

Awareness, Treatment and Control of High Blood Pressure during a Screening Session in Porto-Novo

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Abstract

Background: The purpose was to determine the level of awareness, treatment and control of high blood pressure (HBP) in the general population in Porto-Novo (Benin).

Materials and Methods: A descriptive cross-sectional study was conducted in the city of Porto-Novo. During a screening of HBP, people have voluntarily presented for the measurement of their arterial blood pressure (BP). HBP was defined in all subjects with BP > 140/90 mmHg or who had a history of hypertension under medication. A controlled hypertension was defined in the case of BP < 140/90 mmHg under medical treatment.

Results: 267 subjects aged 43 ± 16.3 years were included, with a sex ratio of 0.98. The prevalence of HBP was 59.5%; 39.2% had a known history of hypertension (66.7% above 60 years and 59% were women); 43.9% of those with HBP were unaware of their condition; good adherence to drug therapy was found in 28.6% of patients and was associated with advanced age. The proportion of controlled HBP was 20.7%.

Conclusion: These results demonstrate the need of actions for primary prevention of hypertension and for the reduction of the number of HBP diagnosis made at the complication stage.

Keywords: Hypertension; Awareness; Treatment; Control; Porto-Novo

Abbreviations

HBP: High Blood Pressure; BP: Blood Pressure

Introduction

In sub-Saharan Africa, prevalence of HBP in general population varies from 20 to 40% and is known to be higher in urban than in rural population [1,2]. This prevalence makes HBP the first reason for consulting in cardiology and the leading risk factor for atherosclerotic disease in this region. In Benin, a national study including 6853 subjects found a prevalence of hypertension of 27.9%. In this group, 77.5% were unaware of their hypertension [3]. It is obvious that the patient who is unaware of his disease will not benefit from the treatment and will be exposed to complications. In addition, the frequent absence of symptoms, the burden represented by dietary and behavioral measures and finally the long duration of drug treatment lead to poor adherence to the therapeutic protocol. The high levels of awareness, treatment and control of HBP in general population are indicators of the success of national policies against this disease. Many studies have focused on these indicators in sub-Saharan Africa. In the study reported in this article, we studied these indicators in the city of Porto-Novo as well as their associated factors.

Materials and Methods

A descriptive cross-sectional study has been conducted on May 06, 2016. This work comes from a screening of cardiovascular risk factors, made in the city of Porto-Novo (Benin) for the purpose of reinforcing primary and secondary prevention. This study included all subjects of both genders, aged 18 or more, who voluntarily attended this screening session. People were invited by radio to measure their BP at the Youth center of Porto-Novo. Variables studied were the proportion of subjects whose BP \geq 140/90 mmHg, of patients undergoing drug treatment and of patients whose BP < 140/90 mmHg under drug treatment. The proportion of patients knowing their hypertensive status and the time elapsed since the last BP measurement was also recorded. The prevalence of hypertension was calculated. The data was collected during a structured individual interview using a standardized survey form. The measurement of BP was performed after a rest of at least 10 minutes, in a sitting position, the 2 elbows being placed on a table. Sphygmomanometers M2 (Omron electronics) were used for this measurement. Hypertension was defined for any value of BP higher than or equal to 140/90 mmHg or smaller than 140/90 mmHg among known hypertensive patients on medication. Controlled hypertension was defined for any value smaller than 140/90 mmHg under medication. Epi-info 7 software was used for data entry and statistical analysis. Pearson's Chi² and Fisher's exact statistical tests were used for frequency comparisons. The threshold of significance was set at 5%.

Results and Discussion

Results

267 subjects participated in this study. Sex ratio H/F was 0.98. The average age was 42 ± 16 years with extremes of 18 and 87 years. The most represented age group was 18 - 40 years old (44.9%) and the least represented was those aged of 61 years or more (14.6%).

The last measure of BP was less than 12 months in 61.8% of subjects, between 1 and 5 years in 18.7%, beyond 5 years in 7.9%. Finally, 11.6% did not remember having measured it once. This measure during the previous 12 months was more observed in subjects aged 60 years and more (82.1%) than others (58.3%, $p = 0.0019$). There was no difference between males (56, 9%) and females (63, 8%) for proportion of patients with BP measurement during the last 12 months ($p = 0.29$). A known HBP was reported by 105 subjects (39.2%). This antecedent was more reported in women (59%) than men (41%), $p = 0.02$. Table 1 shows the distribution of patients with known hypertensive status by age group.

Age (years)	Patients with known hypertension
≤ 40	26 (24.8%)
[40 - 60]	54 (51.4%)
≥ 60	25 (23.8%)
Total	105

Table 1: Distribution patients with known hypertensive by age (Porto-Novo, 2017). $p = 0.0000$.

Mean BP was 144.6 ± 26.8 mmHg/ 83.7 ± 16.5 mmHg. BP was higher than 140/90 mmHg in 141 cases (52.5%).

Table 2 shows the distribution of BP according to known or unknown HBP status. 43.9% of subjects with BP more than 140/90 mmHg did not know their status and 20.6% of subjects with known HBP had normal values.

Known hypertensive status	Blood pressure > 140/90 mmHg		Total
	Yes	No	
Yes	79 (56.1%)	26 (20.6%)	105
No	62 (43.9%)	100 (79.4%)	162
Total	141 (100%)	126 (100%)	267

Table 2: Distribution of blood pressure by known or unknown hypertensive status (Porto-Novo, 2017).

Among the subjects with a known hypertension, 87 (82.7%) had received a prescription of drug treatment and 28.6% of these patients were taking it regularly. Table 3 shows the distribution of patients with regular drug treatment according to age. This table indicates that regular treatment was more frequent in subjects aged over 60 years than those aged under 60 years.

Age (years)	Regular medication treatment		Total
	Yes	No	
≤ 60	17 (21.5%)	62 (78.5%)	79 (100%)
> 60	13 (50%)	13 (50%)	26 (100%)
Total	30	75	105

Table 3: Distribution of patients with regular medication treatment according to age (Porto-Novo, 2017). $p = 0, 0051$.

Regular treatment was also compared between women (28.3%) and men (27.9%) and no significant difference was found ($p = 0.48$).

Table 4 shows the distribution of BP values according to the prescription or not of a drug treatment. It appears that 20.7% of the subjects with a drug prescription, had a BP less than 140/90 mmHg thus a controlled hypertension. It also appears that 7 subjects with a history of HBP and no drug treatment had normal BP.

Drug treatment prescribed	Blood pressure (mmHg)		Total
	≥ 140/90 mmHg	< 140/90 mmHg	
Yes	69 (79,3%)	18 (20,7%)	87 (100%)
No	11 (61,1%)	7 (38,9%)	18 (100%)
Total	80	25	105

Table 4: Distribution of blood pressure by prescription or not of a drug treatment (Porto-Novo, 2017).

In total, 141 patients had a BP ≥ 140/90 mmHg and 18 patients had a controlled hypertension. The prevalence of hypertension was 59.5%.

Discussion

Hypertension is a risk factor for ischemic heart disease. Hypertension is also associated with an increase in long term mortality after percutaneous coronary intervention [3].

Prevalence of hypertension in this study was 2 times higher than that reported in beninese general population by Houinato., *et al* [4]. Our result can be explained in several ways. First, a screening session is attended by those who have a particular interest in checking their BP level, such as those who are aware of their hypertension and who accounted for a significant proportion of our population (39%). Next, the study presented in this article was made only in urban areas, while 65.8% of Houinato respondents lived in rural areas. Prevalence of hypertension in urban and rural areas changes as the country’s level of industrialization increases. Indeed, HBP predominates in rural areas in the medium-developed to developed countries and this trend is clearly reversed in the less advanced countries, particularly in Africa [4,5].

Advanced age was associated with a more recent measure of BP and a better awareness of the hypertensive status as demonstrated by previous studies [5]. These results can be explained by the increase in the prevalence of hypertension as age progresses [6]. In elderly, patients are also more likely to go to the hospital for non-cardiovascular conditions and may fortuitously discover hypertension. The more regular nature of the treatment in elderly patients also goes in this direction. It appears that sensitization for early detection of hypertension should target more young people.

Women have better knowledge of their hypertension than men as known in literature [7,8]. In Benin, this observation can be explained in two ways. First, the social weight makes men complain less than women and therefore tend to trivialize minor symptoms usually seen in uncomplicated hypertension. Secondly, women are more often in contact with the health worker than men during family planning consultations, pre and post-pregnancy care and also any consultation with the gynecologist. Similar work done in an all-female sample reported that married women were 6 times more likely to check their BP than others [9]. Special mention should be made of hypertensive disorders of pregnancy (gestational hypertension, pre-eclampsia and eclampsia), which represent an independent risk factor for hypertension and a first warning of hypertensive disease [10].

The prevalence of hypertension (59.5%) observed during this screening session is higher than the results of a similar-method study conducted in the city of Koudougou (Burkina Faso), which reported a prevalence of 21.6%. This difference can be explained by the younger age of Koudougou's sample (32 ± 16 years) and by a very low rate of patients knowing their hypertensive status (9%). Other existing data come from studies conducted in general population that are not based on voluntary participation of subjects and that found prevalence of HBP [6,11] and awareness of hypertensive status lower than those of this study [4,12]. A recent meta-analysis based on 92 studies on prevalence and level of awareness in Africa found that overall the prevalence of HBP increased from 19.7% in 1990 to 27.4% in 2000 and 30.8% in 2010 while the level of diagnosis in the group of hypertensive patients was respectively 16.9%, 9.2% and 33.7% [13]. The rate of controlled HBP in this study (20, 7%) varies in the literature with an average of 20 to 40% [7,8]. Extreme results have also been reported, such as the 6.3% obtained in Lagos (Nigeria) [14] and the 60% obtained in Kaya district (Burkina-Faso) [15]. Finally, we found 7 patients who reported HBP in the past, and who had a normal BP without drug treatment. This result can be explained by the positive action of dietary and lifestyle measures on BP.

In the light of this work, it is recommended to reinforce the primary prevention actions of hypertension through a governmental policy favoring a healthy and balanced diet, eviction of tobacco and popularization of pedestrian and bicycle tracks. Screening for hypertension should be done regularly (twice a year) through a nationwide activity with a particular focus on young people and men.

The main limitation of this study is that the prevalence of hypertension was overestimated compared to prevalence in the general population. This over-estimation is explained by the type of patients who participated in this work and also by the possibility of having cases of white coat hypertension.

Conclusion

At the end of this work studying HBP in subjects who voluntarily participated in a screening session, prevalence of hypertension was 59.5%. Levels of awareness, treatment and control of HBP were low, prompting more awareness-raising activities especially for young people and men. In a non-industrialized country, central governments need to be involved in primary prevention efforts to reverse hypertension and reduce discovery at the complication stage.

Conflict of Interest

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

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