

Severe Pre-Eclampsia and Eclampsia in the Service of Obstetrics and Gynecology of Regional Teaching Hospital of Ouahigouya (RTHO): Clinical, Therapeutic and Evolutive Aspects

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Abstract: We present a study to the clinical, therapeutic and evolutive aspects of severe pre-eclampsia and eclampsia in the service of obstetrics and gynaecology of regional teaching hospital of Ouahigouya. We have conducted a descriptive and analytical study with retrospective data collection within 3 years, from 1st January 2013 to 31st December 2015. We have recorded 5791 deliveries out of which 261 were included giving a rate of 4.51% (61 cases of eclampsia 1.05%, 200 cases of severe pre-eclampsia, 3.45%). The most affected patients were the women with age ranging between 16-20 years (33.3%), the nulliparous women (24.2%), the multiparous women (25.5%), married women (84%) and those without renumbering activity (86.6%). Maternal prognosis was dominated by a morbidity linked to fever (24.8%), coma (21.7%) and acute kidney failure (14.9%). Maternal lethality rate was 1.92% and the fetal mortality was 24.6%.

Keywords: Pre-Eclampsia, Eclampsia, Clinical, Management, Prognosis

1. Introduction

Hypertension disorders during pregnancy, particularly severe pre-eclampsia and eclampsia affect about 8% of pregnancies and lead to 12% of maternal death in the whole world [1]. In developed countries, the incidence of severe pre-eclampsia and eclampsia is low (0.5 to 2%) and its prognosis has been improved due to the improvement of obstetrics, resuscitation and neonatology [2].

Eclampsia is one of serious complications of hypertension crisis during pregnancy [3]. Eclampsia leads to maternal deaths 50 000 per year in the world. In Africa, eclampsia

affects one pregnancy out of 2000 with maternal death of 30% and fetal and perinatal mortality of 20% [1], [4].

In Burkina Faso, the maternal lethality rate linked to eclampsia was 3, 3% at University Hospital Yalgado Ouedraogo (UHCYO) and eclampsia was the fourth maternal death cause behind hemorrhages, infections and complications of abortion [5].

In the service of obstetrics and gynecology of regional teaching hospital of Ouahigouya (RTHO), there is updating on the use of magnesium sulfate for the management of eclampsia with a protocol of use and the magnesium sulfate is always available. Despite that, the materno-fetal mortality linked to severe pre-eclampsia and eclampsia remains high in

the service. Yet, all authors agree that a rapid diagnosis followed by a right management may improve the prognosis of these pathologies.

Even if the lethality of pre-eclampsia has become low, it remains high despite multiples efforts against that disease.

However, few studies have been performed on severe pre-eclampsia and eclampsia in the service of obstetrics and gynaecology of regional teaching hospital of Ouahigouya (RTHO). It has appeared to us a necessity to conduct a concomitant study (severe pre-eclampsia and eclampsia) in the goal to compare the frequencies of these pathologies, epidemiological profile of patients but also to assess the quality of management of these pathologies.

2. Patients and Methods

The study has been performed in the service of obstetrics and gynaecology of regional teaching hospital of Ouahigouya (RTHO).

The RTHO is the referral center of six sanitary districts of the North Region which are: Ouahigouya, Titao, Thiou, Seguenega, Gourcy and Yako. Its population zone of cover is estimated of 1 306 619 inhabitants. We conducted a cross-sectional study for descriptive and analytical purposes including a retrospective data collection during a period of 3 years, from 1st January 2013 to 31st December 2015.

The study was based on pregnant women, parturient women and delivered women hospitalized at the maternity of RTHO during the study period on account of either severe pre-eclampsia or eclampsia.

Were included in the study, any patient who had:

1. Diastolic blood pressure ≥ 110 mmHg beyond 20 weeks of gestation associated with a positive proteinuria higher than three crosses.
2. Or a total seizures often added to the criteria of diagnosis of pre-eclampsia (diastolic blood pressure higher than or equal to 90 mmHg beyond 20 weeks of gestation with positive proteinuria at least two crosses)

We're not included in the study, the patients with pregnancy aged less or equal to 20 weeks of gestation or not sure or patient whom folder were not infeasible.

Variables used were:

- socio-demographical characteristic (age, parity, occupation, marital status and origin)
- clinical characteristic (mode of admission, monitoring of pregnancy, physical and functional signs)
- The data from the supplementary examinations (albuminuria, blood count, creatininemia, AST/ALT, Background eye, ECG).
- The data linked to the management, maternal and fetal prognosis as well

Using a pretested questionnaire, the data were collected using patients folders, theatre book, delivery and hospitalization book of the maternity.

The data collected were recorded and analyzed by using Word, Microsoft and Excel 2010 software, and Epi-info 7.1.4.0 version. The results have been presented on

percentage form for qualitative variables and means form and standard deviation for quantitative variables.

3. Results

3.1. Frequency of Pre-Eclampsia and Eclampsia

A total of 261 cases of pre-eclampsia and eclampsia were collected from 5791 deliveries, a frequency of 4.5%, including 61 cases (1%) of eclampsia and 200 cases (3.5%) of pre-eclampsia. severe

3.2. Socio-Demographical Characteristic

The mean age of patient was 25.71 ± 5 years with a range of 15 and 41 years; 33.3% of patient were between 16 and 20 years old. The mean parity was 2 ± 2 . The biggest parity was 11 and the primiparous women represented 51%. The women without renumbering activities (housewives and pupils) represented 86.6% and 92.3% had marital live (married or cohabiting).

3.3. Clinical Aspects

The referred patient represented 80.1%. The main reasons of evacuation were hypertension (61.8%), seizures (15.8%) and abdomino-pelvic pain (3.3%).

Functional signs at admission were headaches (51%), dizziness (38.3%), and seizures (10%).

The mean age of occurring of the pathology during the pregnancy was 34.5 weeks of gestation with a range of 22 and 44 weeks of gestational age. In the post-partum, the mean delay of occurring of eclampsia crisis was 4.13 days with a range of 0 and 16 days.

The pathology (Pre-eclampsia and eclampsia) has occurred in antepartum in 46.4% as shows in table 1.

Table 1. Distribution of patients according to the diagnosis period of the Severe eclampsia and eclampsia.

Diagnosis period of severe preeclampsia/eclampsia	Number	%
Antepartum	121	46,4
Intrapartum	96	36,8
Postpartum	44	16,8
Total	261	100

The mean diastolic blood pressure at admission was 110.8 mmHg with a range of 80 and 160, and 62% of patients had a positive album, inuria higher than two crosses.

On biological side, on noted anemia and thrombopenia respectively in 30.1% and 20.5% of cases and hyper creatininaemia in 34% of cases as it shows in table 2.

Table 2. Distribution of patients according to the results of Biology (n = 259).

Characteristics	Number	%
Hemoglobin level (g / dl)		
< 6	5	1,9
[6, 11]	73	28,2
≥ 11	181	69,9
Pads (/ mm3)		
< 150000	53	20,5

Characteristics	Number	%
[150000, 400000]	197	76
> 400000	09	03,5
Creatinine (μmol / l)		
<90	171	66
≥90	88	34

Hepatic function was disrupted in 19.7% of cases (table 3)

Table 3. Patient Distribution Based on ASAT / ALT rate.

Variables	Number	%
ASAT (n = 71)		
Normal	57	80.3
High	14	19.7
ALAT (n = 71)		
Normal	58	81.7
High	13	18.3

3.4. Therapeutic Aspects

A treatment against seizures was administrated to our patients based on magnesium sulfate in 86.6% (226/261) and diazepam in 13.4% of cases. An anti-hypertensive treatment had been done with clonidin in 99.6% (260/261) whom associated with amlodipin in 41.2% (107 patients).

Obstetrical management had been by vaginal delivery in 52.9% (99/187) of cases.

3.5. Prognosis Aspects

- Maternal prognosis

Maternal morbidity was marked by infections in 48.6%, coma (33.3%) and hemodynamic disorders (21.9%) as it shows in table 4.

Table 4. Distribution of patients according to maternal complications (n = 105).

Maternal Complications	Number	%
State of eclamptic	02	01.9
Retroplacental Hematoma	07	06.7
Acute Renal Insufficiency	09	08.6
Ascites	03	02.9
Haemorrhage from delivery	03	02.9
Infections	51	48.6
Hemodynamic complications	23	22.0
Vascular complication	07	06.5
Coma	35	33.3
HELLP syndrome	02	01.9

A total of five maternal deaths were recorded, a fatality rate of 1.92%. The causes of these deaths were one case of coagulopathy disorders, one of eclamptic evil state and three cases of severe sepsis.

- Fetal prognosis

The main neonatal morbidities were prematurity (32.1%), neonatal infections (15%) and fetal distress (11.2). A total of 46 stillbirths were recorded among 187 neonates, a perinatal death rate of 246 per 1000 newborns

- Prognosis factors

Chi square test (X²) was used to evaluate poor prognostic factors. It says that from our analysis that prematurity and vaginal deliveries increase the risk of stillborn respectively in

39.4% and 38.4% of cases, p value equal to 0.0006 and 0.000000006 as it shows in tables 5 and 6.

Table 5. The status of the fetus according to the mode of delivery.

Mode of delivery	Stillbirth	Born alive	Total
Cesarean section	08	80	88
Delivery natural way	38	61	99
Total	46	141	187

The critical value is 0.004 at the 5% threshold and 1 degree of freedom. X² = 0.60 and P = 0.0006. X² > 0.004 and P < 5%. Therefore the mode of delivery has an impact on the vitality of the fetus.

Table 6. The status of the fetus according to the term of the pregnancy.

Term (Week of Amenorrhea)	Stillborn	Born alive	Total
< 37	43	66	109
≥ 37	03	75	78
Total	46	141	187

X² = 1.54. P = 0.000000006. X² > 0.004 and P < 5%. This means that the term of pregnancy has an impact on the vitality of the fetus at birth.

4. Discussion

4.1. Limitations and Biases

The retrospective feature of data collection has been origin of limitation by:

1. Lack of computerized archives service of files
2. Loss of some of clinical folders
3. Insufficiency of information in some of clinical folders (no report of some important items or lack of record of biological examinations information's)

Despite of these limitations, we have reached to these results that we have compared to literature data.

4.2. Frequency

Our frequency was 4.5% whom 1% of eclampsia and 3.5 of severe pre-eclampsia.

Pre-eclampsia occurs in about 5 to 10% of pregnancies according to the literature [6], [7], [8] and the prevalence of severe pre-eclampsia is estimated diversely according to the criteria of definition, to populations studied and its heterogeneity.

The frequency of severe pre-eclampsia in our study (3.5%) is close to those found by Tchaou B. A. [9] Benin and Hodonou F. [10] in Burkina Faso who reported respectively 4.7% and 4.1%. On the other hand, it was so higher than those reported by Cisse C. T [11] in Senegal and Girad B. [8] in France who found respectively 1.4% and 1.25%.

The rate found in the study is significantly lower than those found by Mayi-song S. [12] in Gabon who has reported a rate of 7.5%.

Eclampsia has become a rare complication in developed countries by precocity of management in front of main signs of pre-eclampsia. On the other hand, the monitoring of pregnancy by a qualified medical staff, the screenings of risk pregnancies and information's patients have helped to decrease that pathology [13].

Nonetheless, it remains present in our in-low resources

countries (1% in our study) and that prevalence is almost regular in sub-Saharan Africa [4], [14], [15].

It is higher than those found by Ozumbia B. C. in Nigeria [16], Simazue A. in Gabon [17] and MWINYOGLEE J. in South Africa [18] which was respectively 0.2%, 0.27% and 0.4%. That high rate is linked to lost factors which have low socio-economic level of populations as common factor. In the study, the major worry was the faulty management of hypertension crisis link to bad monitoring during antenatal visit which does not allow detecting early high blood pressure.

4.3. Mode of Delivery

In the study, 69 patients, 37.7% have delivered by cesarean section.

Our result is similar to those found by Lankoande J. [19] in Ouagadougou, Tchaou B. A. [9] in Benin, and Cisse C. T. [11] in Senegal with respectively 45.7, 41.7% and 50%.

Cesarean section rates higher than ours have been reported by Cisse C. T. in Senegal [11] and Mayi-tsonga S. in Gabon [12]. They have reported respectively 64.1% and 74% of cesarean section rate in their studies. In our study, the low cesarean section rate may be explained that in the regional teaching hospital of Ouahigouya (RTHO), there is an insufficiency of staff because the same team in charge of general surgery theatre and that of maternity; also cesarean indication is for the pregnant women whom delivery is not impending within 24 hours (according to WHO protocol).

4.4. Therapeutic Data

The management by drugs is based on administration of ant-hypertensive medicine, magnesium sulfate according to WHO, as it was the case in this study for the treatment and prevention of seizures.

Treatment using Clonidin was instituted in 99.6% of patients. Neji K. and Brouth Y. [20], [21] have used Dihydralazin in more than the half of their patients. Diouf A. A. [22] has used Nicardipin in 88% of cases. Even if the comparison between the types of anti-hypertensive drugs did not get an advantage for any of type [23], the use of central antihypertensive drugs in our study can explain by its effectiveness, safety, cheapness and mostly the unavailability in our settings of Dihydralazin as recommended by WHO in first line.

Magnesium sulfate was used in 86.6% of cases. Our results are lower than those of Diouf A. A. in Senegal which was 100% [22]. In the other hand, Tchaou B. A. [9] in Benin has reported a using rate of 57.2% in their study based on severe pre-eclampsia. Mayi-tsonga S. in Gabon [12] has found a using rate of 42.7% in severe pre-eclampsia patients and Cisse C. T. [3] has reported a rate of 53% in eclampsia patients.

The high use rate of magnesium sulfate is linked to that it is used in first intention according to WHO protocol and it is available in our service.

4.5. Materno-Fetal Prognosis

- Maternal prognosis

In this study, we have recorded 5 maternal deaths with a lethality rate of 1.92%. That rate is close to that of Diouf A. A. [22] in Senegal who has found 1.62%. But it is clearly lower than those reported by Cisse C. T. [3] in Senegal (17.9%) for eclampsia, Bambara M. [14] in Burkina Faso (7.14%) for eclampsia, Tchoua B. A. in Benin [9] who found 6.8% of complications of severe pre-eclampsia.

That may explain by the improvement of management of that pathology by medical staff. The causes of these deaths were: one case of hemorrhage, two cases of hypovolemic shock after cesarean and two septic shocks. t

- Fetal prognosis

In the study, perinatal mortality was estimated to 24.6%. That rate is similar to those found by Simazue A. in Gabon [17], Baeta S. in Togo [24] which was respectively 26.6% and 28.6% for eclampsia. However, it is higher than those found by Cisse C. T. in Senegal [3], Faye A. [25] and Mayi-tsonga [12] in Gabon, respectively 3.6%, 13.2% and 12.2%.

Our high rate may explain by the late of maternal management, the insufficiency of adequate buildings and means of neonatal resuscitation.

- Factors prognosis

Prematurity and vaginal delivery has contributed to increase the frequency of stillbirth in pre-eclampsia and eclampsia. Prematurity would be induced by severe preeclampsia and eclampsia. To others authors [26], 60% of perinatal deaths and 50% of neurologic sequels due to delivery before 32 weeks of gestational age.

The use of cesarean section has become common in the service in case of pre-severe pre-eclampsia or eclampsia. When cesarean section has performed with optimal precautions, it contributes to improve the maternal and fetal prognosis.

5. Conclusion

Severe pre-eclampsia and eclampsia remain pregnant women dreadful pathology seeing its complications leading to threat either maternal or fetal prognosis. Despite lots efforts of national and international health partnerships which have contributed to vulgarize reentered antenatal care monitoring and the subvention of obstetrical and neonatal emergencies cares by Burkina state, the incidence of these pathologies remains relatively increases in our country. Nevertheless, these strategies have contributed to improve the management of these pathologies which has helped to reduce the maternal death rate linked to severe pre-eclampsia and eclampsia. On the other hand, a high maternal morbidity and perinatal death are implanted to these pathologies.

Competing Interests

The authors declare that they have no competing interests.

Ethics Approval & Consent to Participate

This study was conducted under the supervision of THE UNIVERSITY OUAGA I PROFESSOR JOSEPH ZERBO KY, medical school. We obtained the approval of the Chief executive officer of the REGIONAL HOSPITAL of OUAHIGOUYA after approval of the Medical Establishment Commission which acts as an ethics committee at the local level.

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