

Frequency and Management of Gravidic Toxemia at the Kinshasa Provincial General Reference Hospital from February to November 2013

Acher Kumwimba Kahenga

Second Lieutenant Doctor

Abstract: *Pregnancy is not an illness, but the significant changes it causes can cause some illnesses. During a first pregnancy, the risk of developing high blood pressure is permanent and it is lower during subsequent pregnancies. It is therefore important that this hypertension is diagnosed so that the management and the good follow-up.*

Keywords: Toxemia, Pathophysiology, moderate toxemia, and severe toxemia

1. Introduction

Pre-eclampsia (toxemia of pregnancy, dysgravidia, eclamptic gestosis) represents the first cause of morbidity and mortality, both maternal and fetal.

Indeed, high blood pressure complicates 5 to 15% of all pregnancies in developed countries. It is also responsible for 20 to 30% of maternal deaths and 20% of fetal, perinatal and neonatal mortality. In the severe form of pre-eclampsia, high blood pressure during pregnancy constitutes a real medical-obstetric emergency, severely affecting the maternal and fetal prognosis. In France for example, arterial hypertension is the most frequent complication of pregnancy occurring in more than 10% of pregnant women where it is the leading cause of maternal mortality.

In Kinshasa universities, pre-eclampsia is the second leading cause of maternal death after delivery hemorrhages. Eclampsia has also been implicated in the occurrence of a high maternal-fetal risk at the Provincial General Reference Hospital in Kinshasa. The choice of this work is justified by the fact that toxemia is among the pathologies of high maternal-fetal risk at the Provincial General Reference Hospital in Kinshasa.

The interest is to trace the epidemiological profile of pregnant women; determine the frequency of pregnancy toxemia and finally assess the management while improving it.

1.1 Hypotheses

Pregnancy toxemia would be high in our study environment and pregnant women under 35 years of age would be the most affected, but early diagnosis would improve treatment. Already no further than in 2011, Professor Jean Pierre ELONGI MOYENE found that the prevalence of pre-eclampsia was estimated at 8.5% in the city of Kinshasa.

1.2 Theoretical Part

1.2.1 Concept definitions

- Toxemia: Pathology of the 2nd or 3rd trimester of pregnancy manifesting around the 20th week characterized by:
 - Edema of the lower limbs,
 - Blood pressure greater than or equal to 140/90 mm Hg,
 - Albuminuria.
- Frequency: Is repetition at more or less regular intervals.
- Provincial General Referral Hospital: This is a health institution to which pregnant women at high risk or those who present a serious or urgent problem during pregnancy are referred.

1.2.2 Types of toxemia

- From the point of view of severity, toxemia is of two types:
 - Moderate toxemia,
 - Severe toxemia.

a) Moderate toxemia

It is characterized:

- TA between 140/90 and 160/100 mm Hg,
- Moderate edema (not generalized) localized in the malleoli and disappearing after rest
- Albuminuria less than 0.5g / l

b) Severe toxemia

It is characterized by:

- TA greater than or equal to 160/110 mm Hg
- Generalized edema (hydrops)
- Massive albuminuria greater than 3-5g / 24h

- Toxemia is also typified from the point of view occurring in three:

- Pure or true toxemia: is that which strikes the primipara, free of renovascular history, after the fifth month of pregnancy.
- Superadded toxemia: occurring early in pregnancy and is observed in women with a history of hypertension or renal impairment independent of pregnancy.

- Recurrent toxemia: it occurs with each pregnancy in the absence of any renovascular manifestation between pregnancies

1.3 Pathophysiology

During normal pregnancy, a trophoblastic invasion of the spiral arteries of the myometrium occurs which transforms them into low pressure, high flow vessels providing placental and fetal vascularity. Toxemia is characterized by a defect in this process resulting in hypo perfusion and placental ischemia. The ischemic placenta secretes substances (cytokines, lysosomal enzymes) responsible for altering the cells of the vascular endothelium.

There is a drop in the production of vasodilator substances (prostaglandins, prostacyclin, NO, etc.) and normal production of thromboxane A₂. The consequences are an increased sensitization of the vessels to vasoconstrictor substances, making them also refractory to vasoactive substances, an activation of platelet coagulation and an alteration of the capillary wall responsible for hypo albuminemia leading to leakage of fluids and proteins in the interstitium.

1.4 Risk factors

- Young age;
- Primiparity;
- On uterine distension (multiple pregnancy, polyhydramnios);
- cold;
- food poisoning: hearty meals, cold meats, game ...
- Overwork and fatigue.

1.5 Diagnosis

1.5.1 Screening

It is worn on the GANT roll over test. This test consists in measuring first in the left lateral decubitus the BP of the pregnant woman every five minutes 2 to 3 times then the pregnant woman is put back in the supine position and the blood pressure is again measured every 5 minutes. Pregnant women whose diastolic pressure increases by more than 20 mm Hg develop in 93% of cases, toxemia of pregnancy. Note that this test is only valid if it is performed between the 29th and 32nd week of pregnancy.

1.5.2 Diagnosis

It is confirmed when a pregnant woman has a blood pressure greater than or equal to 140/90 mm Hg plus a significant proteinuria greater than or equal to 300 g / dl with sometimes an edema which may or may not be generalized.

1.6 Support

1.6.1. Prophylactic

When there is a history of toxemia and if it was accompanied by intrauterine growth retardation, it is legitimate to prescribe from the 3rd month of pregnancy and until term an antiplatelet agent (Aspirin) at a rate of 150 mg per day.

1.6.2. Curative

It is mainly a function of the importance of the blood pressure figures which condition the prognosis. It differs depending on whether it is a moderate or severe toxemia.

1.6.2.1. Moderate (mild) toxemia

- Hospitalization is a necessary rule. Bed rest, preferably in the left lateral decubitus, is the basis of treatment. It increases diuresis and improves blood pressure figures;
- The salt-free diet is not recommended, except in certain cases of essential hypotension or heart failure;
- A sedative (magnesium sulfate) is prescribed: 5g in each buttock;
- An antihypertensive agent is often prescribed as monotherapy: Catapressan 3X1 / 2 IVD ampoule;
- Perform the pulmonary maturation with corticosteroid if pregnancy less than 34 weeks of amenorrhea with celestene 2X6mg per day for 48 hours;
- Request the impact report:
- In the mother: F.O., ECG, Cardiac echo, Chest X-ray (After the 34th week of amenorrhea), urea, creatinemia, uric acid, fibrinogen, platelets.
- In the fetus: Doppler echo, OCT, NST, abdominal echo.

1.6.2.2. Severe toxemia

- Hospitalization is the rule in a quiet, dimly lit room, far from any noise with restricted visits;
- The pregnant woman is asked to lie down in the left lateral decubitus to decompress the IVC;
- A sedative: Magnesium sulfate 5g in each buttock.
- Antihypertensive drug in combination: Catapressan 3X1 / 2 IVD ampoule, Loxen 2X1 / g IVD or infusion 20mg in 230cc of solution with a flow rate of 20 drops / sec.
- Perform the pulmonary maturation with corticosteroid (if pregnancy less than 34 week of amenorrhea): celestene 2X6mg / 24 // 48H;
- Stop pregnancy when you have already reached an age of fetal maturity or the maternal and / or fetal condition requires it.

N.B: Diuretics should be avoided except in cases of PAO or severe hydrops. Ss-blockers also to be avoided because cross the placental barrier can thus have harmful reactions on the heart rate of the fetus, and never combine them with anti calcium because this association leads to cardiac arrest.

1.7. Complications

- For the mother:
 - Brain: Eclampsia, stroke;
 - Eyes: Hypertensive retinopathy;
 - Heart: Heart failure, PAO
 - Liver: Subcapsular hematoma, liver rupture, hellp syndrome, acute hepatic steatosis during pregnancy (SHAG)
 - Blood: CIV
- in children: Growth retardation.

2. Materials And Methods

2.1. Study population and sample

This study was carried out on 1486 cases hospitalized and treated in the gyneco-obstetrics department of the Provincial General Reference Hospital of Kinshasa during our study period, i.e. from February to November 2013, i.e. a period of 10 months. In this population, we drew a sample of 129 cases of toxæmics.

2.2. Equipment

For our research, we used patient consultation sheets constituting the files, the department's registers, and the HPGR was the study framework. The study population focused on all pregnant women who presented pregnancy toxemia in the hospital during the period covered, i.e. from February to November 2013 and whose medical records were available. Pregnant toxicants whose records had no useful information were not included in this study.

2.3. Method

This is a retrospective documentary study. It covered the period from February 2013 to November of the same year, for a total duration of ten months.

2.4. Variables of interest

The demographic obstetric characteristics (age, parity, gesity, complication, delivery route) constitute the variables of our study and for this some operational definitions below must be known:

- Primiparous: Any woman who has given birth once;
- Multiparous: Any woman who has given birth to between three and five children;
- Primigest: Any woman who has carried a single pregnancy;
- Multigest: Any woman who has carried more than one pregnancy.

2.5 Statistical Calculation of Data

For the analysis, processing and interpretation of our data, we used the percentage calculation according to the formula:

$$P = \frac{F \times 100}{N}$$

Où F : Frequency ; P : percentage

N : Number of cases

2.6. Presentation of the Research Field

2.6.1 Historical overview

Established in 1912 as a colony dispensary, the hospital looked after outpatients. With the exponential increase in the number of patients and health needs at the time, its capacity went from 80 beds to 150 beds in 1930, then to 1,250 beds in 1958 with its four traditional disciplines: internal medicine, surgery, obstetrics and gynecology and pediatrics. Shortly after, the reception capacity increased sharply to reach 2,000 beds. These days the hospital is full of all possible services.

2.6.2 Geographical location and area of attraction

2.6.2.1 Geographic location

The Kinshasa Provincial General Reference Hospital is located in the center of the City of Kinshasa in the Commune of Gombe. It is delimited:

- To the north by avenue Colonel EBEYA;
- To the south by the Kinshasa zoological garden;
- East by Avenue de l'Hôpital; and
- West by avenue WANGATA.

2.6.2.2 Area of attraction

The Kinshasa Provincial General Reference Hospital, by virtue of its mission and its location in the center of the city of Kinshasa, has a very large and wide catchment area. The entire population of the city of Kinshasa uses the services of this hospital in the event of health needs and other cases from other hospitals in the city are referred to it.

3. Presentation of the Results

This part gives us the different numbers and percentages obtained for the variables chosen and available on the sheets.

Table 1: Global frequency of preeclampsia

Number of pregnant women	Number of pre-eclampsia	%
1486	129	8,68

The overall frequency is therefore 8.68%.

Table 2: Distribution of eclampsia meadows by age

Age Range	Effective	%
≤ 25	27	20,93
26-35	71	55,04
36-40	23	17,83
>40	8	6,20
Total	129	100

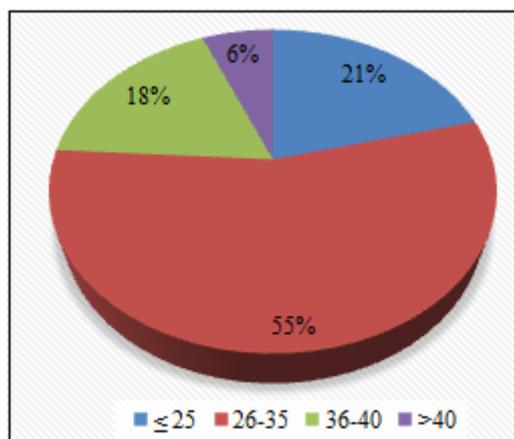


Table 3: Distribution of pre-eclampsia according to parity

Parity	Effective	%
Primiparous	91	70,542
Multipare	35	27,132
Large multipare	3	2,326
Total	129	100

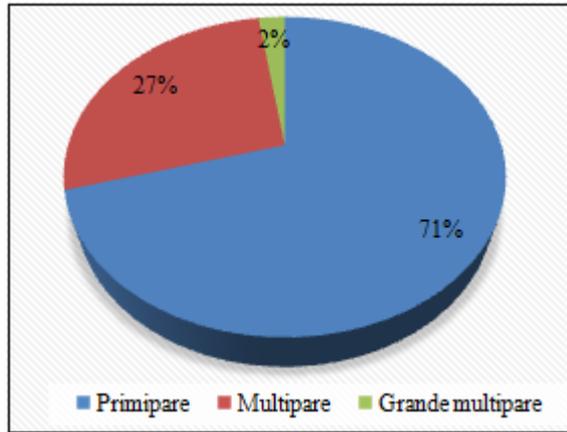


Table 4: Distribution of preeclampsia according to the type of delivery

Type of child birth	Effective	%
High way	96	74,42
Lowway	33	25,58
Total	129	100

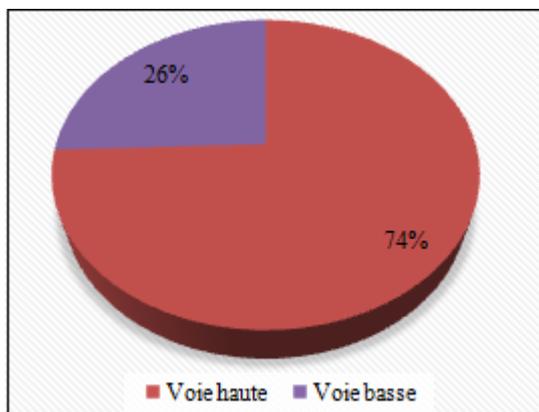


Table 5: Distribution of pre-eclampsia according to the antihypertensive agent used

Products	Effective	%
Catapressan	93	72,10
Loxen	2	1,55
Catapressan et loxen	33	25,58
Aldomet	1	0,78
Total	129	100

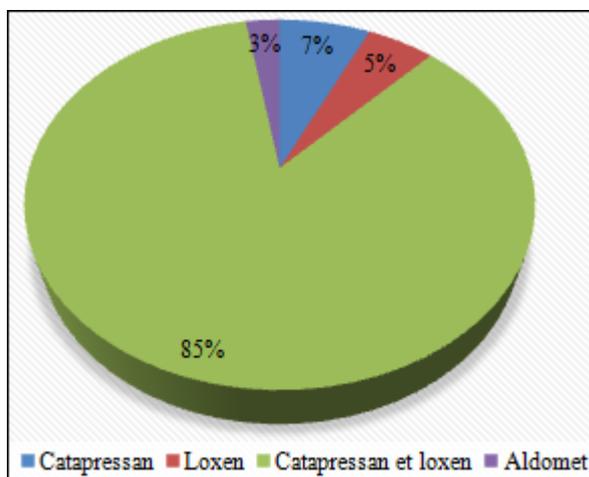


Table 6: Distribution of pre-eclampsia by complications

Complication	Effective	%
Eclamptic prodrome	10	7,75
Eclamptic	27	20,93
Cardiacdecompensation	2	1,55
Other complications	33	25,58
Without complication	57	44,19
Total	129	100

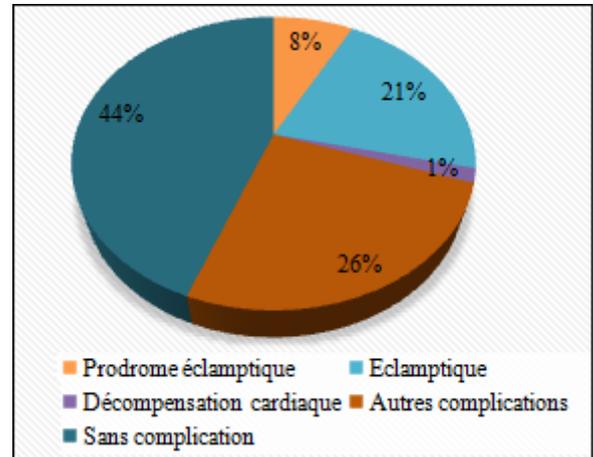


Table 7: Distribution of eclamptic meadows by season

Season	Effective	%
Dried	84	65,1
Rain	45	34,9
Total	129	100

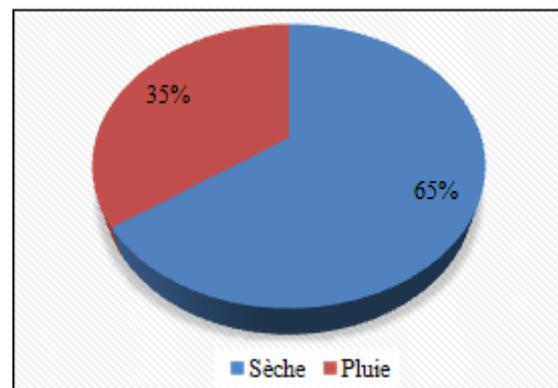


Table 8: Distribution by maternal outcome

Maternal outcome	Effectifs	%
Living women	128	99,2
Deceased women	1	0,8
Total	129	100

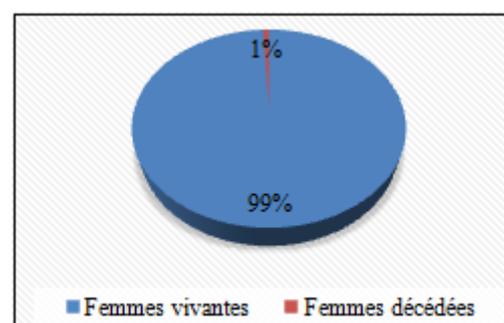
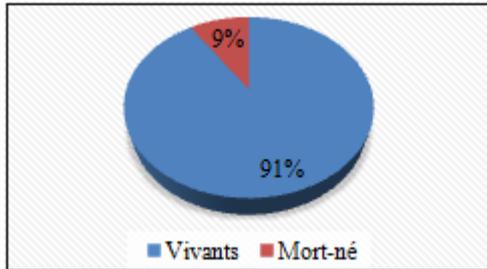


Table 10: Distribution by fetal outcome

Issue fœtale	Effectifs	%
Vivants	117	90,7
Mort-né	12	9,3
Total	129	100



4. Discussion and Comments

During the period of our study we obtained 129 cases of pre-eclampsia out of a total of 1486 hospitalized cases, ie 8.68%. A study made in Kinshasa by J.P Elongi in 2011 revealed approximately 1,492 cases, or 8.5%. According to a Moroccan study carried out at Tofail hospital by BADAOU, the overall frequency was 3.7%.

Our study showed that the highest percentage of toxemics is occupied by the age group of 26-35 years, ie 55.04%. The study carried out by El Badaoui showed that 80.75% of pre-eclampsia was less than 35 years old. 70% of toxemics according to our study were primiparae and Badaoui in 2002 in Morocco had shown that primiparas occupied 48.75% of toxemics. The high route occupied 74.42% in our study against 25.58% for the low route and catapressan was the molecule most used as an antihypertensive agent with 72.09% in the management of pre-eclampsia while the combination catapressan and loxen had only 25.58% at the HPGR / Kinshasa. The result of our work shows that eclampsia is the first complication of toxemia of pregnancy with 20.93% while Moukadime's study on the fetal and maternal prognosis during toxemia in Morocco in 2005 had shown that all the complications represented 26.66% and eclampsia alone was 10.6%. Our study showed that it is during the dry season that many pregnant women have toxemia representing 65.1% but already in 2011 A study carried out in Kinshasa by JP Elongi on the influence of seasonal variation on the prevalence of pre-eclampsia, had found that the dry season was 13% compared to 6% during the rainy season. Our study showed that 99.2% of toxemics had a good outcome and only 0.8% represented the percentage of women who died. A result almost identical to that of Abdelaziz in Morocco who found that maternal mortality was only 1.5%. Our study showed that among all the children born, only 9.3% were stillborn compared to 90.7% with a good outcome. Abdelaziz's study showed that perinatal mortality was 35.85%.

5. Conclusion

At the end of our work entitled the frequency and management of toxemia of pregnancy, observed in 129 cases at HPGR / Kinshasa from February to November 2013, we not only drew as a conclusion that the overall frequency of toxemia was 8.68% of pregnant women

hospitalized in the gynecology-obstetrics department and first-time mothers were the most affected up to 70%, but also discovered that the molecule most used as an antihypertensive agent is catapressan (a centrally acting adrenergic antihypertensive agent). Cesarean section was the most widely used route of delivery and many pregnant women present with toxemia of pregnancy during the dry season. It is desirable according to the World Health Organization, and even humanly, that a woman not loses her life giving another but death is inevitable. Fortunately for the general provincial referral hospital in Kinshasa, early diagnosis and good management reduce the maternal mortality rate to below one unit, ie 0.8%. A good follow-up in the progress of the pregnancy by antenatal consultations in our opinion would significantly reduce maternal and perinatal mortality; unfortunately many women do not follow ANC and only come to the hospital when they feel sick. It should also be pointed out that poverty for some and the low level of education for others, are at the root of the lack of accessibility to sanitation facilities and consequently the lack of health care and advice. Success depends on a strong awareness of our communities.

Abbreviations List

- 1) BP: Blood pressure
- 2) NO: nitrogen monoxide
- 3) Hg: Mercury
- 4) IVD: Direct intravenous
- 5) FO: Fundus
- 6) ECG: Electrocardiogram
- 7) OCT: Optical coherence topography
- 8) NST: Non stress test
- 9) Echo: Ultrasound
- 10) IVC: Inferior vena cava
- 11) PAO: Acute lung edema
- 12) Stroke: Stroke
- 13) DIC: Disseminated intravenous coagulation
- 14) HPGR: Provincial General Reference Hospital
- 15) ANC: Prenatal consultation

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