

Research Article

Severe preeclampsia at the University Hospital Center of Mother and Child (UHCMC) in N'djamena: Epidemiology and prognosis

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Abstract

Introduction: Preeclampsia constitutes a public health problem in our region. According to the WHO, it is the third cause of maternal mortality after severe hemorrhages, infections and is responsible for morbidity and high fetal mortality. The aim of this study was to improve on the management of severe preeclampsia at the University Hospital Center of Mother and Child (UHCMC) in N'Djamena.

Patients and method: It was a prospective and descriptive survey of 3 years duration, from January 01st, 2017 to December 31st, 2019. Included in our study were, all patients admitted for severe preeclampsia and agreed to participate in the study. Epidemiological, clinical, therapeutic and prognostic studies were conducted. The data collected was analyzed using SPSS 18.0 software.

Results: During the study period, 13599 pregnant and parturients were admitted to the Gynecology-Obstetrics department of the UHCMC, among whom 406 cases of severe preeclampsia, with a frequency of 2.9%. The patients were young (23.2 years), married (96.3%), primipara (61.3%), referred (64.3%) without antenatal care in 47.9% of cases. Functional signs were dominated by headaches with 34.0% of cases. The proteinuria was ≥ 3 crosses in 83.7% of cases. Patients had received magnesium sulfate in 98.3%, the delivery mode was cesarean in 64.0% of cases. Principal morbidity was eclampsia (40.8%) and fetal was prematurity (36.4%). Maternal lethality was 11.1% and fetal mortality was 19.9% cases.

Conclusion: Severe preeclampsia is frequent in the UHCMC in N'Djamena. It is responsible for high maternal and fetal mortality. The practice of quality antenatal care, could prevent the occurrence of complications and improve the maternal-fetal prognosis.

Introduction

Severe preeclampsia is defined as high blood pressure ≥ 160 mm Hg for systolic and or ≥ 110 mm Hg for diastolic associated with significant proteinuria (5 g/24 h) occurring after 20 weeks of amenorrhea [1]. According to the World Health Organization, preeclampsia would be the third cause of maternal mortality after severe hemorrhages and infections [2]. Its incidence in the general population is around 7% to 10% [3].

In Black Africa, its prevalence is higher and ranges from 4% to 18% [4]. The frequency of severe preeclampsia was 4.7% in Parakou University Hospital in Benin [5]. In Chad, Gabkika reports a prevalence of 1.74% in 2021 [6]. The high frequency of preeclampsia and the severity of its complications remains a public health problem. Its management is complex and constitutes a medico-obstetric emergency, its evolution is often unpredictable. The aim of this work was to improve the maternal and fetal prognosis of severe preeclampsia in the

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Keywords: Severe preeclampsia; Maternal morbidity and mortality; Stillbirth; UHCMC; N'Djamena





University Hospital Center of Mother and child (UHCMC) in N'Damena.

Patients and method

This was a prospective and descriptive survey covering three years period from January 1st, 2017 to December 31st, 2019 on the epidemiological and prognostic aspects of severe preeclampsia in the UHCMC in N'Djamena.

The study population consisted of pregnant women and parturient who were admitted in the maternity of the UHCMC during this study period. All pregnant women from 20 weeks of amenorrhea or parturient admitted for severe preeclampsia (BP 160/110 mmHg, significant proteinuria 5 g/24 hours) or having developed severe preeclampsia during labor or in the post-partum and managed in the UHCMC of N'Djamena were included in the study. In our exercise where 24-hour proteinuria was difficult; we used the urinary strip. Proteinuria in the urinary strip greater than or equal to two crosses was considered significant. Any light preeclampsia, any pregnant woman or parturient admitted for gravidic hypertension; chronic hypertension during pregnancy, any severe preeclampsia managed in another structure referred or evacuated for complications and any parturient who refused to participate in this survey were not included in this study.

Studied variables were: age, educational level, profession, parity, mode of admission, number of prenatal care, gestational age, medical history, functional signs of severe preeclampsia, blood pressure, proteinuria, transaminases, creatinine, uricemia, diuresis, management, maternal and fetal morbidity, maternal and fetal lethality. The data collected was analyzed using SPSS 18.0 software.

Results

Frequency

We have recorded 406 pregnant women admitted for severe preeclampsia among 13,599 deliveries, giving a frequency of 2.98%.

Sociodemographic characteristics

The most represented age group was 20 – 24 with 45.1%. The mean age of patients was 23.27 years with extremes of 14 and 45 years (Table 1).

Risk factors of severe preeclampsia

Primiparity was the principal reported risk factor for severe preeclampsia with 61.3% of cases (Table 2).

Antenatal care

Patients did not practice antenatal care and represented 47.9% cases (Table 3).

Functional signs

The main functional signs were headaches (34%), followed by blurred vision (9.8%) and epigastric pain (9.6%).

Proteinuria with urinary strip

Proteinuria was greater than three crosses in 83.7% cases and two crosses in 16.3%.

Management of severe preeclampsia

Medical treatment was dominated by the use of magnesium sulphate in 98.3% cases. The antihypertensive most used was Nicardipine with 69.4% of cases. Blood transfusion was performed in 8.6% cases (Table 4).

Mode of delivery

Cesarean section was the most common mode of delivery with 52.4% cases versus 47.6% of low-pathway cases.

Table 1: Distribution of patients according to Sociodemographic Characteristics.

Variables	n	%
Age (years)		
15 - 19	77	18.9
20 - 24	183	45.1
25 - 29	88	21.7
30 - 34	37	9.1
≥ 35	21	5.2
Total	406	100
Parity		
Primipara	249	61.3
Paucipara	77	19
Multipara	80	19.7
Total	406	100

Table 2: Distribution of patients depending on Risk Factors.

Risk factors of severe preeclampsia	n	%
Primiparity	249	61.3
Multiple pregnancy	22	5.2
Obesity	3	0.7
Diabetes	4	1
History of preeclampsia	29	7.1
Personal history of high blood pressure	18	4.4
Family history of high blood pressure	37	9.1

Table 3: Distribution of patients according to antenatal care.

Antenatal care (ANC)	n	%
0	194	47.9
1-3	123	30.2
≥4	89	21.9
Total	406	100

Table 4: Distribution of patients under management of severe preeclampsia.

Management instituted	n	%
Magnesium sulphate	399	98.3
Nicardipine	282	69.4
Methyldopa	119	29.3
Betamethasone/Dexamethasone	74	18.2
Furosemide	26	6.4
Total blood transfusion	35	8.6
Fresh plasma transfusion	12	3.0
Dialysis	7	1.7



Maternal morbidity and lethality

Maternal morbidities were dominated by eclampsia with 40.8% of cases. We recorded 21 maternal deaths or maternal lethality of 5.1% (Table 5).

Fetal morbidities

Prematurity was the most reported fetal morbidity with 36.4% of cases, followed by intrauterine death (15.9%) and perinatal asphyxia (3.7%).

Table 5: Distribution of patients according to maternal morbidities.

Maternal morbidities	n	%
Eclampsia	166	40,8
Abruptio placentae	16	3,9
Anemia	15	3,7
HELLP syndrome	13	3,2
Pulmonary edema	11	2,7
acute renal failure	15	3,7

Discussion

The frequency of severe preeclampsia in this survey was 2.98%. This result is similar to that of Tchente, et al. [7] in Cameroon in 2015 and Tchaou, et al. [8] in Benin, in 2013, who reported respectively 2.3% and 2.46% of cases. However, it is lower than those of Aguemon, et al. [9] in 2017 in Benin and Rajni, et al. [10] in 2020 in India who respectively obtain 4.8% and 7% severe preeclampsia. This low frequency could be explained by the fact that some cases of severe preeclampsia were not diagnosed during pregnancy due to lack of antenatal care deliveries at home and referred for management of complications and ignorance of the danger signs of severe preeclampsia.

The mean age of patients was 23.27 years \pm 1.3 year with extremes of 14 and 45 years. Tchente, et al. [7] report an average age of 31.4 years. This difference in mean age would be explained by the socio-cultural context specific to each country, such as early marriage, the low level of schooling of women.

Regarding parity, primipara predominated with 61.3%. This observation was made by Rajni, et al. [10] and Obossou, et al. [5] who found a predominance of primiparas of 53.57% and 40.9% respectively. This result is consistent with literature data that consider primiparity as one of the most important risk factors of preeclampsia [7,9,11].

Good-quality antenatal cares are capital for screening and early management of pathologies that may involve the maternal-fetal prognosis. Therefore, WHO currently recommends eight antenatal care during pregnancy. In this series, absence of prenatal follow-up was noted in 47.9% of cases. This result is comparable to those of Keita, et al. [12] in 2016 in Mali and Gabkika, et al. [6] in Chad in 2021 who reported 49% and 50.8% of cases respectively. This high rate reported in this series would be related to the low level

of education of women who do not have a good knowledge of the benefits and interests of antenatal care and precarious economic situation which does not allow them to obtain quality medical care.

From a therapeutic point of view, 98.3% of patients had received anticonvulsant treatment based on magnesium sulphate. This number is found in the range of other series [3,13,14] who used anticonvulsant magnesium sulphate for the management of severe preeclampsia in the order of 94% and 100%. This therapeutic attitude is consistent with the recommendations of WHO for the management of severe preeclampsia and eclampsia. This drug would provide more benefit in the maternal-fetal prognosis than other anticonvulsants. According to Duley, et al. [13], Girardm, et al. [14], magnesium sulphate would lead to a significant improvement in maternal and fetal prognosis in terms of maternal and fetal morbidity and mortality compared to diazepam. Nicardipine was the antihypertensive most associated with magnesium sulphate with 69.4% of cases. This figure is identical to that of Tchente, [7] who uses Nicardipine as an antihypertensive in 68% of cases.

Obstetric management consists in the termination of the pregnancy. The difficulty is to determine the moment of termination of pregnancy. For this, the decision must consider the term of the pregnancy and especially the maternal and/or fetal clinical state.

Concerning obstetric management, cesarean section was the most used mode of delivery with 52.4% of cases. Other authors such as Tchentem, et al. [7] and Ahmed, et al. [15] found 57.5% and 47.3% respectively of the cases of cesarean section. This high number of cesarean sections in this study might have resulted from delayed diagnosis in peripheral structures and the late references of patients to the practitioner to perform a cesarean section of maternal-fetal rescue.

Prognosis aspects

The maternal complications found are comparable to those described in the literature. We reported 54.3% of maternal complications due to severe preeclampsia. This result is found in the range of data from other African authors [7, 9, 10, 16] which is around 43.2% to 62%. This could be explained by the delayed diagnosis of result from the absence or poor antenatal care and the reluctance of the parents to give their agreements for the cesarean section, thus causing a delay in the management.

Eclampsia was the principal maternal complication of severe preeclampsia with 40.8% of cases. According to Founsou, et al. [17] in 2014 in N'Djamena, Chad, preeclampsia and its complications were the second cause of maternal death after hemorrhages. We reported maternal lethality of 5.4%. This result is higher than those of some authors such



as Ahmed, et al. [15], Aguemon, et al. [9], Neha, et al. [16], as well as Rakotomalala, et al. [18] in 2016 in Madagascar who respectively obtained 1.25%, 2.4%, 2.6% and 3.03% maternal lethality. The delayed diagnosis, the quality of management, especially the insufficiency of the technical plateau and the refusal of the family for surgery would explain this high rate of maternal lethality.

As for fetal morbidity, the study found that prematurity was the most represented fetal complication with 36.4% of cases. This result is superimposed on that of Rakotomalala, et al. [18] who noted 35.07% of premature cases. This figure is lower than those of Tchente, et al. [7] and Rajni et al. [10] which were respectively 42.8% and 53.6% premature cases. This prematurity is essentially iatrogenic in the context of maternal and/or fetal rescue due to maternal and fetal complications of severe preeclampsia. We recorded 19.9% of fetal mortality. This result is close to that of Ahmed, et al. [15] who reported 16.65% fetal mortality. Neha, et al. [16] reported 30% of fetal mortality. This high fetal mortality in our regions is mainly due to prematurity, acute fetal asphyxia and the inadequacy of technical trays in neonatology.

Conclusion

Severe preeclampsia is a frequent pathology in the University Hospital Centre of Mother and Child in N'Djamena. It is frequent on young housewives, primipara patients, without antenatal care. Medical management was based on the administration of magnesium sulphate associated with antihypertensives. The mode of delivery was dominated by the cesarean section. The most reported complications were eclampsia for the mother and prematurity for the newborn. It was responsible for high maternal and fetal mortality. The prevention of severe preeclampsia requires quality antenatal care in which high blood pressure in pregnancy is diagnosed and adequately managed. On the other hand, good monitoring of the labor of delivery is necessary.

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