcome of pregnancies complicated by pre-eclampsia in the teaching hospital in Sokoto, North-West Nigeria.

Methods: A five-year retrospective study on the presentation and outcome of management of pre-eclampsia carried out in Usmanu Danfodiyo University Teaching Hospital (UDUTH) between 1st January 2010 and 31st December 2014. The case files were traced and relevant information on socio-demographic characteristics, booking status, parity, type of preeclampsia, gestational age at delivery, mode of delivery, birth weight, complications, foetal and maternal outcome was obtained. Data analysis was done using SPSS version 21. Level of significance was set at $p < 0.05$.

Results: The total number of deliveries during the study period was 15,133 and there were 252 cases of preeclampsia; giving an overall prevalence of 1.67 %. Severe preeclampsia accounted for 84.8% while mild preeclampsia accounted for 15.2%. Among these, nullipara and multipara were 40% and 40.6% respectively, while grandmultiparae were the least (19.4%). The risk factors observed among the subjects were previous history (21.8%), obesity (15%), twin gestation (9.1%) and diabetes (1.2%), while 52.2% had no identifiable risk.

There was a statistically significant difference in the maternal outcome between the women booked for antenatal care and those that were not. ($p = 0.006$). Most patients (63.6%) delivered at 37 weeks or beyond and the vaginal route was the most common route of delivery.

Conclusions: The study showed most patients were primigravidae, presented with severe preeclampsia and they had vaginal delivery at term. The maternal and foetal outcomes were poorer amongst the unbooked patients.

Key words: Preeclampsia, Sokoto, Outcome

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INTRODUCTION

Hypertensive disorders of pregnancy (HDP) account for nearly 18% of all maternal deaths worldwide. An estimated 62000–77000 deaths per year is recorded from this disorder.¹ Pre-eclampsia stands out among the hypertensive disorders for its impact on maternal and neonatal health. It is one of the leading causes of maternal and perinatal mortality and morbidity worldwide.² HDPs are the leading cause of maternal mortality in Nigeria.³

Pre-eclampsia is defined as hypertension of at least 140/90 mmHg recorded on at least two separate occasions and at least 4 hours apart and in the presence of at least 300 mg protein in a 24-hour collection of urine, arising de novo after the 20th week of pregnancy in a previously normotensive woman and resolving completely by the sixth postpartum week.³

Approximately 1 in 10 women will have one or more episodes of raised blood pressure prior to delivery with the majority being gestational hypertension, which is not associated with adverse outcome.^{3,4} However, about one-third of these women will develop pre-eclampsia.³ The exact cause of pre-eclampsia is largely unknown but it is thought to result from complex, pregnancy-specific hypertensive syndrome of reduced organ perfusion related to vasospasm and activation of the coagulation cascade affecting multiple systems.⁵ There are many attributes that have been reported to be related to preeclampsia: first pregnancy, multiparity with a previous history of preeclampsia, preeclampsia in any previous pregnancy, 10 years or more since last baby, age 40 years or more, body mass index of 35kg/m² or more, family history of preeclampsia, multiple pregnancy, certain underlying medical conditions

like hypertension and diabetes.¹⁻⁵

The increased incidence of perinatal morbidity and mortality seen in pregnancies complicated by preeclampsia, although complex and multifactorial, is primarily due to the need for premature delivery and utero placental insufficiency resulting in a compromise of blood flow to the foetus.¹⁻⁵

Preeclampsia is usually classified as mild or severe.^{2,5} In most settings, pre-eclampsia is classified as severe when any of the following conditions is present: severe hypertension, heavy proteinuria (>5g/24 hours urine) or substantial maternal organ dysfunction.² Mild preeclampsia on the other hand, is the presence of mild hypertension, proteinuria (>300mg/24 hour urine/ dip stick protein of +) in asymptomatic women.^{2,6,7,8} In some parts of the world, early onset (before 32–34 weeks of pregnancy) pre-eclampsia and foetal morbidity are used as independent criteria to classify pre-eclampsia as severe.² The progression from mild to severe can be rapid, unexpected, and occasionally fulminant.²

The majority of women with preeclampsia especially the mild form are asymptomatic or merely complain of general vague 'flu-like' symptoms.⁹ In severe preeclampsia, the disease may affect any organ system in the body.^{5,6} Cerebral manifestations include; headache, tinnitus, visual disturbances like blurred vision, drowsiness, amaurosis and changes in respiration, tachycardia and fever. Gastrointestinal symptoms are epigastric pain, nausea and vomiting. Rapidly progressive oedema of the face and hands, oliguria, haematuria, hyperreflexia and clonus are other features of severe disease.⁷⁻¹⁰

Patients with mild hypertension, minimal protein and normal haematological and biochemical parameters may be monitored as outpatients, but will require frequent attendance for foetal and maternal assessment.^{6,9} While those with moderate or severe hypertension, significant proteinuria or abnormal haematological or biochemical

parameters will require admission and inpatient management.^{3,6,9} The care is multidisciplinary with input from the cardiologists, anaesthesiologists and neonatologists as deemed necessary.^{6,7,9}

The ultimate treatment for pre-eclampsia is delivery of the baby. After 37 completed weeks gestation consideration should be given to induction of labour.¹¹ Guidelines recommend delivery with a stable blood pressure when hypertension is severe after 34 weeks and after 37 weeks when hypertension is mild or moderate.^{5,6,9}

If the foetus is less than 34 weeks of gestation, delivery can be deferred to allow administration of corticosteroids, although after 24 hours the benefits of conservative management should be reassessed.² Conservative management at very early gestations may improve the perinatal outcome but must be carefully balanced with maternal wellbeing.^{8,9}

Vaginal delivery is generally preferable but, if gestation is below 32 weeks, caesarean section is more likely as the success of induction is reduced.⁸⁻¹⁰

This study intends to assess the presentation, risk factors and fetomaternal outcome of women that had pre-eclampsia over the five-year period.

Materials and Methods

This was a five-year retrospective study on the presentation and outcome of cases of preeclampsia managed in UDUTH between 1st January 2010 and 31st December 2014. The study populations were women that were managed for preeclampsia at UDUTH Sokoto during the study period. All women that had preeclampsia during the study period were included. Women that had gestational hypertension, incomplete information in the folder, and eclampsia were excluded from the study. In our centre, a parturient has mild preeclampsia when she presents with the following: a blood pressure of 140/90 mmHg on two occasions 6 h or more apart, or a rise of 30 mmHg systolic or 15 mmHg diastolic from mid-trimester values; proteinuria above one+ on two consecutive urine

specimens and significant non-dependent oedema. A patient is labelled to have severe preeclampsia if the blood pressure is persistently above 160/110 mmHg and proteinuria above 3g/24 h (++) and if patient has symptoms of headache, blurring of vision, epigastric pain and oliguria. The variables analyzed were socio-demographic characteristics of the women, parity and booking status. The pre-existing medical condition, previous history and outcome of the pregnancy including mode of delivery and gestational age at delivery. The maternal complications assessed were anaemia, eclampsia, renal failure, disseminated intravascular coagulopathy and postpartum hemorrhage. Intrauterine fetal death, prematurity, still birth, intrauterine growth restriction and neonatal death were also identified.

The list of cases of preeclampsia during the study period was obtained from medical record office, preeclamptic and prenatal ward admission records. The case files were retrieved from the central library and relevant information extracted. The information obtained was analysed using SPSS version 21. Tables and figures were used to display the results. Chi square test was used to test the associations. The level of significance was set at $p < 0.05$. Ethical approval was obtained from the UDUTH Health Research and Ethics Committee.

RESULTS

The total number of deliveries during the study period was 15,133 and there were 252 cases of preeclampsia; giving an overall incidence of 1.67 %. Among the total number of preeclampsia cases during the study period, 165 (65.5%) case files were retrieved. Further analysis was limited to these.

The socio-demographic characteristics of the subjects are depicted in table 1. The mean age of the subjects was 28 ± 6.64 and the range was 15 to 42 years. A third of the patients (32.7%) were in the age group of 25-29 years. Majority of the patients were Hausa (73.3%) and Muslims (78.8%). Most of the subjects had at least secondary level (67.3%) of education.

Table 1: Socio-demographic characteristics of the patients

Characteristic	Number of Subjects	Percentage
Age		
15 - 19 years	12	7.3
20 - 24 years	33	20.0
25 - 29 years	54	32.7
30 - 34 years	25	15.2
35 - 39 years	30	18.1
40 years and above	11	6.7
Total	165	100
Ethnicity		
Hausa	122	73.9
Yoruba	12	7.3
Igbo	20	12.1
Others	11	6.7
Total	165	100
Occupation		
House wife	148	89.7
Business woman	12	7.3
Civil servant	5	3.0
Total	165	100
Religion		
Islam	130	78.8
Christianity	35	21.2
Total	165	100
Educational status		
Quranic only	42	25.4
Primary	12	7.3
Secondary	59	35.8
Tertiary	52	31.5
Total	165	100

Forty percent were primigravidae and majority (75.7%) were booked for antenatal care and they had severe disease (84.8%). Most of the cases occurred at or beyond 34 weeks (82.4%) as shown in Table II

Table II Clinical characteristics of patients with preeclampsia

Characteristic	Number of women	Percentage (%)
Parity		
Primigravidae	66	40.0
Multigravidae	67	40.6
Grandmultigravidae	32	19.4
Total	165	100
Booking status		
Booked	125	75.7
Unbooked	40	24.1
Total	165	100
Type of preeclampsia		
Mild	25	15.2
Severe	140	84.8
Total	165	100
Gestational age at delivery		
<30weeks	17	10.3
30 - 33 weeks	12	7.3
34 - 36 weeks	31	18.8
>37weeks	105	63.6
Total	165	100
Mode of delivery		
Spontaneous delivery	55	33.4
Induction of labour	57	34.5
Elective CS	38	23
Emergency CS	15	9.1
Total		

Risk factors for preeclampsia

Risk factor for preeclampsia is shown in figure 1. Apart from primigravity the other factors associated with preeclampsia in the study were family history of hypertension (10%), obesity (12.1%), twin gestation (9.1%), diabetes (1.2%), pre-existing hypertension (8.5%) and previous history of preeclampsia (18.8%). However, there were no identifiable risk factors in 38.1% of the women with preeclampsia.

Figure 1: Risk factors for preeclampsia

Table III illustrates the relationship between booking status and maternal outcome. Although the majority of patients (71.7%) did not have any obvious adverse outcome, the occurrence of eclampsia, anaemia and post-partum haemorrhage were more frequent among the unbooked patients. There was also one maternal death among the unbooked patients

Table III Association between booking status and maternal outcome

Booking status	Maternal outcome						χ^2	P value
	Abruptio* n (%)	Eclampsia n (%)	PPH** n (%)	None*** n (%)	Anaemia n (%)	Mortality n (%)		
Booked	9(5.5)	1(0.6)	1(0.6)	98(58.4)	16(9.7)	0(0)	14.813	0.006
Unbooked	5(3.0)	4(2.4)	2(0.7)	22(13.3)	7(4.2)	1(0.6)		
Total	14(8.5)	5(3.0)	3(1.3)	120(71.7)	23(13.9)	1(0.6)		

*Abruptio placentae, ** postpartum haemorrhage, *** no complications

Foetal outcome of pregnancies complicated by preeclampsia

From the study it was found that 58.2% of the foetuses had no complications. In those that had complications prematurity was the most common neonatal complication (20%). See Table IV The perinatal mortality constitutes about 16.3%, which includes still births (16.3%) and early neonatal deaths (0.6%). There was a statistically significant difference ($p=0.001$) in the foetal outcome between the booked and the unbooked parturient. Intra uterine foetal death was observed to be higher among those who did not book.

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Table IV Foetal outcome		Percentage
Foetal complications	Frequency	(%)
IUGR	6	3.6
Prematurity	33	20.0
Stillbirth	27	16.3
Normal	99	60
Total	165	100

DISCUSSION

The prevalence of preeclampsia observed over the period of this study was 1.67%. This is similar to 1.6% observed in Lagos¹⁰ and 1.2% in Calabar¹² all in Nigeria. This rate is however higher than the finding of 0.74% by Thapa and Jha in Nepal, South Asia.¹¹

The distributions of the patients by age revealed that one third of the patients (32.7%) were in the age range 25-29 years. This is similar to findings in Enugu¹³ and Calabar.¹² This however differs from the report in South Africa where 51.4% were less than 21 years old.¹⁴ Differences in study settings and cultural practices may account for this. The primigravidae were more likely to develop preeclampsia compared to the multigravidae from the findings in this research, which is similar to other reports and suggests that preeclampsia is a disease of the primigravidae. It is believed that immune maladaptation of the primigravidae is

responsible for the higher incidence of preeclampsia in this group.¹⁴⁻¹⁸

The occurrence of severe preeclampsia was much higher than mild disease from this study. This is similar to findings from some centres in Nigeria.^{3,17} It however differs from a study in Ethiopia where mild preeclampsia (65.68 %) occurs more frequently than severe preeclampsia (17.42 %).¹⁸ The probable explanation for this is the fact that our centre is a referral centre with a very wide catchment area so most severe cases are referred here. Mild preeclampsia may have been taken care off in peripheral health facilities.

The risk factors for preeclampsia observed in this study were a previous history of preeclampsia, obesity, family history of pre-eclampsia and multiple gestation. Many of the risk factors included in the study are similar to those previously reported in other studies.¹⁴⁻¹⁸ A greater majority (82.4%) of the patients delivered at a gestational age greater than or equal to 37 weeks. This is similar to the finding from Ethiopia¹⁸ This implies that majority of the patients presented at a later gestational age when active management can be instituted without the fear of foetal maturity. Perhaps the fact that most patients delivered at or close to term may have accounted for the favourable foetal outcome in 60% of patients. Despite this however the foetuses of patients with severe disease and those unbooked for antenatal care had lower Apgar scores than those with mild diseases. This is not surprising as placental insufficiency increases with severity of preeclampsia.

Most of the patients had successful vaginal delivery (67.9%). This is comparable with the findings from Kano,¹⁷ Birninkudu¹⁹ and South Africa¹⁴ where most women also had vaginal delivery. However, caesarean section was reported to be main mode of delivery in Calabar¹² and Ethiopia.¹⁸ Differences in management protocols in different settings could account for this.

There was a significant difference in the occurrence of maternal complications like eclampsia, anaemia

and post-partum haemorrhage amongst the unbooked patients when compared to the booked patients. This agrees with findings from others.^{5, 20}

The contributing factors to the poorer outcomes in the unbooked patients include late presentation, poor health seeking behaviour, lack of antenatal check-ups and subsequent complications.

Limitations

The retrospective nature of the study made retrieval of case notes a challenge. Associations and major deductions may be difficult to infer from this study as not all information was available for evaluation

CONCLUSIONS

This study showed most patients with preeclampsia in UDUTH Sokoto were primigravidae who presented with severe preeclampsia and they had vaginal delivery at term. The maternal and foetal outcomes were poorer amongst the unbooked patients. A previous history of preeclampsia obesity and a family history of hypertension were underlying risk factors in some women. The need to strengthen utilization of antenatal care by our women to enable prompt, early detection and management of preeclampsia and further prospective studies are therefore recommended.

The cost of the research was borne by the authors who declare no conflict of interest.

REFERENCES

1. Abalos E, Cuesta C, Carroli G, Qureshi Z, Widmer M, Vogel JP, Souza JP. Pre-eclampsia, eclampsia and adverse maternal and perinatal outcomes: a secondary analysis of the World Health Organization multicounty survey on maternal and newborn Health. *BJOG* 2014; 121(1): 14-24.
2. WHO recommendations for Prevention and treatment of pre-eclampsia and eclampsia. 2011. Assessed June 2017.
3. Oladapo OT, Adetoro OO, Ekele BA, Chama C, Etuk SJ, Aboyeji AP, Onah HE, Abasiattai AM, Adamu AN, Adegbola O, Adeniran AS, Aimakhu CO, Akinsanya O, Aliyu LD, Ande AB, Ashimi A, Bwala M, Fabamwo A, Geidam AD, Ikechebelu JI, Imaralu JO, Kuti O, Nwachukwu D, Omo-Aghoja L, Tunau K, Tukur J, Umeora OUJ, Umezulike AC, Dada OA, Tunc alp ?, Vogel JP, Gu'Imezoglu AM, Nigeria Near-miss and Maternal Death Surveillance Network. When getting there is not enough: a nationwide cross-sectional study of 998 maternal deaths and 1451 near-misses in public tertiary hospitals in a low-income country. *BJOG* 2015; DOI: 10.1111/1471-0528.13450
4. Jason JSW, Maria CS. Hypertensive Disorders. In: Keith Edmonds (Ed). *Dewhurst's Textbook of Obstetrics & Gynaecology*, Eighth Ed. John Wiley and Sons, Ltd. 2012:101-10.
5. Pallab R, Sonela B, Dilip P, Latoo M Y. Recent advances in management of pre-eclampsia. *BJMP* 2011; 4(3): a433. ISSN 1757-8515. Assessed June 2017.
6. Lelia Duley. Pre-eclampsia and the hypertensive disorders of pregnancy. *Br Med Bull*. 2003; 67 (1): 161-76.
7. Hofmeyr GJ, Lawrie TA, Atallah AN, Duley L. Calcium supplementation during pregnancy for preventing hypertensive disorders and related problems. *Cochrane Database Syst Rev*. 2010; 4(8):CD001059
8. Bujold E, Morency AM, Roberge S, Lacasse Y, Forest JC, Giguère Y. Acetylsalicylic acid for the prevention of pre-eclampsia and intra-uterine growth restriction in women with abnormal uterine artery Doppler: a systematic review and meta-analysis. *Obstet Gynaecol Can*. 2009; 31:818-26.
9. RCOG. The management of severe pre-eclampsia/eclampsia. Guideline No. 10(A). Reviewed 2010. Page 1-11.
10. Adekanle DA, Akinbile TO. Eclampsia and pregnancy outcome at Lautech Teaching Hospital Osogbo, South-West, Nigeria. *Clinics in Mother and Child Health* 2012; 9:1-4
11. Thapa K, Jha R. Magnesium sulphate: A life saving drug. *J Nepal Med Assoc* 2008; 47:104-8
12. Mary EK, Mabel E, Dorcas OE. The prevalence of pre-eclampsia among pregnant women in the University of Calabar Teaching Hospital, Calabar. 2014;3(3): 133-36
13. Ugwu EO, Dim CC, Okonkwo CD, Nwankwo TO. Maternal and perinatal outcome of severe pre-eclampsia in Enugu, Nigeria after introduction of magnesium Sulphate. *Niger J Clin Pract*. 2011; 14:418-21.
14. Modiba LM. Pre-eclampsia: Evaluation of patient's care in a South African hospital. *Life Sci J* 2013; 10(1):2642-46
15. Parveen MA, Anne G C, Emmanuel P, Jasmin H. Maternal and foetal outcome in pre-eclampsia in a secondary care hospital in South India. *J Family Med Prim Care*. 2015; 4(2): 257-60.
16. Jido TA, Yakassai IA. Preeclampsia: a review of the evidence. *Annals of African medicine*. 2013;12(2):75-9
17. Omole-Ohonsi A, Attah R. Risk factors of pre-eclampsia in Aminu Kano Teaching Hospital, Kano, Nigeria. *Mary Slessor Journal of Medicine*. 2010;10(1):10-1.
18. Prabhanjan KV, Nitin MC, Arasumani N, Fentaw H. Assessment of prevalence of preeclampsia from Dilla region of Ethiopia. *B M C R e s e a r c h N o t e s*. 2 0 1 5 ; 8 : 8 1 6 . <https://doi.org/10.1186/s13104-015-1821-5>
19. Tukur J, Umar BA, Rabi?u A. Pattern of eclampsia in tertiary health facility situated in semi-rural town on northern Nigeria. *Ann Afr Med* 2007;6:164-7
20. Ajah LO, Ozonu NC, Ezeonu PO, Lawani LO, Obuna JA, Onwe EO. The fetomaternal outcome of preeclampsia with severe features and eclampsia in Abakaliki, South-East Nigeria. *Journal of clinical and diagnostic research: JCDR*. 2016 Sep;10(9): QC18.