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Review of the First Use of Magnesium Sulphate in the Management of Gravide Toxemia's Complication at the University Hospital of Obstetric Gynecology in Befelatanana (HUGOB)

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Abstract

Introduction: Eclampsia is the occurrence of a tonicoclonic seizure in the context of hypertensive pathology of pregnancy. Our objective is to describe the epidemic profile of the disease and to assess the effectiveness of magnesium sulphate in its management.

Method: A six-month prospective and descriptive study including women with eclampsia was conducted at the University Hospital for Obstetric Gynecology in Befelatanana. Each patient had been given 4 g of slow direct intravenous loading in 15 minutes followed by 5g of intramuscular in both buttocks and then an alternative 5 g in each buttock every 4 hours until 24 hours after the delivery or the last seizure.

Result: During this period, we had collected 69 cases out of 3924 admissions, a prevalence of 1.88%. They were under 26 years of age in 72.50% of cases. The mean blood pressure at admission was 167.68 32.09mmHg. Antepartum eclampsia represented 85.80% of the cases. We had found 5 cases of relapse after treatment or 7.20%, a decrease in blood pressure 30 minutes after the charge dose in 68.1%, 7.2%. Patients had a decrease or abolition of osteotendinous reflex, 23.20% of newborns and 5.80% of mothers had died

Conclusion: Magnesium sulphate had been shown to be effective in this preliminary study. We recommend it throughout the country for the treatment of eclampsia.

Keywords - Epidemiology – Eclampsia - Magnesium Sulphate – Management.

I. INTRODUCTION

Eclampsia is defined as the occurrence of a generalized seizure or disturbance of consciousness in a pregnant woman above 22 weeks of SA or postpartum in a context of preeclampsia [1]. In developed countries the prevalence of this pathology is low [2]. On the other hand, with us it is higher at 37.1 per 100,000 births with much more mortality of up to 32% [3]. Magnesium sulfate is a drug recognized by many studies as the drug of choice in the medical treatment of eclampsia [4]. It is considered by the WHO as an innovation in the management of eclampsia [5]. Our objective is to describe the epidemioclinical and evolutionary profile of eclamptic women having benefited from magnesium sulphate at HUGOB.

II. MATERIALS AND METHODS

We conducted a prospective, descriptive, non-randomized monocentric study over a six-month period from June 1, 2015, to December 1, 2015. We included women of all ages with eclampsia. Women who are eclamptic but have not received magnesium sulphate are excluded.

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Each patient received a load dose of 4 g IV taken in 15 minutes followed by 5 g of IM in both buttocks and 5 g of IV in each buttock every 4 hours until 24 hours after delivery or the last seizure. The variables studied are: epidemiological parameters (age, occupation, marital status, age, parity, number and provider of prenatal consultation), type of eclampsia (antepartum, perpartum, postpartum) clinical (protein blood pressure), evaluation of treatment (osteotendinous reflex, addition of nicardipine, use of antidote, duration of treatment, stay in intensive care), maternal and fetal evolution. The data is collected in the medical file at the triage and adult intensive care. Other forms such as the Biological Examination Sheets were used. The data were collected on survey sheets which are specific to everyone.

Data processing is done by EPI INFO 3.3.2. The hospital director granted this study in the hospital.

III. RESULTS

During the considered period, 74 cases of eclampsia were hospitalized at the maternity ward out of a total of 3924 female participants. Of which 5 were excluded because they had not benefited from magnesium sulphate. A total of 69 cases were selected in our study, or a prevalence of 1.88%. The average age is 23.53 ±7.43. Most patients live in urban areas. Housewives account for 44.90% of cases. In 46.40% of cases women are married. Nearly 32% of women have benefited from more than 4 prenatal consultations (CPN). Prenatal consultations were performed by midwives in 65.20%. Blood pressure was taken in 72.50% of female participants at the CPN. Women who do not have an obstetrical history account for 65.20% of cases. Nearly half of women, or 52.20%, do not have a conscience disorder at admission. At intake, the mean is 167.68 32.09cmHg for systolic blood pressure and 102.46 19.88 for diastolic blood pressure. Women delivered by caesarean section in most cases, 87.40%. Antepartum eclampsia accounts for 85.50% of primary cases at 60.90%. Women with three-cross proteinuria account for 39.10% of cases. The parity average is 1.46 0.67 with extreme values of 0 and 9. (Figure 1).

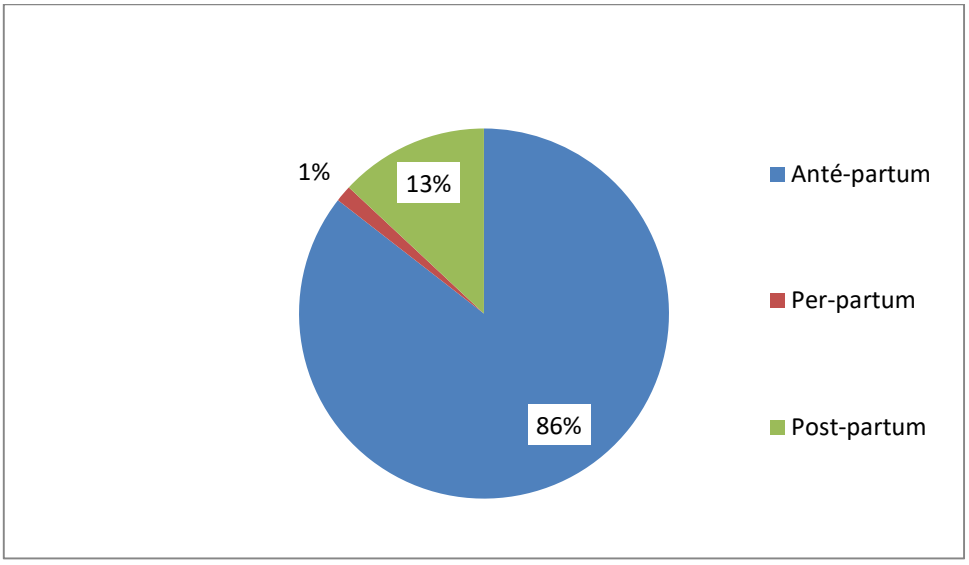

Figure 1. Distribution by type of eclampsia

In terms of evolution, 7.20% of patients experienced recurrent seizures. A decrease in blood pressure was observed in 75.40% of patients 4 hours after the loading dose. Not all women had a bradypnea. (Figure 2)

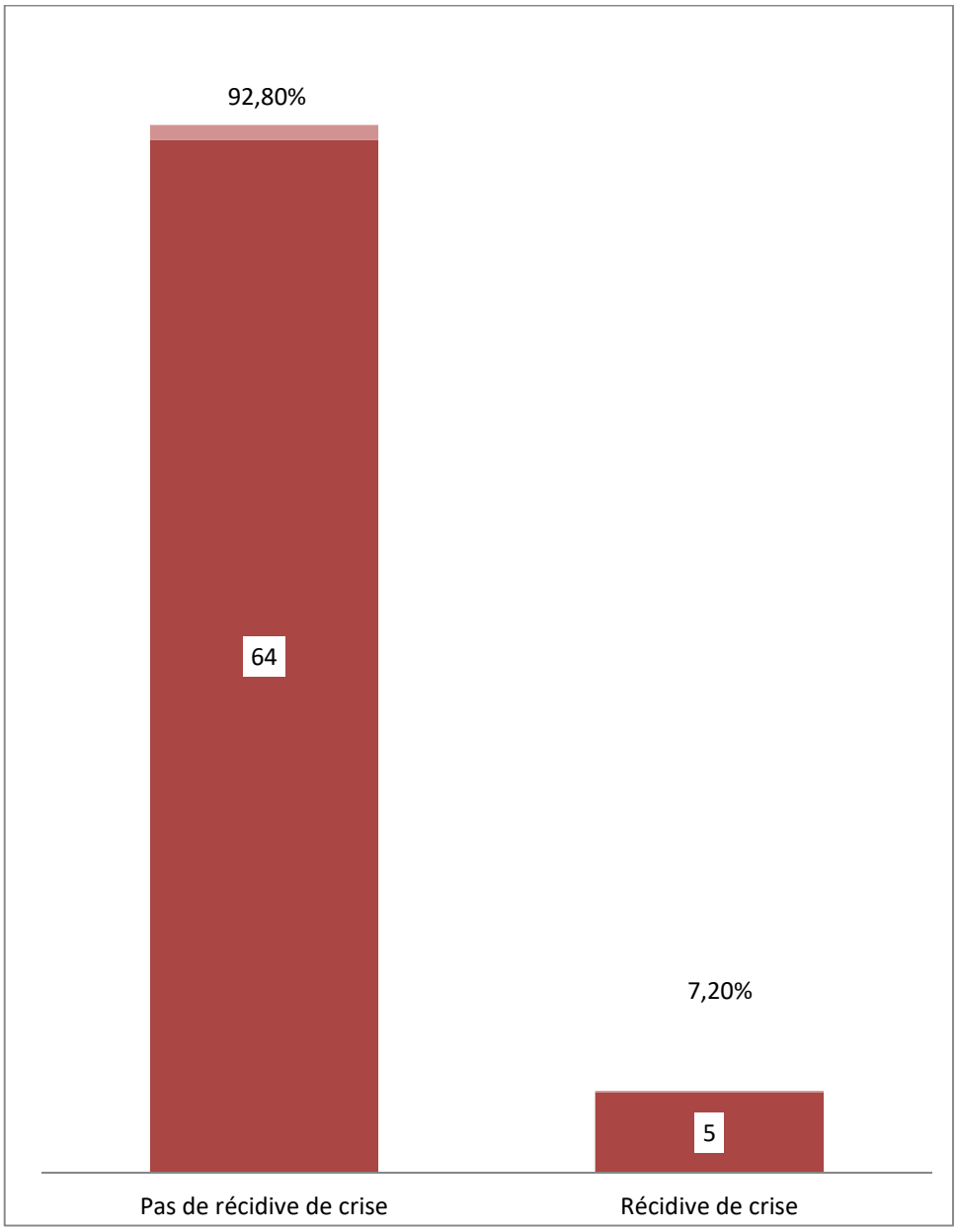

Figure 2. Breakdown by onset or absence of recurrent crisis

In 5.10% of women, the osteoclastic reflex was abolished after magnesia sulphate. The antidote of 1 g of calcium intravenously was required in 7.2% of patients. (Table I)

Table I. Distribution of Participants by Intensity of Osteotendinous reflex (OTR)

OTR	Fréquence	Pourcentage
Preserved	64	92,8%
Decreases	1	2,1%

Abolished	4	5,1%
Total	69	100,00%

Intravenous administration of nicardipine was required in only 30.40% of patients. The average duration of treatment is 19.24 7.38 hours with a maximum of 30.00 hours and a minimum of 4 hours. The average length of stay in intensive care is 39.47 28.05 hours. Nearly six percent of pregnant died. (Figure III).

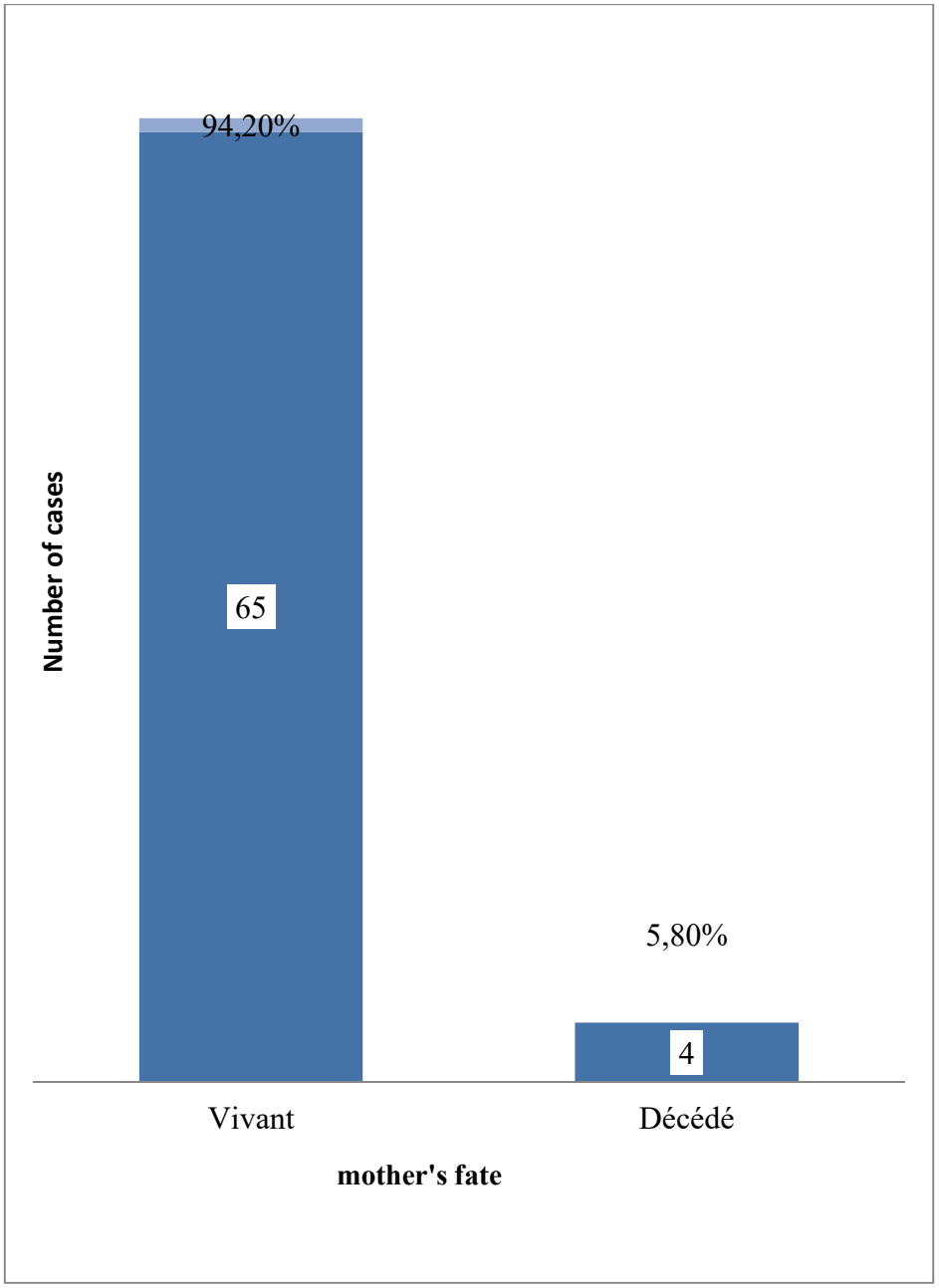

Figure 3. Breakdown by Mother's Fate

Regarding the baby, 58% were born prematurely. Low birth weight babies (2500g) account for 65.20% of cases and

44.40% of babies are born with severe suffering. Hospitalization for neonatal intensive care is necessary in 33.30% of babies and 16 children died or 23.20% of babies.

IV. Discussions

Of the 3,924 admissions, we identified 74 cases of eclampsia, of which 69 were selected, or a frequency of 1.88%. Developed countries such as the United Kingdom have an incidence of 2.5 per 100000 births [6]. Eclampsia has become rare in developed countries, while it is still predominant in developing countries where quality prenatal follow-up is still lacking. The average age is about 24. This result is similar to that reported in African studies: Bonkoungou PZ = 24.9 years [7]; Lokossou Antoine = 24.74 years [8]. This age group corresponds to the period during which the female genital activity peaks. In our study, we found the predominance of women residing in the urban area. The result remains the same as that found in 2009 in the same establishment [9]. The reasons for this could be the proximity of the maternity ward to the urban area. Bah et al [10] found that the living conditions in the urban area: stress, noise, pollution are linked to the HTA that women develop during pregnancy. In our study, 31.88% of patients performed at least 4 Cpns and midwives were the primary providers of Cpns. Regular and quality follow-up is necessary in the monitoring of pregnant women. According to LASSINA Goita [11], preeclampsia, a serious pathology due to its characteristics, requires management in a hospital structure because it is a pregnancy at risk. We noted that 87.35% of patients gave birth by caesarean section with general anesthesia. For BOUDAYA: 71.4% [12] and EZZERROUQI Amine 80.8% [13]. The termination of pregnancy is indeed the only measure that puts an end to the eclamptic manifestations. The seizure occurs before the birth in 85.51% of the cases (antepartum crisis). In our series the primipares dominate with 60.87%. We found that among the maternal factors that may promote eclampsia, young age and primiparity were the high-risk factors as most authors point out [14] and other studies such as those of LOKOSSOU which was 46.3% [8] and that of MAROUFATOU which was 25% [15]. In our study, we found that only 7.20% of patients experienced recurrent seizures. The maximum number is 7. Maternal prognosis was good in the majority of cases 92.80%. In France 92% [14]; in the United Kingdom 99% [16]; in the Canadian Province 97% [16]. These various results show that compliance with the recommendations in the management of eclampsia with the use of magnesium sulphate is excellent. This finding is likely based on the fact that many of the work, the results of which have been grouped into several meta-papers, analyses have clearly demonstrated the effectiveness of So4mg in preventing recurrence of seizures compared to other anticonvulsants [17]. In our work, 7.20% of patients treated with So4mg in prevention have reoffended, according to the data in the literature, where about 10% of recurrence is found despite the introduction of well-conducted treatment [18]. The decrease in blood pressure in 68.10% of patients showed the rapid antihypertensive properties of So4mg. After 4 hours of charging dose injection, 74.40% of patients have their blood pressure decreased. The main objective of the treatment, which is the stabilization of blood pressure, is achieved [19]. Loxen was only needed for blood pressure control in 30.40% of patients. The average duration of care is 19.24 7.38 hours with a maximum of 30.00 hours and a minimum of 4 hours. In our protocol, treatment is stopped 24 hours after the last seizure. But by observing the improvement of the patient's condition, the doctors by their own initiative stopped the treatment after 4 hours. MANDJI Lawson JM and COL found in their studies that 12 hours of Mgso4 could effectively prevent recurrent seizures [19]. The mean duration of treatment was 2 days (48 hours) in the B.Bourret study [14]. We found that the average length of stay is 39.47 28.05 hours (about a day and a half). This period of stay at the intensive care is shorter than in studies in Africa, in these studies the average stay is 2.8 days, as in Senegal in 2003 [20] and in Côte d'Ivoire in 2009 [21]. Maternal complications in our study are observed in 20.30% with persistent coma type, acute pulmonary edema, cardiac arrest, kidney failure, liver failure, stroke, intracranial hypertension, Post-bloc respiratory arrest, uterine atony. These results are similar to the 20% studies conducted by LASSINA Goita [11]. The complications were related to either a lack of prenatal follow-up or poor quality prenatal consultations. This situation could be explained by the low socio-economic level of patients who do not allow satisfactory prenatal follow-up of pregnancy. In our series 33.3% of newborns were hospitalized in neonatal intensive care and 23.20% of babies died. In France 11% perinatal mortality [14]. In the United Kingdom 5% perinatal mortality [15].

The RAKOTOMAHENINA study in 2006 reported higher figures of 46% [3].

At an evolutionary level, maternal mortality related to this pathology was 5.80% in our study. In the study carried out by the RAKOTOMAHENINA team it was 32% [3]. This mortality is now low in European countries (which are between 0 and 1.8%) thanks to rapid and appropriate management [15].

V. CONCLUSION

Magnesium sulphate is the reference treatment in the prevention and treatment of eclampsia. We recommend that it also become the treatment choice of this pathology within all obstetrical units of Madagascar, This could help improve the quality of care and significantly reduce maternal and fetal mortality. Our study is limited by lack of comparison between the effectiveness of magnesium sulphate with other anticonvulsants, by the insufficient number of patients and by the lack of an analysis of the factors influencing the magnesium sulphate's effectiveness

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