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Associated Factors to Poor Blood Pressure Control in Hypertensives Followed Up at the Campus University Hospital of Lome (Togo)

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Abstract

Introduction: Hypertension is a real public health issue and its control is very difficult. We aim to determine the frequency of uncontrolled hypertension in hypertensive patients followed up as an outpatient at the campus university hospital of Lome (Togo) and to search for the associated factors. **Methodology:** The study was cross-sectional, descriptive and analytical, carried out from February (2022) to August 2022 in 260 hypertensive patients aged 22 years old, followed up (on an) as an outpatient for at least 3 months at the Lome University Hospital campus. A univariate then multivariate analysis were conducted in order to highlight the most common factors significantly linked to uncontrolled. **Results:** The mean age of hypertensives was 56.4 ± 12.7 years, the sex ratio (M/F) was 0.59. Prevalence of uncontrolled blood pressure was 42%. Associated Factors to poor blood pressure control in our study were age > 60 years (OR = 1.6 CI [1.17 - 2.50]), low socio-economic level (OR = 2.2 CI [1.96 - 4.33]), high cardiovascular risk level (OR = 3.1 CI [2.18 - 4.52]), non-adherence to regular blood pressure monitoring (OR = 3.3 CI [2.21 - 5.55]), low compliance to treatment (OR = 4.1 CI [2.33 - 6.76]) and a chronic renal failure (OR = 2.1 CI [1.21 - 3.10]). **Conclusion:** Nearly half of the hypertensives in our study had poorly controlled blood pressure by antihypertensive treatment medication. The factors of this poor control were age > 60 years, low socio-economic level, high or very high level of cardiovascular risk, low compliance to treatment, and renal failure.

Keywords

Hypertension, Poor Control, Associated factors, Togo

1. Introduction

Hypertension is a real public health issue [1]. Almost 1.13 billion people in the world were affected by hypertension in 2015 [1]. In Africa, in 2019, the prevalence rate of hypertension was estimated at 27% [1]. In Togo, in the general population of Lomé, the prevalence of hypertension in 2011 was 36.7% [2]. The seriousness of hypertension is due to its impact on target organs, responsible for an increase in morbidity and mortality. Hypertension is responsible for at least 45% of deaths caused by heart diseases [3] [4]. Its management is the subject of several guidelines from learned societies [5] [6]. Despite the guidelines, obtaining a blood pressure balance is not easy at all in practice. However, the benefit of antihypertensive treatment is correlated to the reduction of blood pressure figures. Uncontrolled, hypertension is complicated by cardiovascular events such as stroke, heart failure and coronary insufficiency which increases the risk by nine, five and three respectively [7].

In the literature, numerous studies have been published on hypertension and the associated factors of its poor control. In Togo, studies have been carried out on hypertension, particularly on its prevalence, but we have no data on the associated factors of its poor control. Our work aimed to determine the frequency of uncontrolled hypertension in hypertensive patients followed up as outpatients in the University Hospital of campus and to investigate the associated factors to poor control of hypertension among these patients.

2. Patients and Method

This is a cross-sectional study with descriptive and analytical purposes carried out from February 2022 to August 2022 in the cardiology department of the University Hospital of Campus, Lomé (Togo). This study included all hypertensive patients diagnosed, treated and followed for at least 3 months. We excluded patients suffering from deafness and/or muteness and patients with cognitive disorders. Recruitment was carried out through outpatient consultation. A detailed explanation of the purpose and process of the study was presented to each participant to obtain informed consent. We interviewed and examined each participant to obtain sociodemographic characteristics, and clinical and therapeutic data related to the disease, and we administered the Girerd questionnaire to assess therapeutic compliance [8].

Socioeconomic level was defined as follows:

-Low socioeconomic level: monthly income < 163 US dollars

-Average socio-economic level: monthly income between 163 - 326 US dollars

-High socio-economic level: monthly income ≥ 326 US dollars

Blood pressure was taken in both arms, in a seated position, after 10 minutes of rest. We searched for classic cardiovascular risk factors and calculated overall cardiovascular risk according to the Framingham model. Hypertension was defined as a systolic BP ≥ 140 mmHg or a diastolic BP ≥ 90 mmHg, or a documented medical history of antihypertensive treatment. Uncontrolled blood pressure was considered to be an SBP greater than or equal to 140 mmHg and/or a DBP greater than or equal to 90 mmHg. Obesity was defined as body mass index (BMI) ≥ 30.0 kg/m^2, and overweight by a BMI more than 25 and under 30 kg/m^2. Diabetes mellitus was defined as two fasting blood glucose levels > 1.26 g/l and/or a documented medical history of diabetes or diabetes treatment. The threshold for normal values was <2 g/l for total cholesterol, <1.6 g/l for LDL cholesterol, >0.4 g/l for HDL cholesterol, and <1.5 g/l for fasting triglycerides. Physical inactivity was defined as an absence of daily physical activity or physical activity lasting less than 150 minutes per week. Renal failure was defined by a creatinine clearance < 90 ml/min calculated by the Modification of Diet in Renal Disease formula.

The data was collected using a pre-established survey form. All data were entered with Microsoft Excel 2016. Data analysis was carried out using R version software. A comparison of qualitative variables was made using Fisher's exact test. Quantitative variables were presented as median with interquartile range or mean with standard deviation. A univariate analysis and then a multivariate logistic regression were carried out in search of factors associated with poor blood pressure. The statistical test was considered significant for a p-value less than 0.05.

3. Results

A total of 410 patients were received for consultations. Among them, 277 were diagnosed and followed for at least 3 months. Among the 277 patients, 17 have cognitive impairment or difficulty answering the questionnaires. So we finally selected 260 patients for our study. The mean age of the patients was 56.4 ± 12.7 years (range 22 to 99 years). The sex ratio (M/F) was 0.59. **Figure 1** shows the distribution of patients by age and sex. One hundred and eighty-one patients (73.5%) lived in the urban area and 69 (26.5%) in the rural area. Patients with a low socio-economic level represented 36.6% and patients without secondary education represented 22.3%. One hundred and ninety-six patients (75.4%) were compliant. Eighty-two patients (31.5%) had high or very high cardiovascular risk. **Table 1** presents the general characteristics of the patients.

The prevalence of uncontrolled hypertension in our study was 42%. After multivariate analysis, the associated factors of poor blood pressure control were: age > 60 years, low socio-economic level, high cardiovascular level, non-adherence to regular blood pressure monitoring, low compliance to treatment and renal insufficiency (**Table 2**). Among patients aged less than 60 years, 33.5% had blood pressure under control. Sixty-four (24.6%) patients aged over 60 years had their blood pressure under control. Forty-five patients with a low socio-economic level, *i.e.* 17.3%, had their blood pressure under control.

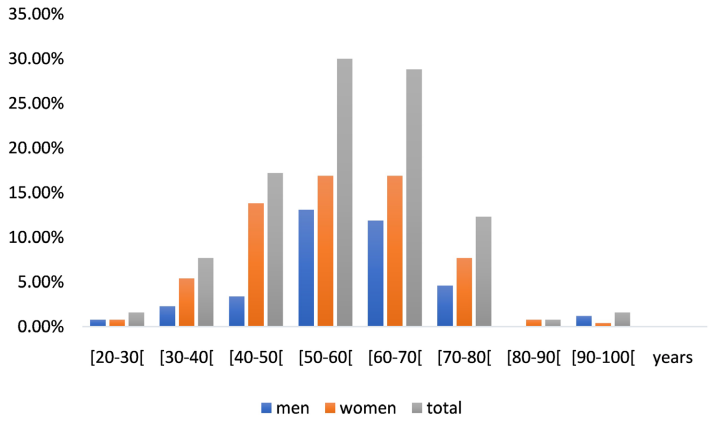

Figure 1. Distribution of patients by age and sex.

Table 1. General patient characteristics

Characteristics	Total
Number of patients	260
Mean age	56.4 ± 12.7 years
Residence	
-Urban	73.4%
-Rural	26.6%
Socio-economic level	
-Low	36.6%
-Middle	60%
-High	3.4%
Diabetes	18.9%
Dyslipidemia	28.7%
Obesity	32.6%
Sedentary lifestyle	46.9%
Chronic renal failure	2.7%
Global cardiovascular risk factors (high and very high)	31.5%
Poor therapeutic compliance	24.6%

Table 2. Factors associated with poor blood pressure control.

Parameters	OR	CI 95%	p
Age > 60 years	1.6	[1.17 - 2.50]	0.04
Sex	1.1	[0.71 - 1.82]	0.52
Residence	0.96	[0.80 - 1.50]	0.33
Low socio-economic level	2.2	[1.96 - 4.33]	0.03
Educational level	1.2	[0.91 - 2.21]	0.07
High cardiovascular risk	3.1	[2.18 - 4,52]	0.02
Non-adherence to regular blood pressure measurement	3.3	[2.21 - 5.55]	0.01
Non-adherence to treatment	4.1	[2.33 - 6.76]	0.001
Chronic renal failure	2.1	[1.21 - 3.10]	0.02

4. Discussion

The prevalence of uncontrolled hypertensive patients in our study was 42%. Our results are close to data in the literature [9] [10] [11]. Several factors explain this prevalence of uncontrolled hypertension. There is a statistically significant relationship between low socio-economic level and poor blood pressure control as in the work of Yaméogo [10]. The participation of the low socio-economic level in poor blood pressure control comes from the fact that hypertension is a chronic pathology with expensive and lifelong treatment. In our countries, the national health system priorities are mostly directed at the control of communicable diseases. Hypertensive patients have to buy antihypertensive drugs with out-of-pocket costs—which increases the cost of healthcare and may consequently contribute to poor treatment and lack of control of hypertension.12. This is the cause of low therapeutic compliance. Poor blood pressure control is associated with low therapeutic compliance which is known as one of its factors. Irregularity in treatment causes rebounds in blood pressure. The recent implementation of universal health insurance in our country will undoubtedly improve therapeutic compliance.

A high-salt diet is responsible for poor control in blacks because they are more sensitive to salt [9] [10] [13] [14]. A Particular emphasis must be placed on therapeutic education for better compliance with dietary measures.

In our study, there was a statistically significant relationship between blood pressure control and high or very high cardiovascular risk. Controlling blood pressure levels and reducing overall cardiovascular risk are the main objectives of hypertensive treatment [11].

The present study is the first study on associated factors to poor control of hypertension in our country. Some limitations need to be considered: Our study limitations are linked to its cross-sectional design, which only allows the identification of associations rather than causation. The identified factors are associated with, but are not necessarily the causes of poor blood pressure control.

5. Conclusion

Our study showed that almost half of the patients included were uncontrolled. The poor control factors incriminated were low socioeconomic level, non-compliance with the low-sodium diet, stress, high to very high cardiovascular risk, renal failure, and lack of therapeutic compliance. Our study should be followed by other studies on a national scale following the same dynamic, for a better understanding of the associated factors to poor blood pressure control among hypertensives in the Togolese general population in order to perform better care of this disease.

Conflicts of Interest

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

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