

Diagnostic and Prognostic Epidemic Aspect of Eclampsia at the Kolda Regional Hospital Center (Senegal)

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Abstract

Objectives: To evaluate the epidemiology of eclampsia, to assess maternal and perinatal prognosis and management. **Material and method:** This was a retrospective, descriptive study from January 1, 2015 to December 31, 2018. Included were all women received in the emergency department of our health facility for generalized seizures and/or disturbances of consciousness, occurring between the 20th Week of Amenorrhea (WA) and the 6th week of postpartum on a field of hypertension. The sources of the data consisted of antenatal consultation cards, delivery records, hospital records, operating theater and resuscitation records. The variables studied were sociodemographic characteristics, the course of pregnancy, childbirth and neonatal parameters. Data were captured and analyzed using SPSS 11.0 software. **Results:** The study focused on 190 cases with a prevalence of 3.5%. The average age of the patients was 20 years with extremes of 14 and 40 years. The average parity was 4.1 deliveries with extremes of 1 and 7. Nearly three-quarters of the patients (74.7%) of the patients were primiparous. Almost all the patients were evacuated. More than half of the seizures (53.1%) were recorded before work and more than one out of two patients had two seizures. Caesarean section was the mode of delivery in more than one out of two patients (56.8%). Maternal complications were marked by renal failure (23 cases), the HELLP syndrome (72 cases), and the retro placental hematoma (83 cases). The fetal impact was marked by prematurity in 90% of cases and 17 cases of fetal death in-utero. Nineteen maternal deaths were recorded while early neonatal mortality was 437 per 1000 live births. The average hospital stay of the survivors was 6.2 days. **Conclusion:** Eclampsia is still common in our regions. It occurs preferentially in young primiparas with hypertension and/or proteinuria on a poorly followed pregnancy. Magnesium sulphate and cesarean section can

improve the maternal and fetal prognosis. Prevention necessarily means quality prenatal care.

Keywords

Eclampsia, Kolda, Prognosis, Management

1. Introduction

Eclampsia is one of the most serious complications of pre-eclampsia. Its occurrence during pregnancy is a serious obstetric situation and continues to be a global public health problem. It is a paroxysmal gravido-puerperal accident with dominant neurological expression of unknown or abused pregnancy toxemia. It is defined by the occurrence of one or more generalized seizures and/or disorders of consciousness that can not be related to a pre-existing neurological problem [1]. Its incidence varies from country to country, significantly higher in developing countries where it reaches 5% to 10%, or even 15% in some areas. In developed countries, thanks to a better organization of antenatal surveillance, its incidence is gradually declining and is currently between 0.2 and 0.5 per 1000 births [1] [2]. Considered as one of the serious obstetric situations severely affecting the maternal and fetal prognosis, its management must be multidisciplinary fast and adequate. This management has been revolutionized by the introduction of magnesium sulphate, considered as the reference medicine in the treatment and prevention of this condition [3]. The objective of our study was to review the epidemiological peculiarities of eclampsia that could justify its constant frequency, to evaluate the management of our structure and to assess maternal and perinatal prognosis.

2. Material and Method

This was a retrospective, descriptive study from January 1, 2015 to December 31, 2018. Included were all women received in the emergency department of our health facility for generalized seizures and/or disturbances of consciousness, occurring between the 20th Week of Amenorrhea (WA) and the 6th week of postpartum on a field of hypertension. To avoid selection bias, the diagnosis had to be systematically confirmed by a gynecologist.

The sources of the data consisted of antenatal consultation cards, delivery records, hospital records, operating theater and resuscitation records. The variables studied were sociodemographic characteristics, the course of pregnancy, childbirth and neonatal parameters. Data were captured and analyzed using SPSS 1 software.

3. Results

The number of deliveries during this period was 53.54. We recorded 190 cases of

eclampsia, a prevalence of 3.5%. The mean age of the patients was 20 years with extremes of 14 and 40 years (**Table 1**). Eclampsia was more common in the 25-year-old age group (48.9%). The average parity was 4.1 deliveries with extremes of 1 and 7. Nearly three-quarters of the patients (74.7%) of the patients were primiparous. Almost all the patients were evacuated. More than four out of

Table 1. General characteristic of the study population.

	Number	Percentage
Age		
13 - 25 years	93	48.9
26 - 34 years old	71	37.5
≥35 ans	26	13.6
Parity		
Primiparae	144	75.7
Paucipares	26	13.8
Multiparous	20	10.8
Mode of evacuation		
Coming from herself	171	90
Evacuated	19	10
Number of AV		
0	24	12.6
1 - 2	143	75.3
≥3	23	12.1
Term of pregnancy		
<34 WA	90	47.4
34 to 36 WA	51	26.8
≥37 WA	49	25.8
Number of crisis		
A crisis	64	33.7
Two crises	96	50.5
≥Three fits	30	15.8
Moment of the crisis		
Antepartum	101	53.1
Perpartum	49	25.8
postpartum	20	10.5
Delivery route		
Normal low path	69	36.3
Instrumental extraction	13	6.9
Caesarean	108	56.8

five patients (87.4%) were poorly followed with fewer than three antenatal visits during pregnancy.

About half of the cases (47.4%), the accident occurred before the 34th week of amenorrhea (WA) and the average gestational age was 36 weeks. All patients were hypertensive and pathological proteinuria was found in 54.7% of patients with a threshold value of two crosses.

More than half of the seizures (53.1%) were recorded before work and more than one out of two patients had two seizures.

Nicardipine-based antihypertensive therapy was given in 88% of cases while intravenous magnesium sulfate according to the WHO protocol was used in all patients. No recurrence of seizures was observed after administration of the magnesium sulfate attack treatment. Caesarean section was the mode of delivery in more than one out of two patients (56.8%) for patients receiving antepartum.

During this study, we recorded 19 maternal deaths (**Table 2**). The profile was that of an average 24-year-old woman with a pregnancy of less than 36 weeks (57%) and vaginal delivery who had a state of eclamptic disease. Other maternal complications were kidney failure (23 cases), the HELLP syndrome (72 cases), and retro placental hematoma (83 cases). The average hospital stay of the survivors was 6.2 days.

The fetal impact was marked by prematurity in 90% of cases and 17 cases of fetal death in-utero. Early neonatal mortality was 437 per 1000 live births. The majority of these were premature newborns or low birth weight (71.4%), vaginally born (82%) and with perinatal asphyxia in 78.5% of cases.

4. Discussion

4.1. Limitations of the Study

Our study is limited by its retrospective character but also by its very modest cohort.

Table 2. Maternal and perinatal complications.

	Number	Percentage
Maternal complications		
Recrudescence eclamptic crisis	49	25.9
HELLP syndrome	3	1.6
Retroplacental Hematoma	3	1.6
Renal failure	4	2.1
Maternal death	4	2.1
Perinatal complications		
Premature delivery	90	47.3
In-utero fetal death	13	6.8
Perinatal asphyxia	21	11.1
Intrauterine growth retardation	17	8.9

4.2. Epidemiological Aspects

Eclampsia has become a rare complication in developed countries with an incidence currently between 0.2 and 0.5 per 1000 deliveries. This thanks to an early management before the appearance of one of the main signs of pre-eclampsia. On the other hand, the surveillance of pregnancies by qualified health personnel, the screening of pregnancies at risk and the information of the patients made it possible to reduce this pathology [2] [4]. However, it remains common in our developing countries (3.5% in our series) and this prevalence is almost constant in sub-Saharan Africa [1] [2] [5]. This high rate is related to several factors that have as a common denominator the low socio-economic level of the populations. In our series, the major problem found was the poor management of hypertensive states, indeed, the shortcomings noted in the prenatal monitoring did not allow to detect in time the gravitational arterial hypertension (HTA) mainly because of a deficiency of qualified staff. At the national level, these figures will have to be revised upwards, since most of the studies can only identify cases received in the reference structures. This means that prevalence in rural or inaccessible areas is poorly appreciated.

Our study also confirms the classic epidemiological data characterizing eclampsia, that is, a young primiparous woman with a near-term pregnancy and poor follow-up as found by several African studies [5] [6].

This group is more vulnerable to eclampsia for several reasons:

These young people are most cases of adolescent girls and constitute the target population for early and sometimes unwanted pregnancies.

These teenagers often reveal their pregnancy late and hence they are poorly followed.

The primiparous woman who has a uteroplacental vascularization disorder during pregnancy is likely to develop a vascular-renal syndrome that may be complicated by eclampsia [4] [7].

In our series, four out of five women had fewer than three antenatal visits (ANC) and more than half (53%) of the seizures occurred in the pre-partum period. The World Health Organization (WHO) now advocates up to eight NPCs during pregnancy. The high rate of poorly followed patients justifies the low incidence of toxemia of pregnancy and explains the high proportion of pre-partum eclampsia.

4.3. Therapeutic Aspects

The management of eclampsia is a continuum from the first crisis to the most appropriate maternity according to the severity and the term of the pregnancy. It requires multidisciplinary coordination. In fact, this treatment calls for the control of convulsions and blood pressure [8] [9].

The use of magnesium sulphate in our practice is still insufficient, whereas it is the reference anticonvulsant molecule. Indeed, a multi-center collaborative trial involving 1680 eclamptic patients has demonstrated indisputably the superiority of magnesium sulfate over Diazepam and Phenytoin in preventing the

recurrence of seizures [3]. However, its use requires rigorous monitoring based on assessment of respiratory rate, diuresis and osteotendinous reflexes. On the other hand, its efficacy in preventing eclampsia in patients with pre-eclampsia remains controversial [2] [3] [8] [9]. The increasing use of magnesium sulphate raises the problem of the choice of antihypertensives administered. Their association with calcium channel blockers has two negative consequences: on the one hand, there is a risk of potentiation of the effect of calcium channel blockers by magnesium sulphate, leading then to a too important drop in the diastolic blood pressure always detrimental to the fetus and to the mother by the occurrence of cerebral and renal ischemia [8] [10]; on the other hand, it is currently shown that potent tocolytic agents delay the spontaneous onset of labor, whereas fetop-lacental extraction constitutes the true etiological treatment. Preference should be given to centrally acting antihypertensives such as clonidine, alphas and beta blockers such as Labetalol or vasodilators such as Dihydralasine [10].

Obstetric delivery was the delivery route for more than half of the patients (56.8%), and just under 7% had delivered by instrumental extraction.

This increasingly surgical attitude to eclampsia has not had the expected beneficial effect on improving maternal and perinatal prognosis. Because the lethality associated with eclampsia was 10% in our series. This rate can be explained by the lack of adequate medical facilities and especially anesthetist and resuscitation doctor in this hospital.

However, this situation is comparable to that observed in most developing countries in general [11], particularly in West Africa, where eclampsia accounts for an average of 12.7% of maternal death [2] [12].

4.4. Prognostic Aspects

In developed countries, however, this lethality is increasingly low and currently stands at around 0.5% [9] [12].

The fetal outcome was less favorable than the maternal one with a perinatal mortality of 437 per 1000. Perinatal asphyxia is the main cause of perinatal mortality, far from prematurity; this should prompt us to make fetal extraction indications earlier, especially as the absence of a cardiotocograph in this part of the country does not allow us to correctly assess the fetal state in the course of the crisis. Rates reported in developed countries range from 56 to 266 per 1000 [9].

5. Conclusion

Eclampsia is still common in our regions. It occurs mainly in young primiparas with hypertension and proteinuria in a poorly followed pregnancy. Magnesium sulfate and cesarean delivery improve the maternal and fetal prognosis. Prevention necessarily involves quality prenatal follow-up.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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