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Arterial Hypertension and Cardiovascular Risk Factors in Patients Admitted to Internal Medicine at Donka University Hospital

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Abstract

Introduction: The objective of this study was to contribute to a better understanding of high blood pressure (HBP) and other cardiovascular risk factors associated with the internal medicine department of Donka University Hospital. HTA is a public health problem. A cardiovascular risk factor (CVRF) is a factor to which exposure increases the risk of developing cardiovascular disease while removing or improving this factor decreases the risk. **Materials and methods:** This was a prospective descriptive study lasting 6 months from January 1, 2024 to June 31, 2024. Hypertensive patients with at least one cardiovascular risk factor (FDRCV) in addition to hypertension were included. The epidemiological (sociodemographic), clinical, paraclinical and therapeutic variables of the patients were recorded. **Results:** Out of a total of 456 patients registered, 180 were hypertensive with at least one cardiovascular risk factor, which is 39.4%. The mean age was 63.68 ± 14.98 years with extremes of 30 and 95 years. The female sex predominated in 53.9% with a sex ratio of 0.8. The socio-professional stratum was dominated by housewives in 40.6%. The most common reasons for consultation were headaches (92.8%), ringing in the ears (79.4%) and visual disturbances (62.8%). The toxic lifestyle was dominated by smoking in 18.3%. On the electrocardiogram (ECG), the anomalies encountered were dominated by left ventricular hypertrophy (LVH) 38.3% and the sequelae of infarction 28.9%. HTA was associated with 2 FDRCV in 33.88% and 3 FDRCV in 37.22%. **Conclusion:** The concern raised by HTA and cardiovascular risk factor due not only to their lack of awareness but also to their uncontrolled management requires the implementation of prevention and early detection measures for these factors to reduce morbidity and mortality linked to cardiovascular diseases.

Keywords

HTA, Cardiovascular Risk Factors, Internal Medicine, Donka University

Hospital

1. Introduction

According to WHO, HBP is defined as any systolic blood pressure greater than or equal to 140 mmHg and/or diastolic blood pressure greater than or equal to 90 mmHg on two (2) occasions and on different days, it is a chronic pathology which constitutes a real public health and economic problem [1]. The management of high blood pressure remains more relevant than ever since its prevalence is very high 333 million hypertensive patients in industrialized countries, 666 million in emerging countries [2]. The increasing prevalence of hypertension is attributable to population growth, ageing and behavioural risk factors such as poor diet, harmful use of alcohol and tobacco, lack of physical activity, excess weight and exposure to persistent stress [3]. It contributes to the burden of disease from heart disease, stroke and kidney failure and to the occurrence of premature death and disability [4]. Cardiovascular diseases are responsible for approximately 17 million deaths per year worldwide [5]. High-income countries have a lower prevalence of hypertension (35%) and higher in the African Region with a prevalence of 46% in adults aged 25 years and above [6]. In Senegal, Mbaye *et al.* [7] in 2011 in a survey on cardiovascular risk factors hadreported that the prevalence of hypertension was 46%.

In Guinea, according to the STEPS survey, high blood pressure affects 28.1% of the population surveyed and little data is available on diseases and other cardiovascular risk factors found were overweight and obesity (14.6%), diabetes and moderate fasting hyperglycemia (5.2%), tobacco consumption (15.2%) and alcohol (4.7%) [8].

The resurgence of cardiovascular diseases and CVRF motivated the choice of this study.

2. Materials and Methods

This was a prospective descriptive study lasting 6 months from January 1, 2024 to June 31, 2024. Known hypertensive patients, newly diagnosed patients and patients under treatment with at least one cardiovascular risk factor in addition to hypertension were included. Epidemiological (sociodemographic), clinical, paraclinical and therapeutic variables of the patients were recorded.

We used patient records and data in the Internal Medicine his system to collect data on a survey form established while respecting patient confidentiality. regardless of age, gender, and origin and having agreed to participate in the study.

We recruited all patients with at least one cardiovascular risk factor in addition to hypertension (old or newly diagnosed) during the study period.

To identify risk factors, we used:

- Patient questioning and consultation of medical records for smoking (number

of packs/year = number of wicks per day x number of years divided by 20), alcoholism (daily consumption of at least 5 glasses of alcohol per day for men and 3 glasses for women or more than 30 g/day).

- We considered sedentary to be all people spending more than 5 hours per day in a sitting or lying position outside of sleep.
- Body mass index (BMI) to determine and type obesity.
- Lipid profile to look for dyslipidemia and hypercholesterolemia.
- Diabetes was retained as FRDCV in patients known to be diabetic but not balanced, glycated hemoglobin greater than 6.5%.

The data were analyzed with Epi-Info software (version 7.3).

We collected the data anonymously after explaining the study objectives to the patients and emphasizing the principle of confidentiality.

3. Results

Total of 456 hospitalized patients, 180 patients had HTA and at least 1 FRCV is 39.4% and 276 patients had other diseases apart from HTA is 60.6% (Figure 1).

There the most dominant age group was 70 - 79 years (45 patients or 25%), followed by 60 - 69 years (38 patients or 21.11%) with a mean age: 63.68 ± 14.98 years and extremes of 30 and 95 years.

The female sex was in the majority: 97 patients or 53.9% against 83 patients or 46.1% with a sex ratio M/F: 0.8.

Table 1. Distribution of patients according to socio-professional groups.

Socio-professional groups	Effective	Percentage
Student	7	3.88
Traders	16	8.88
Housewife	73	40.55
Farmer	24	13.33
Liberal profession	37	20.55
Workers	23	12.77
Total	180	100

Table 2. Distribution of patients according to socio-professional groups.

Socio-professional groups	Effective	Percentage
Student	7	3.88
Traders	16	8.88
House wife	73	40.55
Farmer	24	13.33
Liberal profession	37	20.55
Workers	23	12.77
Total	180	100

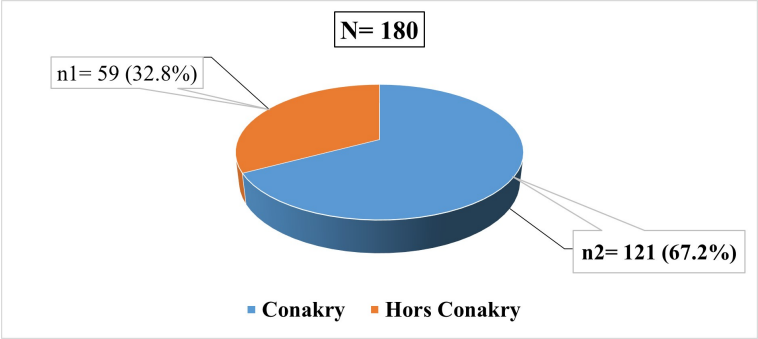

Figure 1. Distribution of patients by area of origin.

Table 3. Distribution of patients according to level of education.

Level of education	Effective	Percentage
Superior	32	17.77
Secondary	89	49.44
Primary	36	20
Not in school	23	12.77
Total	180	100

Table 4. Distribution of patients according to reasons for consultation.

Reasons for consultation	Effective	Percentage
Headaches	167	92.77
Visual disturbances	113	62.77
Dizziness	98	54.44
Tinnitus	78	43.33
Ringing in the ears	143	79.4
Tingling fingers	32	17.77
Chest pain	17	9.44
Palpitations	43	23.88
Cough	9	5
Sputum	4	2.2
Dyspnea	17	9.4
Vomiting	5	2.8
Nausea	10	100

Lifestyle, 91 patients with no vices were in the majority, is 50.55%, followed by tobacco consumption (33 patients or 18.33%) and sedentary lifestyle (25 patients or 13.88%).

Table 5. Distribution of patients according to body mass index.

Body mass index	Effective	Percentage
Skinny	11	6.11
Normal	93	51.66
Overweight	37	20.55
Obesity	39	21.66
Total	180	100

Average BMI: 27.07 ± 0.66 kg/m^2 Extreme: 17.57 and 36.42 kg/m^2.

Table 6. Distribution of patients according to identified FDRCV.

FDRCV identified	Effective	Percentage
HTA	180	100
Age > 55 years	128	71.11
Diabetes	92	51.11
Smoking	49	27.22
Alcoholism	31	17.22
Sedentary lifestyle	25	13.88
Obesity	39	21.66

Table 7. Distribution of patients according to the association between FDRCV.

Association between FDRCV	Effective	Percentage
HTA + 1 FDRCV	31	17.22
HTA + 2 FDRCV	61	33.88
HTA + 3 FDRCV	67	37.22
HTA + 4 FDRCV	17	9.44
HTA + 5 FDRCV	4	2.22
Total	180	100

Table 8. Distribution of patients according to HTA therapy.

HTA therapy	Staff	Percentages
Calcium channel blocker	57	31.66
Angiotensin converting enzyme inhibitor	41	22.77
β-blocker	23	12.77
IEC + IC	98	54.44
IC + β-blocker	17	9.44

4. Discussion

Hypertension is one of the most important modifiable risk factors for cardiovascular

diseases (FRDCV) worldwide. During this study period, out of 456 registered patients, we collected 180 cases of hypertension associated with at least one cardiovascular risk factor, is a frequency of 39.4% (**Table 7**). Bhadoria S *et al.* [9] in India in 2014 in their review on the prevalence of hypertension and associated cardiovascular risk factors found a prevalence of 17%. Shen Y *et al.* [10] in China in 2017 reported a prevalence of 28.1%. This low rate of hypertension associated with at least one risk factor could be explained by the fact that the internal medicine department deals with various pathologies and the majority of hypertension cases listed in the emergency room are referred to the cardiology department.

The age group 70 - 79 years was the most found with a mean age of 63.68 ± 14.98 years. Singh S *et al.* [11] in India in 2017, in their cross-sectional study on the prevalence and risk factors associated with hypertension in Varanasi, had found a mean age of 39.0 ± 11.9 years. Pessinaba S *et al.* **[12]** in Senegal in 2013 which reported an age means of 53.6 ± 15.9 years. These results obtained are in agreement with the data of the literature according to which with age, the walls of the aorta and arteries stiffen, which contributes to the high prevalence of hypertension in older groups. Age is a risk factor of a particular nature, since it is correlated with the duration during which an individual is exposed to other risk factors. It therefore reflects the effect of prolonged exposure to risk factors and is correlated with the occurrence on communicable diseases (MNT).

In our study, we reported a female predominance (53.9%) with a sex ratio of 0.8. Yayehd K *et al.* [13] in Togo in 2011 had found 53.3% female predominance respectively. This female predominance in our study is in agreement with the data in the literature. Also, this female predominance could be explained by the multifactorial association in women, in particular obesity, sedentary lifestyle, taking contraception but also by the loss of the beneficial effect of sex hormones on the regulation of HBP for postmenopausal women.

Regarding the socio-professional stratum, housewives (40.6%) were representative in our study (**Table 1**, **Table 2**). Kishore J *et al.* [14] in India in 2016 who reported that the representative stratum was retirees in 47.1%. Hien A *et al.* [15] in Vietnam in 2018 also reported that manual workers were the most representative stratum in 44.8%. In our context, the low socio-cultural level that characterizes this stratum could explain their greater exposure and who only consult after the onset and persistence of clinical signs related to HBP or in the event of proven cardiovascular diseases (**Table 3**, **Table 4**).

In our case, the lifestyle assessment in our hypertensive patients had highlighted 18.33% of smokers. Brazzaville Gombet TH *et al.* [16] in 2011 had also reported 11.8% and 3.4% of diabetes and smoking associated with HBP in their series. Arambam P *et al.* [17] in India in 2022 in a study on uncontrolled HBP had reported that tobacco consumption was observed in 25% of the population.

According to WHO, smoking is one of the major risk factors for cardiovascular diseases, Active and passive smoking damages the heart and blood vessels, although the pathological mechanisms may differ depending on the type of action.

In addition, changes in blood pressure, regardless of the responsible cause, strongly influence cardiovascular function and structure.

Body mass index assessment in this study revealed subjects with normal BMI in more than half of the cases and obesity in 21.7% with a mean BMI of 27.07 ± 0.66 kg/m^2 (**Table 5**). In the series of Ardiana S *et al.* [18] in Indonesia in 2023 onthe impact of classic cardiovascular risk factors on hospitalization and mortality, increased BMI was also common, with 19.3% of overweight subjects and 50.1% of subjects diagnosed as obese. This obesity rate in our study could be explained by the predominance of the socio-professional stratum represented by housewives who are subject to physical inactivity in their daily lives (**Table 5**, **Table 6**). Furthermore, urbanization is also a cause of changes in eating habits and reduced physical activity that leads to obesity and then results in hypertension [19]. Also, a WHO study revealed that there is a direct link between physical inactivity and weight gain which in turn increases the risk of hypertension.

On the ECG, left ventricular hypertrophy (38.33%) and sequelae of infarction (28.88%) were the main abnormalities detected. Sarr *et al.* [20] in Senegal in 2016 in their study on the clinical, electrocardiographic and echocardiographic aspects of hypertensive patients found LVH in 28.8% of cases. Our result could be explained initially by the diagnostic delay of HTA in our context but also by the non-compliance with treatment by patients, both of which are factors promoting increased cardiac activity, itself a source of the long-term occurrence of LVH.

The predominance of HBP as the main cardiovascular risk factor in our study is different from that found by Mashael *et al.* [21] in Saudi Arabia in 2016 reported physical inactivity that ranged from 53.2 to 98.1%. Calas *et al.* [22] in France in 2022 in their review on the prevalence of hypertension, awareness, treatment and control found that 69% of cases were inactive.

In our study, on the180 patients with high blood pressure (HBP) and at least one (1) cardiovascular risk factor (FRDCV), we reported that HTA + 3 FDRCV in 67 cases or 37.22%, followed by HTA + 2 FDRCV in 61 cases or 33.88%. He F *et al.* [23] in China in 2023 reported in their study on the prevalence and clustering of cardiovascular risk factors among coastal residents, 82.2% of participants had one or more FDRCV and 45.3% had two or more (**Table 7**, **Table 8**).

Indeed, many studies have indicated that the incidence of cardiovascular diseases would be related to the clustering of cardiovascular risk factors and that this clustering of FRDCV has a more harmful cardiovascular effect [24].

From a therapeutic point of view, dual therapy was the most prescribed modality to patients (ACE inhibitors + IC in 54.4%). This result corroborates with that of Arambam P *et al.* [17] in India in 2022 which reported that Two or more drugs were prescribed in 30.8% of patients. The association of one or more cardiovascular risk factor in our context could explain this therapeutic pattern of use. Furthermore, research conducted in several countries has consistently shown that treatment of risk factors such as hypertension has a higher impact on cardiovascular disease than treatment of established cardiovascular disease [25].

5. Conclusion

The concern raised by HTA and cardiovascular risk factor due not only to their lack of awareness but also to their uncontrolled management requires the implementation of prevention and early detection measures for these factors to reduce morbidity and mortality linked to cardiovascular diseases.

Conflicts of Interest

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

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