

# Prognostic Materno-Fetal Types of Arterille Hypertension during Pregnancy at the Maternity of Donka, National Hospital Donka, Chu of Conakry, Guinea

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## Abstract

**Objectives:** The objectives of this work were to calculate the frequency of arterial hypertension during pregnancy, describe the epidemiological profile, and identify the most common type of hypertension and establish the maternal and fetal prognosis. **Methodology:** This was a six-month descriptive prospective study performed in the Obstetrics and Gynecology Department of Donka National Hospital, CHU, Conakry. The study took place from July 1st to December 31st, 2015. **Results:** The frequency of arterial hypertension during pregnancy was 8.82% in the service. The epidemiological profile was that of a teenager (32.8%), nulliparous (56%), coming from home (69.2%), not having performed CPN (52%), no schooling (68%) and housewives. The primary factor was the risk factor (52.4%). Gestational age greater than 37 was the most concerned (62%). The reasons for consultation are dominated by headache (76%) and vertigo (68%). The main type of hypertension was pre-eclampsia (48%) followed by Transient HTA (28%). The predominant clinical form at admission was pre-eclampsia (47.2%) followed by eclampsia (23%). Eclampsia was the major complication (48%), with 6 deaths, or 2.4%. At the first minute, 35.68% of newborns had an APGAR score of less than 7 and 25.5% had a score of less than 7. Fetal morbidity was dominated by fetal hypotrophy (30.19%) followed by prematurity (23.92%). We recorded 30 cases of MFIU and 7 cases of neonatal death out of 255 births, *i.e.* 14.50%. **Conclusion:** The detection of risk factors by a good prenatal follow-up and the regular training of the care providers for an adequate and multidisciplinary care (obstetrician, intensive care nephrologist and pediatrician) of hyperten-

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sive pregnant women and their newborns can improve the maternal and fetal prognosis.

## Keywords

Prognostic, Arterille Hypertension, Pregnancy

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## 1. Introduction

Hypertension in pregnancy is defined as systolic blood pressure greater than or equal to 140 mm/Hg and/or diastolic blood pressure greater than or equal to 90 mm/Hg in two (2) consecutive visits separated by at least 4 hours with a woman resting for 10 to 15 minutes in a sitting position then in left lateral decubitus [1].

The WHO estimates that 150,000 pregnant women die each year worldwide as a result of the complications of pregnancy-induced hypertension. Most of them follow an eclampsia crisis [2].

The frequency of arterial hypertension during pregnancy varies from country to country; according to WHO, this frequency varies between 0.1% and 31.4% of pregnancies [2]. In developed countries, it varies between 9% and 15% of pregnancies: in France, 10% [3]; in the United Kingdom, 10.8% [4]; in the United States, 10 - 15% [5]; in China, 9.4% [6]. In sub-Saharan Africa, we only have hospital statistics: in Madagascar, 11% [6]; in Morocco, 7.94% [7]; in Niger, 9.7% [8]; in Senegal, 3.9% [9] and Côte d'Ivoire, 2.6% [10].

In Guinea, this frequency varies from one hospital to another. Sakouvogui B found 10.35% at Kindia Regional Hospital [11] and Kougang N.E. at Ignace Deen National Hospital found 8.97% [12].

The objectives of this work were to calculate the frequency of arterial hypertension during pregnancy, describe the epidemiological profile, identify the most common type of hypertension and establish the maternal and fetal prognosis.

## 2. Methodology

This was a prospective of six (6) month descriptive study performed in the Obstetrics and Gynecology Department of Donka National Hospital, CHU, Conakry. The study took place from July 1st to December 31st, 2015.

- ✓ It was included in the study all pregnant, parturient and postpartum women who were admitted to the department and had a blood pressure (BP) greater than or equal to 140/90mmHg during the study period.
- ✓ It was not included in the study, all pregnant; parturients and women following diapers admitted to the department with blood pressure (BP) less than or equal to 139/89 mm/Hg during the study period (without any anti-hypertensive treatment) and post-hypertensive women partum.
- ✓ It was excluded from the study all hypertensive patients who were not hospitalized during the study period and patients not concerned by follow-up

during our study period.

**The variables studied were:**

- ✓ Some quantitative: frequency, maternal age, parity, prenatal consultation gestational age and APGAR score.
- ✓ The other qualitative: admission mode, level of education, socio-professional layers, type of high blood pressure, period of discovery reasons for consultation, risk factors for eclampsia, clinical form at admission, maternal complications and fetal complications.

### 3. Results

**1) Frequency:** During our study period, we recorded 250 hypertensive women out of a total of 2833 women who gave birth in the service, a frequency of 8.82%.

**2) The epidemiological profile:**

a) **Maternity age:** The age group of 15 - 19 years corresponding to teenage girls was the most concerned, 32.8% of the study. The average age of our patients was 24 years old with extremes of 15 to 43 years and a standard deviation of 7 years.

b) **Parity:** In our series, the nulliparas were the most numerous with 56%.

c) **Mode of admission:** the patients coming from their home were the most concerned, *i.e.* 69.2%.

d) **Prenatal consultation:** The patients who did not perform any ANC were the most numerous, *i.e.* 52%.

e) **Level of education:** In our study, 68% of our patients were out of school.

f) **Socioprofessional layer:** The housewives were the most numerous, 44%.

g) **Risk factors for eclampsia:** Primigestity was the main risk factor encountered, namely 52.4.

**3) CLINICAL ASPECT:**

a) **Gestational Age:** In our study, patients whose gestational age was greater than or equal to 37 SA were the most affected, or 62%.

b) **Reasons for consultation:** Our results showed that vertigo headache was the most frequent reason for consultation, with 76% and 68% respectively.

c) **Type of hypertension and period of discovery:** During our study, 120 cases of pre-eclampsia were obtained, *i.e.* 48%; 70 cases of transient hypertension, or 28%; 40 cases of pre-eclampsia added, 16%; and 20 cases of chronic hypertension, or 8%.

d) **Clinical forms at admission:** The most frequent clinical forms at admission were pre-eclampsia with 47.2%, followed by eclampsia 23.2%; and HRP 12%.

**4) PROGNOSTIC ASPECT:**

**a) Maternal Prognosis:**

- **Maternal complications:** Eclampsia was the most formidable complication in our series with 48%.

- **Maternal lethality:** We recorded 6 deaths, or 2.4%. Eclampsia was the most serious of the complications, as it was responsible for 5 of the 6 deaths that occurred.

#### b) Fetal Prognosis:

- ✓ **Score APGAR:** In our series; 35.68% of newborns had an APGAR score < 7 vs. 64.31% for an APGAR score  $\geq$  7 at the 1<sup>st</sup> minute. At the 5<sup>th</sup> minute, 25.5% had an APGAR score < 7 against 74.5% for an APGAR score  $\geq$  7.
- ✓ **Fetal Morbidity:** In our series 83.52% of children born of hypertensive patients presented complications among which we have: fetal hypotrophy (30.19%) and prematurity (23.92%).
- ✓ **Fetal lethality:** In our study, we recorded 30 cases of MFIU and 7 cases of neonatal death out of 255 births, *i.e.* 14.50%. Of the 7 cases of neonatal death, 3 occurred early between D0 and D7 and 4 were late from D7 to D28.

## 4. Discussion

**1) Frequency:** During our study period, we recorded 250 hypertensive women out of a total of 2833 women who gave birth in the service, a frequency of 8.82%. This result is superimposable to that reported by KOUGANG N.E conakry (Guinea) is 8.87% [13] and lower than that found by KAMANO S.P [14] to kissidougou (guinea) 11.14% in Guinea. On the other hand, it is higher than that found by DAO S.Z [15] in Mali 3.65%.

The high frequency in our study could be explained by the association of certain risk factors in the same patient such as multiparity, maternal age < 20 years, but also by the fact that the maternity of Donka is a reference center for peripheral health centers and birthing centers in the city of Conakry In addition to the capacity of the service (it is the largest motherhood in the country).

#### 2) The epidemiological profile:

a) **Maternity age:** The age group of 15 - 19 years corresponding to teenage girls, was the most concerned, or 32.8%. The average age of our patients was 24 years old with extremes of 15 to 43 years and a standard deviation of 7 years.

This result is similar to those reported by KOUGANG NE [13], KAMANO SP [14] and SAKOUVOGUI B [16] in the age group of 15 - 19 years respectively 35.6%, 36.02% and 37.66%. The high frequency of this age group could be justified by early marriages and the precocity of sexual intercourse.

b) **Parity:** In our series, the nulliparas were the most numerous with 56%.

This result is similar to those reported in the African literature [14] and this same literature reports that the relationship between hypertension and nulliparity can be explained by the maladjustment of the maternal organism to the upheavals of pregnancy when is a young nulliparous, renal and placental haemodynamic disorders and uterine infantilism [17].

In addition, it seems that the black race is a risk factor in primiparous and not multiparous with a relative risk of 12 compared to the white race for reasons not yet elucidated [11].

c) **Mode of admission:** The patients coming from their home were the most concerned, *i.e.* 69.2%. This result is close to the one found by KOUGANG NE in Guinea is 63.55% [13]. The high frequency in this series could be due to the poverty and ignorance of the latter because they note the changes taking place. On their body; but for financial reasons or not knowing the evolution of these signs stay at home and arrive in our centers only at the stage of complications.

d) **Prenatal consultation:** The patients who did not perform any ANC were the most numerous, *i.e.* 52%. This result is superimposable to those found by SAKOUVOGUI B in Guinea [16] and NGUNGA N. in Democratic Congo [18] *i.e.* 51.65%, 53.33% and 57.9% respectively.

The right CPN does not protect the woman from hypertension, but can detect in time and prevent complications, reason for which nowadays, we practice the refocused CPN which is to detect and treat pathologies encountered. It should be noted that the last CPN is the ultimate opportunity to identify risk factors and initiate the necessary measures for a delivery in the right conditions.

e) **Level of education:** In our study, 68% of our patients were out of school. This result is similar to those found by KOUKANG N.E [13] and KAMANO S.P [14] respectively 64.8% and 65.12%. The predominance of the out-of-school population could be explained by the fact that they are the most numerous in the general study population [13] and that illiterates have less information on reproductive health, thus exposing them to a lack or poor prenatal care that promotes the occurrence of hypertension during pregnancy and its complications.

f) **Socioprofessional delivery:** The housewives were the most numerous, 44%. KOUNKANG N.E [13] reports in his study a predominance among housewives is 39%. For BEAUFILS M. [1], it seems that a low socio-economic level favors the installation of the HTA gravidique through an insufficient and unbalanced diet.

g) **Risk factors for eclampsia:** Primigestity was the main risk factor encountered, namely 52.4. This result is comparable to that found by BAH AO *et al.* who reported that 49.55% of their patients were Primigestes [18], and that of VANGEEDEHUYSEN *et al.* in NIGER who found 44.6% [19]. During our study, the multiplicity of risk factors with 3 to 4 in the same patient was a very remarkable fact.

### 3) CLINICAL ASPECT:

a) **Gestational Age:** In our study, patients whose gestational age was greater than or equal to 37 SA were the most affected, or 62%.

This result is greater than that of KOUGANG NE or 55.08% in patients whose gestational age was greater than or equal to 37 WA [13]. The high frequency of hypertension at this level could be explained by the poor quality of CPN that does not detect high BP or significant proteinuria. In addition, the stress of childbirth can be the source of transient hypertension that increases the frequency of hypertension during pregnancy.

b) **Reasons for consultation:** Our results show that headache and vertigo were the most frequent reasons for consultation, with 76% and 68% respectively.

These results are similar to those of KOUANG NE, 73.72% of patients had consulted for headaches and 64.4% for vertigo [13].

c) **Type of hypertension and period of discovery:** During our study, 120 cases of pre-eclampsia were obtained, *i.e.* 48%; 70 cases of transient hypertension, or 28%; 40 cases of pre-eclampsia added, 16%; and 20 cases of chronic hypertension, for 8%. These results are similar to those of KAMANO S.P. who obtained 48.84% pre-eclampsia, 16.28% added hypertension, and 20% transient hypertension; Against 24.17% of chronic hypertension [14]. Thiam M. *et al.* found 47% pre-eclampsia, 19% additional hypertension, 17% chronic hypertension, 17% transient hypertension [12].

#### 4) PROGNOSTIC ASPECT:

##### a) Maternal Prognosis:

- ✓ **Maternal complications:** Eclampsia was the most formidable complication in our series with 48%. This result is similar to that of KOUANG NE or 58.82% for eclampsia [13]. On the other hand, it is higher than that of DAO SZ in Mali, which found eclampsia as the most common maternal complications. HRP with respectively 19.2% and 18.3% of cases [15]. The high rate of eclampsia may be explained by the fact that it is secondary to unprepared pre-eclampsia.
- ✓ **Maternal lethality:** We recorded 6 deaths, or 2.4%. Eclampsia was the most serious of complications, as it was responsible for 5 of the 6 deaths and eclampsia associated with the IRA. The high maternal mortality rate due to eclampsia is explained by the fact that one intervenes late and that in the presence of complications, but also the absence or the bad CPN and especially the low level of education.

##### b) Fetal Prognosis:

- ✓ **Score APGAR:** In our series; 35.68% of newborns had an APGAR score < 7 vs. 64.31% for an APGAR score  $\geq$  7 at the 1<sup>st</sup> minute. At the 5th minute, 25.5% had an APGAR score < 7 against 74.5% for an APGAR score  $\geq$  7.
- ✓ **Fetal Morbidity:** In our series 83.52% of children born to hypertensive patients presented complications among which we have: fetal hypotrophy 30.19% and prematurity 23.92%. This result on fetal hypotrophy is similar to those reported by KOUANG NE [13] and DIALLO MH [18], respectively 27.97% and 27.37%, and higher than the literature data that 7% - 20% of pregnancies with hypertension are complicated by fetal hypotrophy [19].
- ✓ **Fetal lethality:** In our study, we recorded 30 cases of MFIU and 7 cases of neonatal death out of 255 births, *i.e.* 14.50%. This result is lower than those reported by KOUANG N.E [13]; from KAMANO S.P [14]; from THIAM M *et al.* in Dakar [12] who found respectively 22.03%; 24.44% and 50%. Of the 7 cases of neonatal death, 3 occurred early between D0 and D7 and 4 were late from D7 to D28. These children to varying degrees have been exposed to immediate complications: hypoglycemia, hypothermia, infection with low resistance to microbial aggression accompanied most often by the

difficulty of feeding.

## 5. Conclusion

The detection of risk factors by a good prenatal follow-up and regular training of care providers for adequate and multidisciplinary care (obstetrician, nephrologist and pediatrician) of hypertensive pregnant women and their newborns can improve the maternal and fetal prognosis.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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