ORIGINAL ARTICLE

PERINATAL OUTCOME IN PATIENTS WITH PRE-ECLAMPSIA AT THE UNIVERSITY OF MAIDUGURI TEACHING HOSPITAL, NIGERIA

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ABSTRACT

Background: Pre-eclampsia, a common maternal disease in pregnancy is an important cause of perinatal morbidity and mortality especially in developing countries.

Objectives: To determine the perinatal outcome of patients with pre-eclampsia in our environment.

Methods: A retrospective review of the perinatal outcome of patients with pre-eclampsia managed at the University of Maiduguri Teaching Hospital from January 2005 to June 2007. Logistic regression analysis was used to determine sociodemographic and obstetrics factors that are independently associated with perinatal mortality in these patients.

Results: During the study period, there were 84 cases of preeclampsia and 3,560 deliveries giving a pre-eclampsia prevalence of 2.36%. Sixty-nine cases (82.1%) were available for review. The mean booking diastolic blood pressure of the study group was 78.6±15.7 mmHg. Majority of the patients 55(79.7%) were in the age group 19-35 years and 33(47.8%) were primigravidae. In 36(52.2%) of the cases, the birth weight of the babies was <2.5 Kg and IUGR was diagnosed in 37(53.6%). There were 16 perinatal death giving a perinatal mortality rate of 262/1000 live birth. IUGR (OR=11.35, 95%CI=2.06-62.55, p=0.005) and diagnosis of PE at a gestational age <32 weeks (OR=3.39, 95%CI=1.09-10.55, p=0.04) were found to be independently associated with perinatal mortality in patients with preeclampsia.

Conclusion: Pre-eclampsia is associated with adverse perinatal outcome, with early onset disease and IUGR being independently associated with an increase risk of perinatal mortality.

Key words: *Pre-eclampsia, Perinatal mortality, UMTH*

INTRODUCTION

The goal of obstetrical care is the delivery of healthy infants and the maintenance of good maternal health. Because the practice of obstetrics usually cares for healthy women, this goal is usually attained. However, maternal diseases are not uncommon complications during many pregnancies. Such complications can and do arise during the care of ostensibly normal pregnancy. Pre-eclampsia (PE) is a condition which occurs after the twentieth week of pregnancy in which hypertension with proteinuria develop in a woman who has been previously normotensive and non proteinuric.[1,2] PE is a common maternal condition complicating 2-8% of all pregnancies.[1,3] It is one of the most dangerous complications of pregnancy and it remains an important cause of feto-maternal morbidity and mortality particularly in developing countries.[1,4] The increase perinatal complications in patients with PE are attributable to compromised placental perfusion due to vasospasm.[5,6] Unarguably, perinatal death is one of the most devastating outcomes of pregnancy but the perinatal outcome for some women with PE is good.[1] Perinatal mortality can also be influenced by birth weight, maternal age, parity and other factors.[7,8] The aim of this study is to determine the perinatal outcome in patients with pre-eclampsia in our environment.

MATERIALS AND METHODS

A retrospective review of the perinatal outcome of patients with pre-eclampsia managed at the University of Maiduguri Teaching Hospital from January 2005 to June 2007. The ethical and research committee of the University of Maiduguri Teaching Hospital approved the study. Patients' case records, obstetric ward, labour ward, theatre, and special care baby unit records were used to obtain information. The information obtained included age of the patients, parity, gestational age at booking, booking diastolic blood pressure, gestational age at diagnosis, mode of delivery, Apgar score at 5th minutes, birth weight, and maternal and fetal complications. The perinatal mortality (here defined as death of a fetus of 28 or more weeks gestation or death of a live born infant less than seven days of age) was determined. Maternal end organ affectation was said to occur if there was significant derangement of liver function test, electrolyte/urea/creatinine and/or evidence of heamolytic aneamia. Intrauterine growth restriction was diagnosed if an ultrasound scan done because of concerns of fetal growth shows an estimated fetal weight below the fifth centile for the gestational age.

Statistical analysis was conducted with SPSS version 13 (SPSS, Chicago, IL, USA). Number and percentage were use to report sociodemographic and obstetrics characteristics of the study population. Logistic regression analysis was used to determine sociodemographic and obstetrics factors that are independently associated with perinatal mortality. P-value

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= 0.05 indicates statistical significance.

RESULTS

During the study period, there were 84 cases of pre-eclampsia out of which 69 cases were retrieved, giving a retrieval rate of 82.1%. As there were 3,560 deliveries during the study period the prevalence of pre-eclampsia in the study population was 2.36%. The mean age of the study population was 26.9±5.3 years and their mean parity 1.8±2.4. The mean booking diastolic blood pressure was 78.6±15.7 mmHg. There were 16 perinatal death giving a perinatal mortality rate of 262/1000 live birth.

Table 1 shows the sociodemographic characteristics of the study population. Majority of the patients 55(79.7%) were in the age group 19-35 years but 33(47.8%) were primigravidae. In 59(85.5%) of the cases the booking DBP was <90 mmHg but PE was diagnosed before 32 weeks of gestation in 29(42%) patients.

The perinatal outcome in the study population was as shown in table 2. In 36(52.2%) of the cases, the birth weight of the babies was <2.5 Kg and IUGR was diagnosed in 37(53.6%). There were 8(11.6%) stillbirth.

Table 3 shows a multinomial logistic regression model of the sociodemographic and obstetrics factors associated with perinatal mortality in the study population. IUGR (OR=11.35, 95%CI=2.06-62.55, p=0.005) and diagnosis of PE before 32 weeks of gestation (OR=3.39, 95%CI=1.09-10.55, p=0.04) were found to be independently associated with perinatal mortality. While booking after 30 weeks of gestation (OR=4.13, 95%CI=0.63-27.06, p=0.14) and booking DBP >110 mmHg (OR=6.74, 95%CI=0.54-84.34, p=0.15) tended to be associated with perinatal mortality. The parity range 1-4 was found to have a protective effect (OR=0.09, 95%CI=0.01-0.84, p=0.03)

Table 1: Sociodemographic and obstetrics characteristics of the study population.

Characteristics	Number	Percentage
Age group (yrs)		
<19	6	8.7
19-35	55	79.7
>35	8	11.6
Total	69	100
Parity group		
0	33	47.8
1-4	26	37.7
=5	10	14.5
Total	69	100
Gestational age at booking (wks)		
>30	8	11.6
20-30	36	52.2
<20	25	36.2
Total	69	100
Booking DBP (mmHg)		
>110	6	8.7
90-109	4	5.8
<90	59	85.5
Total	69	100
Gestational age at diagnosis (wks)		
<32	29	42
=32	40	58
Total	69	100
End organ affectation		
Yes	6	8.7
No	63	91.3
Total	69	100
Type of delivery		
C/section	35	50.7
Vaginal del	34	49.3
Total	69	100

Table 2: Perinatal outcomes in the study population

Characteristics	Number	Percentage
Birth weight (Kg)		
<2.5	36	52.2
=2.5	33	47.8
Total	69	100
IUGR		
Yes	37	53.6
No	32	46.4
Total	69	100
APGAR 5		
<7	18	26.1
=7	51	73.9
Total	69	100
IUFD		
Yes	8	11.6
No	61	88.4
Total	69	100
Early neonatal death		
Yes	8	11.6
No	61	88.4
Total	69	100

Table 3: Multinomial logistic regression model of sociodemographic and obstetrics factors associated with perinatal morality in the study population

Factors	coefficient	Odd Ratio (95% CI)	p-value
Age (yrs)			
=19	0.155	1.17(0.14-9.50)	0.89
20-34	-1.075	0.34(0.06-1.88)	0.22
=35	-	-	-
Parity			
0	-1.373	0.25(0.03-1.99)	0.19
1-4	-2.336	0.09(0.01-0.84)	0.03
=5	-	-	-
Gestational age booking (wks)			
=30	1.417	4.13(0.63-27.06)	0.14
20-30	-0.719	0.49(0.10-2.32)	0.37
<20	-	-	-
Booking DBP (mmHg)			
=110	1.908	6.74(0.54-84.34)	0.14
90-109	-0.178	0.84(0.12-6.07)	0.86
<90	-	-	-
Gestational age at diagnosis (wks)			
<32	1.220	3.39(1.09-10.55)	0.04
=32	-	-	-
Type of delivery			
C/section	0.227	1.26(0.09-16.26)	0.86
Vaginal Del	-	-	-
End organ affectation			
Yes	0.508	1.66(0.22-12.44)	0.62
No	-	-	-
IUGR			
Yes	2.429	11.35(2.06-62.55)	0.005
No	-	-	-

DISCUSSION

This study showed that perinatal mortality was high in patients with pre-eclampsia. Early onset pre-eclampsia and intrauterine growth restriction were also found to be independently associated with perinatal mortality in patients with pre-eclampsia.

The prevalence of PE of 2.36% found in this study was similar to that reported by others[9, 10] but lower than the 7.6% reported by Anorlu et al in Lagos, Nigeria.[11] This prevalence however, was in the lower range of the generally reported prevalence of 2-8%.[1,3] The lower prevalence of PE in this study may not be unrelated to the constitution of the study population as only 8.7% were below 19 years of age and 11.6% were above 35 year old as teenagers and mothers above 35 years are found to be at increase risk of developing PE in many studies.[1,3,10,12,13]

Perinatal morbidity is a major concern in pre-eclampsia and similar to the reports of other studies[14,15,16] about half of the cases in this study were complicated by intrauterine growth restriction (IUGR) and low birth weight (LBW). The abnormal spiral artery- cytotrophoblast interface in PE results in poor placental perfusion. Because of this reduced placental blood flow, the fetuses of patients with PE have poor reserves and are at increase risk of morbidity like IUGR, LBW, birth asphyxia etc.[1,14]

Perinatal mortality is emotionally devastating for both families and clinicians. The increase perinatal mortality in patients with PE is also attributed to the poor placental blood flow,[5,6 14] and similar to the report of other studies,[17,18] the perinatal mortality in patients with PE was found to be high in this study. In fact, the perinatal mortality of 262/1000 live birth was far higher than the overall perinatal mortality of 72.2/1000 live birth during the study period. However, perinatal mortality relates to many other factors. Maternal diseases, parity, and other environmental and sociodemographic factors influences perinatal outcome[19,20] and detecting those conditions that influence perinatal mortality in PE can help in developing possible preventive strategies. Early onset of PE (GA<32 weeks) and IUGR were found to be independently associated with increase perinatal mortality for patient with PE in this study. This was similar to the reports of other studies.[21,22,23] This was possibly because early onset PE allows a greater opportunity for risk. Intrauterine growth restriction was also found to have a dose related effect with perinatal mortality.[14, 22]

Perinatal outcome can also be influence by

obstetrics factors and management[14] and in this study late booking (after 30 weeks of gestation) and having severe hypertension at booking (DBP>110 mmHg) tended to be associated with perinatal mortality in patients with PE. This is similar to other reports.[19,24]

This study revealed an adverse perinatal outcome in PE and found early onset of the disease and IUGR to be independently associated with perinatal mortality in these patients. Late booking and severe hypertension tended to be associated with increase perinatal mortality. To decrease preeclampsia-related perinatal mortality, appropriate prenatal care to help early detection, monitoring, and appropriate management of those factors that were found to increase the perinatal mortality like IUGR and severe hypertension were recommended.

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