

Epidemiological Aspects and Prognosis of Severe Pre-eclampsia in Bangui, Central African Republic

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Abstract

Introduction: Severe preeclampsia is one of the most serious pathologies during pregnancy, with heavy morbidity and maternal-fetal mortality. The aim of our study was to help improve the management of severe preeclampsia.

Methods: We conducted a cross-sectional analytical study from 1st September 2015 to 30th August 2016, at the Obstetrics and Gynecology Department of the Hôpital communautaire of Bangui. The study population was pregnant and parturient patients with severe pre-eclampsia.

Results: Out of 4021 registered cases, 41 met the inclusion criteria, with a prevalence of 1.0%. The primiparous were the most represented (48.8%). Magnesium sulfate was the most used as an anticonvulsant (70.7%) and dihydralazine was the most used for the High Blood Pressure (HBP). The main complications of pre-eclampsia were eclampsia (29.3%) and acute renal failure (19.5%). Overall, maternal mortality was 9.8% and perinatal mortality was 31.7%.

Conclusion: The complications of severe preeclampsia are common in our study. The maternal and fetal prognosis remains a concern. Hence, we suggest early screening of pre-eclampsia symptoms during prenatal consultations to improve pregnancy outcome.

Keywords: Management; Prognosis; Severe preeclampsia

Introduction

Severe preeclampsia is one of the dreaded complications of High Blood Pressure (HBP) during pregnancy, with heavy mortality and maternal-fetal morbidity. Worldwide, complications of HBP on pregnancy are the third leading cause of maternal mortality [1]. While the incidence of severe preeclampsia is low in Western Europe with 3% and 5% [2], in Africa, the frequency varies between 5% to 10% [3]. The diagnosis of preeclampsia is early in developed countries while in Africa the screening of such morbidity is often achieved at the stage of obstetric complications. Moreover, the weakness of health care implies its burden in developing countries [4].

In the Central African Republic, there is no published data about clinical aspects of severe preeclampsia. Hence, this study aimed to assess the extent and prognosis of severe preeclampsia in the Gynecology-Obstetrics Department of the Centre hospitals-Universitaire de Bangui, the Central African Republic.

Methods

This is a cross-sectional and analytical study, conducted from 1st September 2017 to 30th August 2018. All pregnant and parturient women who were hospitalized with symptoms of preeclampsia were

included in this study after they gave oral consent for their participation. Severe preeclampsia was defined as follows:

Pregnancy with more than 24 weeks of amenorrhea or a parturient with 1 severe high blood pressure at ≥ 160 mmHg for systolic blood pressure and/or ≥ 110 mmHg for diastolic blood pressure; 2 renal failure with oliguria (<500 ml/day) or azotemia > 135 $\mu\text{mol/l}$ or proteinuria ≥ 3 g/day; 3 eclampsia or neurological disorders; 4 recurrent intrauterine growth retardation or fetal heart rate alteration.

Women with moderate preeclampsia were excluded from this study. A sample size of this study was exhaustive.

The treatment for the severe preeclampsia was symptomatic: injectable dihydralazine and clonidine, followed by methyl-dopa orally, in association with magnesium sulfate in case of eclampsia. This treatment was associated with the monitoring of the blood pressure, evaluating the maternal-fetal impact, extracting the fetus on a case-by-case based to the clinical evolution and finally, taking care of any complications that ensue.

Data collection was performed using a structured questionnaire. The data was entered and analyzed on the Epi-info version 3.5.4 database and analyzed with SPSS. Pearson's χ^2 comparison statistical tests were performed and the threshold of statistical significance was 5%.

Results

The total number of 4021 pregnant and parturient was recorded during the study period with 92 cases of preeclampsia (2.3% or 92/4021) among which 41 were severe cases (4.5% or 41/92).

The age average was 27 years (extremes: 16 and 41 years). The primiparous were the most frequent (53.6%).

Prenatal follow-up was achieved in 75.6% of the patients. The average number of hospitalization period of these patients was 10 days (Table 1).

The higher number of cases of pre-eclampsia was observed in our study during the period from January to March (Figure 1).

Characteristics of Parturient/ Pregnant women	Number %
Age (years)	
15 to 19	6 (14.6)
20 to 24	9 (21.9)
25 à 29	10 (24.4)
30 à 34	9 (21.9)
35 à 39	5 (12.2)
40≥	2 (4.9)
Parity	
Primiparous (childbirth)	22 (53.6)
Pauci pare (2 to 3 deliveries)	11 (26.8)
Multi-part (4 to 6 deliveries)	8 (19.6)
Antenatal follow-up	
No antenatal follow-up	10 (23.4)
Prenatal follow-up	31 (75.6)

Table 1: Socio-demographic profile of patients (age, parity, prenatal follow-up).

Eclampsia occurred in 12 (29.3%) patients and renal failure was observed in (8) 19.5% patients. Preterm delivery and acute fetal distress were the most observed complications with the proportion of 26.2% and 23.8%, respectively (Table 2).

The vaginal delivery was achieved for a proportion of 53% of patients. Perinatal and maternal deaths accounted for 28.6% and 9.7%, respectively.

The proportion of antenatal deaths was higher among parturient women who did not attend antenatal consultations ($P=0.000136$) (Table 3). The risk of seizure was lowest in parturient women who received preventive treatment with magnesium sulfate than in those without such treatment ($P=0.004$) (Table 4).

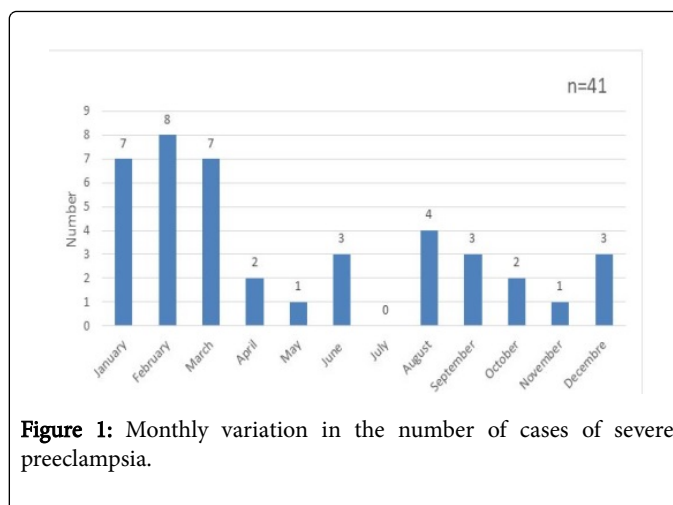


Figure 1: Monthly variation in the number of cases of severe preeclampsia.

Maternal complications (n=41)	Number (%)
Eclampsia	12 (29.3)
Acute renal failure	8 (19.5)
Delivery hemorrhage	4 (9.7)
Placental retro hematoma	2 (4.8)
Cerebrovascular accident	1(2.6)
Maternal death	4 (9.7)
None	10 (24.4)
Fetal (n = 42) twin pregnancy	
Acute fetal distress	11 (26.2)
Inducted premature delivery	10 (23.8)
Hypotrophy	7 (16.7)
Death	12 (28.6)
Eutrophic newborn	2 (4.7)

Table 2: Distribution of patients by maternal and fetal complications.

Maternal death	Yes	No	p-value
No Antenatal consultation	2	8	
Perinatal follow-up	2	29	0.24
Perinatal death			
Antenatal consultation	2	30	0.000136
No Antenatal consultation	7	3	

Table 3: Association between prenatal consultation, maternal death, and perinatal death.

Eclampsia attack			
Treatment	Yes	No	p-value
Magnesium sulphate in primary prevention	2	20	0,0046
Antihypertensive drug	10	9	

Table 4: Association between treatment received and the occurrence of eclampsia crisis.

Discussion

This study showed that preeclampsia is the important cardiovascular diseases associated with pregnancy [4]. In this study, the prevalence of preeclampsia was 1%, similar to that of Maroc [5], this frequency is lower than that found in Dakar, Samake in Bamako, Tchaou in Cotonou and Coulibaly in Abidjan which were 14.9%, 7.8%, 4.7% and 12.3%, respectively [4-8]. This discrepancy could be explained by the difference in the case definition of severe preeclampsia used in these studies.

The high number of severe preeclampsia observed during the period from January to March should be due to the cool climate during this period in Bangui. Indeed, the climate with low temperatures is one of the circumstances which influence the occurrence of preeclampsia [9,10]. However, this result differs from that found in Abidjan where most preeclampsia cases are found during the rainy and hot season [8].

We found a high incidence of severe pre-eclampsia in parturient women aged above 20 years with a peak at 27 years, which is contrary to the finding of Adisso and collaborators in Cotonou in 2002 who observed a peak at 20 years followed by decreasing trend after this age threshold [11]. Indeed, young parturient women are at high risk of preeclampsia. Our results corroborate that of Cisse and collaborators in Dakar who had found a double-bump distribution with a peak in women aged 25 years and a second pick at 35 years [4]. Furthermore, the primiparous were mostly affected, and this result is consistent with data from two studies in Yaounde which reported the proportion of 46%, 20%, and 41,34%, respectively [12,13]. The predominance of primiparous women supports the hypothesis that the role attributed to some early maternal immune intolerance to the first pregnancy development [14,15].

The lack of attendance to the antenatal consultations was significantly associated with the accuracy of severe preeclampsia. Indeed, his main purpose of prenatal consultations is to detect precociously morbidities during pregnancy. However, in Yaounde, Mboudou and collaborators did find that the number of antenatal visits did not influence the progression of moderate preeclampsia to severe form [13]. This may cast doubt on the quality of prenatal consultations but also recall the unpredictable evolution of preeclampsia. This corroborates the data from the literature [16].

The antihypertensive drugs used in this study was justified by local availability and affordability. Indeed, there is no consensus among clinicians about the choice of antihypertensive agents during pregnancy in accordance with the mother and the fetus safe [17,18]. Lokossou in Cotonou stated that clonidine should no longer be used [19-21]. The antihypertensive drugs used in our study are similar to that used in the United States of America and Senegal where dihydralazine is the most preferred [18-20], while current antihypertensives are relatively reliable in the treatment of high blood pressure in non-pregnant patients [17].

In our study, magnesium sulfate was used to prevent eclamptic seizures based on functional signs, and/or blood pressure as suggested by Roberts and collaborators [22], and based also to the formal recommendations experts in 2009 [23]; during convulsive seizures and afterward to prevent recurrence. The clinical evolution was satisfactory in this study. However, in Senegal, Cisse and collaborators did not found similar results with magnesium sulfate [4].

The maternal complications (eclampsia occurred and renal failure) found in our study are not almost comparable to those generally described elsewhere, with a relatively low frequency in developed countries [24] and in Senegal [4].

Acute fetal distress and premature delivery were the most observed fetal complications. In Congo, a frequency of 37.5% fetal distress and 43.75% premature delivery [2]. The maternal mortality recorded is mainly due to the occurrence eclampsia associated with the cerebral vascular accident. The maternal lethality found in this study was higher than that of other studies, with 7.3% previously in Bangui, 8.8% in Congo, 7.1% in Bamako, 5.3% in Guinea Conakry and 2.5% in France [25-29]. However, other studies reported relatively very higher maternal lethality frequencies: 17.9% in Côte d'Ivoire, 17.9% in Senegal, 15.7% in Burkina Faso, 21% in Gabon and more than 32%, in Madagascar [30-35]. This discrepancy could be explained by the deep differences in the quality of health care according to countries.

Conclusion

Severe pre-eclampsia is common in the Gynecology-Obstetrics Department of the Centre Hospitals-Universitaire of Bangui, the Central African Republic. This syndrome has resulted in a heavy burden in terms of maternal and fetal mortality and morbidity. Its management requires a multidisciplinary team with a well-codified protocol comprising the use of magnesium sulfate.

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