



Keywords

Hypertension,
Pregnant Woman,
Complications,
Eclampsia,
Bamako

Received: May 30, 2015

Revised: June, 25, 2015

Accepted: June, 26, 2015

High Blood Pressure (HBP) and Pregnancy: Mother and Fetus Morbidity and Mortality in Three Health Centers in Bamako

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Citation

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Abstract

1. Introduction: High blood pressure can occur before and during pregnancy and may lead to severe complications. We performed this study to highlight such a condition in studying the maternal-fetal morbidity and mortality of HBP in pregnant women in three health centers in Bamako. *2. Materials and Methods:* 250 pregnant women with arterial hypertension and without any other cardiovascular disorder were included in a prospective study. The study was performed in University Hospital Gabriel Touré and 2 reference health centers (CSRef¹ I and V) from January to December 2006 in Bamako. Data were collected and checked using Excel while analysis was performed using SPSS v.12. We first did descriptive study and then analytic study of maternal and fetal complications. Significant level of used tests was 0,05. *3. Results:* The prevalence of arterial hypertension was 6,5%. 43, 91% of the pregnant women showed complications (eclampsia in 40,59% and hypertensive crisis in 37,62%). Hypertensive crisis and eclampsia were significantly present in women with less than 3 prenatal medical visits (resp. $p < 0,0001$ and $0,0005$). Maternal and fetal complications occurred significantly with raising pressure (resp. $P < 0,0001$ and $P < 0,0003$). Prematurity, the most frequent complication, was significantly present with the raising of blood pressure $p < 0,0007$ *4. Conclusion:* HBP: in pregnancy requires a close follow up with a necessity to normalize blood pressure to avoid complications, which are related with the level of blood pressure, regardless of the type of high blood pressure. A minimal number of prenatal consultations is necessary for a reasonable follow up of the pregnant with high blood pressure.

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1. Introduction

Chronic poorly-controlled high blood pressure before and during pregnancy puts a pregnant woman and her baby at risk for problems. It is associated with an increased risk for maternal complications such as preeclampsia [3], placental abruption (when the placenta separates from the wall of the uterus), and gestational diabetes. These women also face a higher risk for poor birth outcomes such as preterm delivery, having an infant small for his/her gestational age, and infant death. The most important thing to do is to discuss blood pressure problems with your provider before you become pregnant so that appropriate treatment and control of your blood pressure occurs before pregnancy. Getting treatment for high blood pressure is important before, during, and after pregnancy [1].

Hypertension in pregnancy (HP) is found in 5-10% of pregnant women (PW) [2-5]. Its etiology remains unknown to this day, but its pathophysiology implies a lowered blood perfusion of the maternal-fetal unit causing oxidative stress followed by a dysfunction of the maternal vascular endothelium. Risk factor in pregnancy, it can have dramatic consequences for both PW and fetus [6-10], [12]. The objective of this study is to investigate the maternal and fetal complications in a sample of PW in three health centers in Bamako.

2. Materials and Methods

We conducted a prospective study from January to

December 2006 in 3 centers (1 University Hospital Gabriel Touré (UH GT) and 2 reference health centers called CSRef I and V) in Bamako. Inclusion criteria in the study were blood pressure equal or more than 140/90 mmHg, the absence of other cardiovascular pathology and consent of the patient. Were not included hypertensive PW with other cardiovascular disease, and those who have not given their consent to the study. Data were collected and checked using Excel while analysis was performed using SPSS v.12.

We first did descriptive study and then analytic study of maternal and fetal complications.

Significant level of used tests was 0,05.

3. Results

The prevalence of HBP was 6.5% (250/3845) with a mean age of 29 years (14-44), 20-29 and 30-39 years representing resp. 38 and 32.4% of the sample. 74% of patients were housewives, 85.6% were married. Unschooling patients accounted for 57.6%, 28% and 1.6% had resp. a primary level and higher level of education.

3.1. Maternal Complications

Of 250 patients followed until delivery 149 (59.6%) had no complications while 101 (40.4%) had complications, the most common have been the hypertensive crisis and eclampsia with 37.62% and 40.59% (Chart 1)

The hypertensive crisis and eclampsia was significantly greater for PW with less than 3 CPN (resp. $P < 0.0001$ and 0.0005) (Table I).

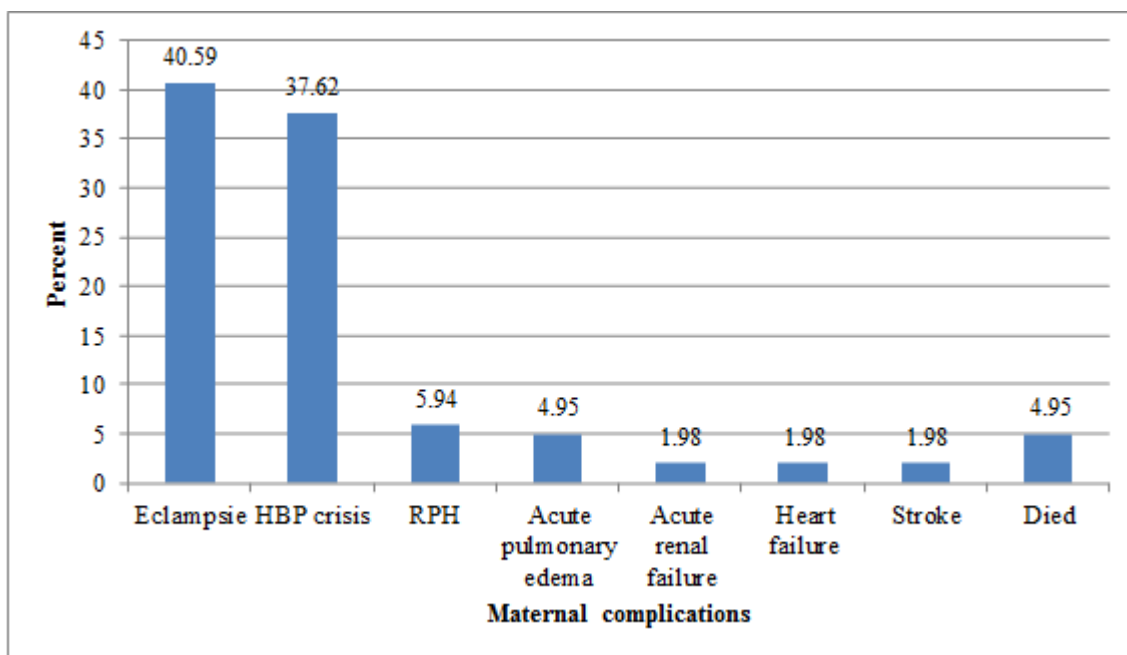


Figure 1. Distribution of maternal complications among 250 PW in the study.

Table I. Distribution of maternal complications in the sample of 101 PW with complications in relation to the number of antenatal visits (ANV).

Number of ANV	0 ANV		1-2 ANV		3 ANV		≥ 4 ANV		Total		p
	N	%	N	%	N	%	N	%	N	%	
HBP crisis	20	33.0	13	15.6	3	06.1	2	3.4	38	15.2	< 0.0001
Eclampsia	23	38.3	11	13.2	5	10.2	2	3.4	41	16.4	0.0005
RPH*	02	03.3	02	02.4	1	02.0	1	1.8	06	02.4	0.95
Autres**	05	08.3	03	03.6	2	04.1	1	1.8	11	04.4	0.34

* retroplacental hematoma ** 5 dead patients of unknown cause

Complications occurred significantly with the increase in blood pressure (P<0.0001). There was no significant difference in the occurrence of complications, regardless of the JNC 7 classification of hypertension. There was no significant difference in the occurrence of a given complication according to the JNC 7 classification of hypertension.

3.2. Fetal Complications

There were no complications in 32.8% of cases. Among

the 108 fetuses having developed complications, prematurity was the most frequent with 28.57% (Chart 2)

Fetal complications were found significantly with the increase of blood pressure (p<0.0003). Prematurity, most found complication was significantly greater with increasing blood pressure (p <0.0007) (Table II)

A significant difference in the occurrence of complications according to the JNC 7 classification of hypertension was not found.

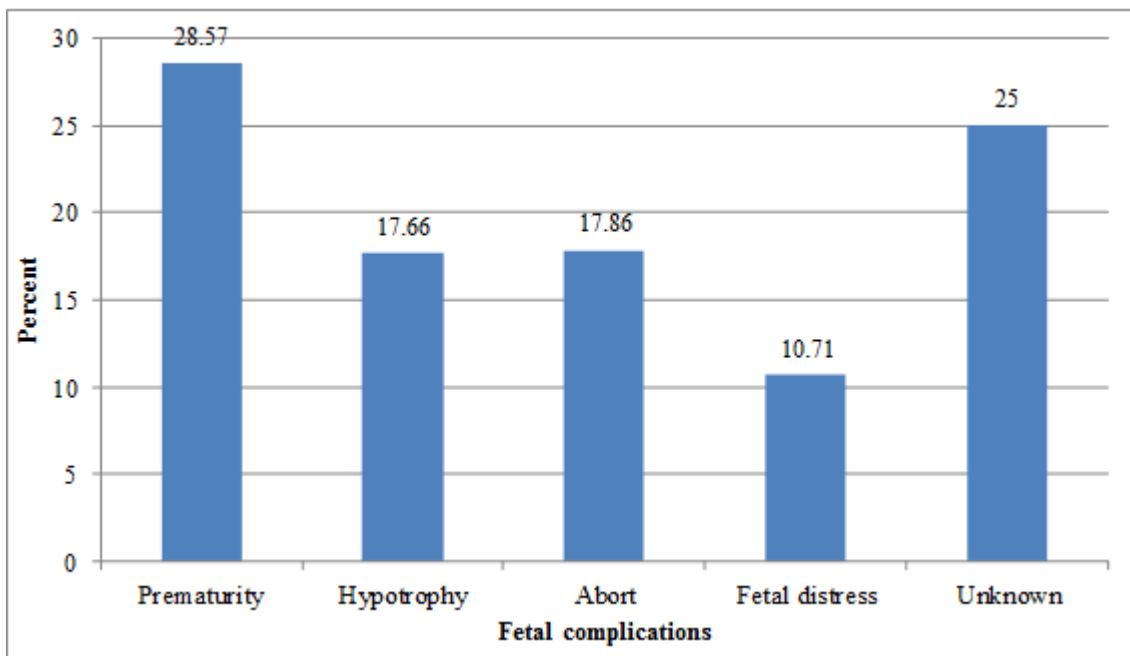


Figure 2. Distribution of fetal complications in 108 hypertensive PW.

Table II. Distribution of fetal complications depending of the blood pressure level in 108 fetuses with complications.

Type of complication	Pre-HBP		HBP stage 1		HBP stage 2		Total		P
	N	%	N	%	N	%	N	%	
Hypotrophy	1	03.2	07	09.1	04	04.8	12	06.3	0.41
Abort	2	06.4	11	14.2	17	20.7	30	15.7	0.16
Prematurity	4	12.9	12	15.6	32	39	48	25.2	0.0007
SFA	5	16.1	06	07.7	07	08.5	18	09.5	0.38

4. Discussion

Our prevalence of 6.5% is close to that found in the studies of Cissé and Bah in Guinea and Senegal [13,14] but lower than other studies [2], [15], [16]. This fact could be explained

by the fact that many patients are seen in peripheral health centers and therefore fall outside the recruitment and secondly that all referred patients are not effectively seen in the reference structures. It is superior to that of Dao [6] in 2007, which included only hospitalized patients and those who have fully realized the necessary labor tests.

4.1. Maternal Complications

Hypertension is known as a risk factor for pregnancy with well-known issues for the PW consequences [5], [16], [17]. Among 250 hypertensive patients and followed until delivery, 101 (43.91%) had complications, a high prevalence as found by Cato [4] and Liu [10]. The types of complications observed varied across studies, the most represented in our sample was eclampsia, followed by the simple hypertensive crisis. We recorded 5 deaths (2%) in the sample, probably underestimated because all PW could not be followed until delivery. The cause of death could not be established as found by Liu [10]. The occurrence of the 2 most common complications is significantly higher for PW with less frequent antenatal visits, during which blood pressure abnormalities can be detected. We found a link between the onset of complications and the elevation of blood pressure, which is generally accepted.

We did not find any relationship between the occurrence of complications and the type of hypertension, unlike Dao [6] who found that Preeclampsia and Preeclampsia superimposed on chronic hypertension bring most complications. This could be explained by the presence in his patient sample with 81.7% of severe hypertension.

4.2. Fetal Complications

Hypertension is a risk for mother and fetus [4], [17], [18], as we found in our sample. Thus 32.8% of the fetuses had a complication, prematurity is the most represented complication, in agreement with different authors [6], [10], [19]. The occurrence of complications was associated with the level of blood pressure, but not with the type of hypertension. Compared to the type of complication, prematurity alone was significantly greater with increasing blood pressure.

5. Conclusion

HBP in pregnancy requires a close follow up with a necessity to normalize blood pressure to avoid complications, which are related with the level of blood pressure, regardless of the type of high blood pressure. A minimal number of prenatal consultations is necessary for a reasonable follow up of the pregnant with high blood pressure.

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