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# Management of Severe Preeclampsia Before Term in N'Djamena Mother and Child University Hospital

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## Abstract

**Background:** Severe preeclampsia is associated with high maternal and perinatal mortality in developing countries.

**Objective:** to improve the management of preeclampsia before full term.

**Patients and method:** This were a descriptive prospective study for a period of 5 months from 1st May 2020 to 31st October 2020 on the management of severe preeclampsia before full term performed at the Maternity of N'Djamena Mother and Child University hospital.

**Results:** The prevalence of preeclampsia before term was 1.3%. The age group between 17-24 years was the most represented with 62.3%. The majority of patients (55.7%) were referred. Main consultation' reason is : headaches (31.1%. Patients with a gestational term between 28-32 gestational week + 6 days were more represented with 39.3%. More than half (50.8%) hadn't attended prenatal cares. Primiparity was the most noted risk factor with 39.3%. All pregnant women had received magnesium sulphate (100%). Pulmonary maturation with Betamethasone was achieved in 86.9% patients. The decision to terminate the pregnancy was taken in 63.9%. Main maternal morbidity was: acute kidney failure with 13.1%. Maternal lethality rate was 6.6%. Main fetal complication was: prematurity (88.5%). The majority of patients (77%) had a vagina delivery.

**Conclusion:** Severe preterm pre-eclampsia is an uncommon pregnancy complication in N'Djamena Mother and Child University Hospital. Delivery was performed by vagina in the majority of cases

**Keywords:** Severe Preeclampsia; Before Term; NMCUH

## Introduction

Severe preeclampsia is defined by high blood pressure ≥ 160mmHg for systole, and or ≥ 110mm Hg for diastolic associated with significant proteinuria (≥ 5g/24h) [1]. This pathology is associated with high maternal and perinatal mortality in developing countries [2]. These complications are more noted in patients where preeclampsia occurs before the term. According to data from the literature, the foetal prognosis is correlated with changes of uric acid. Much progress has been made in the management of severe preeclampsia. Umbilical Doppler has emerged as a means of predicting fetal outcome. Despite the means of diagnosis and for the management, there is a high prevalence of preeclampsia associated with high lethality in developing countries [3-5].

## Patients and Method

This was a descriptive prospective study for a period of 5 months from 1st May 2020 to 31st October 2020 on the management of severe preeclampsia before term performed at the Maternity of N'Djamena Mother and Child University hospital. The severity criteria were those defined by the American College of Obstetricians and Gynecologists) [6]: An hypertension with a systolic pressure ≥ 160 mmHg and/or a diastolic pressure ≥ 110 mmHg, rebellious to medical treatment, a rapidly evolving nephrotic syndrome; One or more functional signs (neurosensory signs, vigorous osteo-tendinous reflex, epigastric pain...) Or the occurrence of hypertension' complications (eclampsia, HELLP syndrom, intra utero fetal death, acute fetal distress, intra-uterine growth retardation). Any patient with at least 2 of the above signs and with a pregnancy of gestational age < 37 weeks and who agreed to participate in the study was included. The term is defined as gestational age ≥ 37 weeks. Then patients after admission who delivered at 37 weeks are recognize in term. The data collected was entered using World 2016 software and analyzed using SPSS version 18.0.

## Results

During the study period, we recorded 61 patients admitted for severe preterm preeclampsia among 4,692 admissions, giving a prevalence of 1.3%.

| Age (year) | n | % |
|---|---|---|
| **15 -24** | **38** | **62.3** |
| 25-34 | 13 | 21.3 |
| ≥35 | 10 | 16.4 |
| **Total** | **61** | **100** |

**Table 1:** Age of patients

The age group between 17-24 years was the most represented with 62.3%. The average age of the patients was 24.4 years.

## Mode of admission

The majority of patients (n=34/61 or 55.7%) were referred compared to 27 patients (44.3%) who were not referred.

## Parity

Primiparous were most represented with 39.3% (n=24), followed by pauciparous and multiparous respectively 34.4% (n=21) and 26.3% (n=16).

## Reason for consultation

Main consultation' reasons were: headaches (31.1%, n=19/61), lower member' oedema (21.3%, n=13/61), blurred vision (16.4%, n=10/61), generalized oedema (13.1%, n=8/61)

## Gestational age at the time of presentation (week)

Patients with a gestational age between 28-32 weeks and 6 days represented 39.3% (n=24), followed by those with gestational age between 33 -36 week and 6 days and less than 28 weeks with respectively 32.8% (n=20) and 27.9% (n=17).

## Pregnancy monitoring

More than half (50.8%, n=31) hadn't attended prenatal cares, followed by those attended between 1 to 3 times and and ≥ 4 times respectively 31.1% (n=19) and 18% (n=11) .

## Risk factors for preeclampsia

More than half (50.8%, n=31) hadn't attended prenatal cares, followed by those attended between 1 to 3 times and and ≥ 4 times respectively 31.1% (n=19) and 18% (n=11) .

| Risk factors | n | % |
|---|---|---|
| Diabetes | 4 | 6.6 |
| Primipara | 24 | 39.3 |
| Multiparity | 9 | 14.8 |
| Antecedent of hypertension | 9 | 14.8 |
| Multiple pregnancy | 9 | 14.8 |
| Urinary infection | 1 | 1.6 |
| none | 9 | 15.8 |

**Table 2:** Risk factors

| biological exam | Paramètres | N | % |
|---|---|---|---|
| Creatinine | Normal | 36 | 59.0 |
| | Anormal (high) | 25 | 41.0 |
| Acid uric | Normal | 26 | 42.6 |
| | Anormal (high) | 35 | 57.4 |
| Transaminases | Normal | 50 | 82 |
| | Anormal (high) | 11 | 18 |
| prothrombin time | Normal | 51 | 83.6 |
| | Anormal | 10 | 16.4 |
| Hemoglobin | Normal | 55 | 90.2 |
| | Anormal | 6 | 9.8 |

**Table 3:** Biological impact assessment

Primiparity was the most noted risk factor with 39.3%.

Mean value: Acid uric= 83.6± 3.1mg/L , creatinine :18.1± 1.1mg/L

Forty-one per cent (41% of patients had had a high creatinine value and 57.4% had a high uric acid value.

## Umbilical Doppler ultrasound

The majority of patients (82%, n=50) had normal umbilical Doppler compared to 18% (n=11) with abnormal umbilical Doppler (reverse flow or null diastole.

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| Medical treatment | n | % |
|---|---|---|
| Magnesium sulphate | 61 | 100 |
| Nicardipine | 48 | 78.7 |
| Betamethasone | 53 | 86.9 |
| Methyl dopa | 13 | 21.3 |
| Diazepam | 12 | 19.7 |

**Table 4:** Type of treatment

All pregnant women had received magnesium sulphate (100%). Pulmonary maturation with Betamethasone was achieved in 86.9% patients. The most commonly used antihypertensive was Nicardipine (78.7%).

## Obstetrical decision

| Décision | | n | % |
|---|---|---|---|
| Delivery | Vagina | 28 | 45.9 |
| | Ceasarean | 11 | 18 |
| Continuation of pregnancy | | 22 | 36.1 |
| Total | | 61 | 100 |

**Table 5:** Obstetric decision

The decision to terminate the pregnancy was taken in 63.9%. Vagina way had been preferred in 45.9%.

**Outcome of pregnancy in gestating women whose decision to continue the pregnancy was preferred**

The patients in whom decision to continuation of the pregnancy was taken were hospitalized, with daily clinical examination (3 times), biological exam control and institution of treatment. The main criteria to justify the continuation of pregnancy is the gestational age (< 34 weeks), need to give corticoid drug, and the decrease of blood pressure. When complication occurred the decision of delivery has been taken in emergency.

Seven patients (11.5%) had reached full term.

Fifteen patients (24.6%) presented complications

## Maternal complications

Main maternal morbidities were: acute kidney failure (13.1%, n=8), eclampsia (11.5%, n=7), Hellp syndrome (9.8%, n=6), abruptio placenta (4.9%, n=3).

We recorded 4 maternal deaths, giving a mortality rate of 6.6%.

## Fetal complications

Main fetal complications were: prematurity (88.5%, n=54/61), intra utero growth retardation (25.7%, n=18/61), intra utero death (17.1%, n=12), perinatal asphyxia (10%, n=7/61).

## Delivery mode

The majority of patients (77%, n=47/61) had a vagina delivery compared to 23% (n=14/61) by caesarean section.

## Discussion

The prevalence of severe preeclampsia in this series was 1.3%. This result is lower than that of Diallo, *et al.* [7] in 2015 in Bobodioulasso, Burkina Faso who reported a prevalence of 5.2%. However, it is higher than what note by Moujahid [8] in Rabat, in Morocco in 2017 which is 0.8%. This rate could be explained by factors such as poor monitoring of pregnancy, which favors the onset of severe preeclampsia

The average age was 24.44 years, with extremes of 17 and 38 years. This result can be compared with Bah'findings [9] in Conakry in 2014 in Guinea, who noted an average age of 25 years. It is lower than the 31.4 years noted by Zahira [10] in 2017 in Algeria. These differences in the average ages can be explained by the socio-cultural characteristics of the populations, such as early marriage among young people and the low level of schooling among women.

According to the data in the literature [11,12] headache is the most frequent reason for consultation. Our study confirms this assertion with 31.1% of patients admitted for headaches. However, some authors such like Diallo and al [7] noted more patients with oedemas of lower members as a reason for consultation. According to previous the data [7,11,12], poor monitoring of pregnancy is an element that favors the occurrence of preeclampsia. This series confirms this finding with 50.8% of patients that hadn't attended prenatal cares. Ours finding are like those of Keita, *et al.* [13] and Agnide [14] who report a proportion varying between 49-51.2% of patients that hadn't attended prenatal cares.

Primiparity is the most common risk factor in this series, with 39.3%. However, data on risk factors are scattered [15,16,17]. According to Lansac [17], main risk factors are: personal history of hypertension, primiparity, multiple pregnancies, evidence of exposure to the husband's sperm, diabetes. All these factors are recognised as being likely to lead to placental ischaemia, the starting point of endothelial and hormonal disturbances [17].

It has been shown for several years that hyper uricemia is to some extent proportional to the severity of preeclampsia [16]. In this study 57.4% of patients had hyper uricemia. This result is higher than Assogba [18] findings showing 55.20% of patients with hyper uricemia. This rate is thought to be linked to factors such as delayed of diagnosis, which can lead to complications.

According to previous data [16-19] Doppler changes are factors helping on the decision to continue or stop the pregnancy. Thus, severe preeclampsia associated with reversed flow or a null diastole from the term of 32 gestational term or more justifies a suggestion to stop the pregnancy [13,20]. In this series, 18% of patients had abnormal umbilical Doppler. This result is similar to that of Zahira [10] who notes 18.1%.

According to the recommendations of the Royal College [21] and the American College of Gynaecology and Obstetrics [6], the discovery of severe preeclampsia is the reason for starting magnesium sulphate in order to avoid complications, the most dreaded of which are eclampsia and abruption placenta. Thus, magnesium sulphate has two effects: the prevention of eclampsia and the prevention of neonatal neurological complications. This series corroborates these assertions with 100% of patients who have benefited from Magnesium Sulphate.

When severe preeclampsia is discovered, the best management would be to shorten the pregnancy in order to avoid maternal or fetal complications [6,11,17]. However, the decision to terminate the pregnancy should take into account factors such as the term of the pregnancy and the clinical condition of the mother [6,17]. Thus, in an unviable fetal term and the absence of maternal complications, one can opt for the continuation of the pregnancy. In this study, termination of pregnancy was indicated in 63.9% of patients. This rate is lower than that of Zahira [10] who opted for termination of pregnancy in 81% of patients. This rate is higher than of Bah, *et al.* [9] finding showing a pregnancy termination rate of 56%.

Patients with a vaginal delivery had represented 77%. This rate is close to those of Keita and al [13] and Bah and al [9] and diallo and al [7] who report 65.6% and 78% respectively. However, it is higher than that of Moujahid [8], who noted that 61% of patients had given birth through the vaginal route. This result could be attributed to factors such as maternal status, the occurrence of complications (maternal or fetal), fetal presentations and the type of pregnancy.

The main maternal complication in this series was acute renal failure with 13.1%; according to the literature, the main maternal complications that motivate consultations are eclampsia, abruption placenta and HELLP syndrom [6,15,17]. Our findings could be explained by the delay in diagnosis and the lack of follow-up of the pregnancy, which causes patients to come to the complication stage.

The maternal lethality rate in this series was 6.6%. This result is higher than that found by Jayi [22] who notes a lethality rate of 1.2%. This lethality rate is linked to factors such as the technical platform, the type of complication, the delay in treatment and, the delay in admission.

According to the data in the literature, preeclampsia leads to a reduction in energy and oxygen intake, which can cause intrauterine growth retardation and, in extreme cases, intra utero fetal death [23-25]. In this series we noted 13.5% intrauterine growth retardation among fetal complications. This result is lower than the 23.3% of intrauterine growth retardation noted by Tchenté, *et al.* [26] in Douala, Cameroon in 2015. This high rate of intrauterine growth retardation is linked to factors such as poor monitoring of the pregnancy, which delays the diagnosis and thus contributes to the occurrence of complications.

## Conclusion

Severe preterm preeclampsia is an uncommon pregnancy complication in N'Djamena Mother and Child University Hospital. Medical management is based on the administration of magnesium sulphate combined with antihypertensive drugs. Delivery was performed by vagina in the majority of cases.

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