CARDIOVASCULAR RISK IN HYPERTENSIVE PRIMARY HEALTH CARE USERS RISCO CARDIOVASCULAR EM USUÁRIOS HIPERTENSOS DA ATENÇÃO PRIMÁRIA À SAÚDE RIESGO CARDIOVASCULAR EN USUARIOS HIPERTENSOS DE LA ATENCIÓN PRIMARIA DE SALUD

Ludmilla Borges dos Santos¹, Wellington Luiz de Lima², Josiane Maria Oliveira de Souza³, Marcia Cristina da Silva Magro⁴, Tayse Tâmara da Paixão Duarte⁵

ABSTRACT

Objective: to identify the factors associated with risk for cardiovascular diseases in hypertensive primary health care (PHC) users. **Method:** quantitative and cross-sectional study conducted with 115 hypertensive users enrolled in a Brazilian primary health center (UBS). Data were recorded in a semi-structured questionnaire. A descriptive and inferential analysis was performed (Student's *t*-test and multivariate logistic regression). *P* values < 0.05 were regarded as significant. **Results:** there was predominance of women (67.8%), the elderly (> 60 years) (66.1%), continuous users of diuretic drugs (65.2%). By stratifying PHC users according to the risk for cardiovascular diseases, we observed that the majority showed high risk (59.1%), medium risk (26.1%), and low risk (14.8%). Hypertensive patients with diabetes mellitus (DM) (*p* = 0.000), acute myocardial infarction (AMI) (*p* = 0.000), congestive heart failure (CHF) (*p* = 0.000), and those using diuretic drugs (*p* = 0.001) are associated with an increased risk for cardiovascular events. **Conclusion:** hypertensive patients with DM, AMI, CHF, and those using diuretic drugs evolved with a greater risk for a cardiovascular event. In this context, there is a need for providing an integrated and preventive care based on prevention not only to minimize the occurrence of complications, but mainly to extend the life of hypertensive PHC users on a qualitative basis. **Descriptors:** Hypertension; Cardiovascular Diseases; Primary Health Care; Risk Factors; Office Nursing; Delivery of Health Care.

RESUMO

Objetivo: identificar os fatores associados ao risco de doenças cardiovasculares em usuários da atenção primária à saúde (APS) hipertensos. **Método:** estudo quantitativo e transversal realizado com 115 usuários hipertensos cadastrados em uma unidade básica de saúde (UBS). Os dados foram registrados em questionário semiestruturado. Realizou-se análise descritiva e inferencial (teste *t* de Student e regressão logística multivariada). Valores *p* < 0,05 foram considerados significativos. **Resultados:** houve predomínio do sexo feminino (67,8%), idosos (> 60 anos) (66,1%), em uso contínuo de diuréticos (65,2%). Ao estratificar os usuários da APS de acordo com o risco para doenças cardiovasculares, observou-se que a maioria apresentou risco elevado (59,1%), risco médio (26,1%) e baixo risco (14,8%). Estão associados ao maior risco de eventos cardiovasculares os hipertensos com *diabetes mellitus* (DM) (*p* = 0,000), infarto agudo do miocárdio (IAM) (*p* = 0,000), insuficiência cardíaca congestiva (ICC) (*p* = 0,000) e aqueles em uso de diuréticos (*p* = 0,001). **Conclusão:** usuários da APS hipertensos com DM, IAM, ICC e em uso de diuréticos evoluíram com maior risco de evento cardiovascular. Nesse contexto, faz-se necessário proporcionar uma assistência integrada e pautada na prevenção não apenas para minimizar a ocorrência de complicações, mas principalmente para prolongar qualitativamente a vida dos usuários da APS hipertensos. **Descritores:** Hipertensão; Doenças Cardiovasculares; Atenção Primária à Saúde; Fatores de Risco; Consulta de Enfermagem; Assistência à Saúde.

RESUMEN

Objetivo: identificar los factores asociados con el riesgo de enfermedades cardiovasculares en usuarios de la atención primaria de salud (APS) hipertensos. **Método:** estudio cuantitativo y transversal realizado con 115 usuarios hipertensos inscritos en un centro de salud primaria (UBS) brasileño. Los datos se registraron en un cuestionario semi-estructurado. Se realizó un análisis descriptivo e inferencial (prueba *t* de Student y regresión logística multivariable). Los valores *p* < 0,05 se consideraron significativos. **Resultados:** hubo predominio de mujeres (67,8%), ancianos (> 60 años) (66,1%), usuarios continuos de diuréticos (65,2%). Al estratificar a usuarios de la APS de acuerdo con el riesgo de enfermedades cardiovasculares, observamos que la mayoría mostraba alto riesgo (59,1%), medio riesgo (26,1%) y bajo riesgo (14,8%). Los pacientes hipertensos con *diabetes mellitus* (DM) (*p* = 0,000), infarto agudo de miocardio (IAM) (*p* = 0,000), insuficiencia cardíaca congestiva (ICC) (*p* = 0,000) y aquellos que usan diuréticos (*p* = 0,001) están asociados con un mayor riesgo de eventos cardiovasculares. **Conclusión:** pacientes hipertensos con DM, IAM, ICC y aquellos que usan diuréticos evolucionaron con un mayor riesgo de evento cardiovascular. En este contexto, existe la necesidad de proporcionar una atención integrada y preventiva basada en la prevención no solo para minimizar la aparición de complicaciones, sino principalmente para extender la vida de los usuarios de la APS hipertensos sobre una base cualitativa. **Descriptores:** Hipertensión; Enfermedades Cardiovasculares; Atención Primaria de Salud; Factores de Riesgo; Enfermería de Consulta; Prestación de Atención de Salud.

¹Nurse, School of Ceilândia, University of Brasília (FCE/UnB). Brasília (DF), Brazil. Email: ludy_lbs@hotmail.com ORCID iD: <https://orcid.org/0000-0002-9783-2174>; ²Specialist in Nursing, Centro Universitário Planalto do Distrito Federal (UNIPLAN). Brasília (DF), Brazil. Email: wellingtonporteriras@hotmail.com ORCID iD: <https://orcid.org/0000-0002-7023-7244>; ³Ph.D., FCE/UnB. Brasília (DF), Brazil. Email: josianemaria@unb.br ORCID iD: <https://orcid.org/0000-0002-8400-2948>; ⁴Ph.D., FCE/UnB. Brasília (DF), Brazil. Email: marciamagro@unb.br ORCID iD: <https://orcid.org/0000-0002-4566-3217>; ⁵MS, FCE/UnB. Brasília (DF), Brazil. Email: taysepaixao@unb.br ORCID iD: <https://orcid.org/0000-0003-1608-618X>

INTRODUCTION

Non-communicable chronic diseases (NCDs) show up as the biggest global health problem and they are mainly associated with bad habits, such as smoking, unbalanced eating, sedentary lifestyle, and overweight. In Brazil, 59.5 million people (31.3%) reported having at least 1 chronic disease; out of the total population, 5.9% reported having 3 or more chronic diseases and these percentages increased with age.¹

Among the NCDs there are cardiovascular diseases (CVDs), responsible for the leading causes of death in the world. It is highlighted that 1 in 4 deaths is a consequence of CVDs, in addition both systemic arterial hypertension (SAH) and diabetes mellitus (DM) constitute their main risk factors.²⁻⁴

In Brazil, the incidence of SAH varies according to age, i.e. it affects 32% of adults, more than 50% of the individuals from 60 to 69 years, and 75% of those older than 70 years of age. According to the Brazilian Primary Health Care Information System (SIAB), in the Brazilian Federal District there are 56,267 hypertensive patients enrolled, out of whom 37,942 are Family Health Strategy (FHS) users.⁴

SAH is defined as a clinical condition diagnosed in individuals with systolic blood pressure (SBP) greater than or equal to 140 mmHg and diastolic blood pressure (DBP) greater than or equal to 90 mmHg. In order to avoid error in the diagnosis of SAH, it should be verified within the interval of 1 week in 3 different days, since the identification of a

high value in only 1 day, even at different times, is not enough for the diagnosis of this disease.⁵

The Brazilian Society of Cardiology (SBC) recommends the follow-up of primary health care (PHC) users with SAH according to the cardiovascular risk (CVR), which means that in those at high risk the follow-up should be quarterly, semi-annual in those at intermediate risk, and annual in those at low risk, in order to achieve reduction in injuries and, consequently, maintain user safety.⁵

This study is justified by the need for an expanded follow-up of hypertensive PHC users according to cardiovascular risk, in order to identify factors related to risk stratification for cardiovascular diseases, thus better targeting the real needs of PHC users and aiming to equalize and qualify health care.

OBJECTIVE

- To identify the factors associated with risk for cardiovascular diseases in hypertensive PHC users.

METHOD

Quantitative and cross-sectional study, conducted between March and November 2016, with PHC users with SAH enrolled in a Brazilian primary health center (UBS) in the Brazilian Federal District. PHC users were classified according to the risk for developing cardiovascular diseases established by the Brazilian Guidelines for Hypertension (Table 1).⁵

Table 1. Risk stratification of hypertensive PHC user according to additional risk factors, presence of target-organ injury, and cardiovascular or renal disease. Ceilândia, 2016.

	SBP 130-139 mmHg or DBP 85-89 mmHg	SAH stage 1 SBP 140-159 mmHg or DBP 90-99 mmHg	SAH stage 2 SBP 160-179 mmHg or DBP 100-109 mmHg	SAH stage 3 SBP ≥ 180 mmHg or DBP ≥ 110 mmHg
No risk factor	No additional risk	Low risk	Moderate risk	High risk
1-2 risk factors	Low risk	Moderate risk	High risk	High risk
≥ 3 risk factors	Moderate risk	High risk	High risk	High risk
Presence of TOI, CVD, CKD, or DM	High risk	High risk	High risk	High risk

CVD = cardiovascular disease; CKD = chronic kidney disease; DM = *diabetes mellito*; TOI = target-organ injury. Source: Malachias et al. (2016).⁵

The convenience study sample, consisting of 115 PHC users, considering the following inclusion criteria: medical diagnosis of SAH and users enrolled in the UBS during the data collection period. We excluded children and PHC users who had an isolated diagnosis of DM.

Data collection was based on the application of a questionnaire containing

anthropometric measurements, sociodemographic variables, and clinical data needed to stratify the risk for cardiovascular diseases, applied during the office nursing appointment previously scheduled, with an average length of 30 minutes.

The anthropometric measurements included weight, height, and waist circumference (WC) and the body mass index

(BMI) (kg/m²) was also calculated.⁶ To measure weight, we asked people to take their shoes off, as well as accessories that could interfere with the final value of weight. Therefore, a transparent tempered glass digital scale (Magna 150 kg Ng - G-Life) was used.

Those with BMI from 30 to 34.9 kg/m² were classified as obese grade I, grade II ranged from 35 to 39.9 kg/m², and grade III was ≥ 40 kg/m². WC was determined using a measuring tape in centimeters, positioned at the midpoint between the last rib and the iliac crest at the end of expiration. Women with values ≥ 88 cm and men with values ≥ 102 cm were considered at high risk for cardiovascular events.⁶

SBP was measured with an aneroid pressure device having a nylon brace with Velcro fastener (Premium brand), where the individual sits after a 5-minute rest period. Blood pressure with systolic values < 90 or > 140 mmHg and diastolic values < 60 or > 100 mmHg were considered altered.⁵

Fasting or postprandial glycemia was checked using the device and its respective Accu-Chek strips, model Active, and G-Tech brand lancets. According to the Brazilian Society of Diabetes (SBD), fasting users with postprandial glycemia ≥ 126 mg/dL or ≥ 200 mg/dL are regarded as diabetic and they do not require collection of glycated hemoglobin.⁷

For data analysis, descriptive statistics was

employed, represented by absolute and relative frequency, and multivariate logistic regression and Student's *t*-test were used to verify the associations between categorical variables. *P* values < 0.05 were accepted as statistically significant.

Study approved by the Research Ethics Committee of the Health Sciences Teaching and Research Foundation (FEPECS) of the State Department of Health of the Brazilian Federal District (SES/DF), under the Brazilian Certificate of Submission for Ethical Assessment (CAAE) no. 51577815.4.0000.5553. All PHC users included in the research have signed the free and informed consent form.

RESULTS

This study included 115 PHC users diagnosed with SAH, with predominance of women (67.8%), the elderly (> 60 years) (66.1%), and continuous users of diuretic drugs (65.2%). On the other hand, there was lower incidence of diabetic patients (32.2%), smokers (9.6%), and sedentary individuals (34.8%), in addition to PHC users with established cardiac impairment, such as previous acute myocardial infarction (AMI) (9.6%) and congestive heart failure (CHF) (8.7%).

By stratifying PHC users according to cardiovascular risk, we observed that the majority had a high risk for cardiovascular diseases (59.1%), according to Table 2.

Table 2. Risk stratification of hypertensive patients based on the Brazilian Arterial Hypertension Guideline. Ceilândia, 2016.

Cardiovascular risk	N	%
Low	17	14.8
Medium	30	26.1
High	68	59.1

Source: Prepared by the authors.

Among those individuals at a high cardiovascular risk there was predominance of smokers (72.7%), overweight (65.5%),

dyslipidemia (66.7%), and altered postprandial glycemia (62.5%) (Table 3).

Table 3. Risk distribution for cardiovascular diseases according to several clinical factors. Ceilândia, 2016.

Variables		Risk for cardiovascular diseases					
		Low		Medium		High	
		N	%	N	%	N	%
Sex	Male	4	10.8	11	29.7	22	59.5
	Female	13	16.7	19	24.4	46	59.0
Age	Up to 59	8	20.5	9	23.1	22	56.4
	60+	9	11.8	21	27.6	46	60.5
Diuretic drugs		8	10.7	26	34.7	41	54.7
Family history of heart disease		8	9.4	21	24.7	56	65.9
Diabetes mellitus		0	0.0	0	0.0	37	100.0
Smoking		1	9.1	2	18.2	8	72.7
Alcoholism		3	20.0	5	33.3	7	46.7
Sedentary lifestyle		7	17.5	11	27.5	22	55.0
Overweight		7	12.1	13	22.4	38	65.5
AMI		0	0.0	0	0.0	11	100.0

CHF	0	0.0	0	0.0	10	100.0
Dyslipidemia	5	16.7	5	16.7	20	66.7
Altered postprandial glycemia	12	24.0	15	30.0	23	46.0

AMI = acute myocardial infarction; CHF = congestive heart failure.
Source: Prepared by the authors.

By investigating the medicines in continuous use among hypertensive PHC users with high risk for cardiovascular diseases, the use of angiotensin receptor antagonists has been at a higher frequency (63,8%) (Table 4).

Table 4. Medicines used by hypertensive patients. Ceilândia, 2016.

Variables	Cardiovascular risk					
	Low		Medium		High	
	N	%	N	%	N	%
Diuretic drugs	8	10.7	26	34.7	41	54.7
Betablockers	7	21.2	7	21.2	19	57.6
Inhibitors of angiotensin converting enzyme	2	7.1	12	42.9	14	50.0
Calcium channel blockers	3	11.5	8	30.8	15	57.7
Angiotensin receptor antagonist	8	13.8	13	22.4	37	63.8

Source: Prepared by the authors.

Considering that different variables are related and determine a higher cardiovascular risk. a multivariate analysis was performed and DM ($p = 0.000$), AMI ($p = 0.000$), CHF ($p = 0.000$) and the use of diuretic drugs ($p = 0.001$) were identified as risk factors (Table 5).

Table 5. Factors associated with increased risk for cardiovascular diseases. Ceilândia, 2016.

Variable	OR	P value
Diabetes mellitus	3,66	0,000
AMI	2,50	0,000
CHF	1,64	0,000
Use of diuretic drugs	13,50	0,001

Odds ratio = obtained by multivariate logistic regression; p value = calculated by multivariate logistic regression; AMI = acute myocardial infarction; CHF = congestive heart failure.

Source: Prepared by the authors.

DISCUSSION

Cardiovascular events often originate from SAH, which in turn, when untreated, favors the development of several other complications, aggravating the health status of an individual. In this regard, these complications are represented by genetic or behavioral factors or by lifestyle, age, DM, AMI, CHF, stroke, and kidney diseases.⁸⁻¹⁰ Scientific evidence, just as in our study, showed an association between women and the elderly with SAH and cardiovascular events.¹¹⁻² The predominance of women with hypertensive origin of cardiovascular risk may be associated, on the one hand, with the fact that a woman has a longer survival and, on the other hand, with a strong association between blood pressure and menopause. It is known that the lower production of female hormones, such as estrogen, decreases protection, thus causing an increase in blood pressure levels, and this predisposes to NCDs.¹³⁻⁵

The high incidence of PHC users at high risk for cardiovascular diseases due to overweight is usually related to increase in both cardiac output and peripheral resistance, something

which determines vasoconstriction and myocardial overload. Thus, maintaining adequate weight is indispensable for reducing and preventing complications. Sedentary lifestyle is directly related to weight gain. A finding of this study was the fact that 55% of the PHC users at high cardiovascular risk did not had the habit of practicing physical activities. Modifiable risks such as these may be prevented resorting to changes in habits and lifestyle, such as adequate eating and regular physical activities.^{1,11,14}

It is believed, according to the Brazilian Guidelines for Hypertension, that the primary objective of treating SAH is the reduction of cardiovascular morbidity and mortality rates. Thus, the medicines used serve not only to reduce blood pressure, but also to minimize or prevent fatal and non-fatal cardiovascular events. In this study, the diuretic drugs ($p = 0.001$) stood out among the medicines adopted to control SBP, because their effect is related with the ability to decrease extracellular volume and, consequently, peripheral vascular resistance. Above all, their efficacy has been proven in studies where the results showed a decrease in

morbidity and mortality due to cardiac events.^{5,16-9}

There was a high incidence of users with SAH combined to DM. The SBC highlights that this association poses a high risk for the development of cardiovascular diseases, a factor that contributes to justify the high rate of PHC users with this stratification in this study. DM consists of endocrine and metabolic changes that trigger insulin resistance. It is noteworthy that AMI, stroke, and kidney diseases are common complications due to DM, making it a major risk factor that can lead to various complications.^{5,20-1}

We also have dyslipidemia in relation to the comorbidities associated with an increased risk for cardiovascular events. Uncontrolled lipid production causes serious problems, such as blood vessel obstruction. Although in this study the results do not show significant statistical difference, the high percentage of dyslipidemia among those at a high risk for CVD stands out. By means of scientific evidence, an association between lipid abnormalities and the occurrence of AMI has been observed.²²⁻³

The association between the risk factors listed has a cumulative effect and this contributes to a higher risk for cardiovascular events, therefore, we believe, having the results of this study as a basis, in a higher incidence of patients at risk for cardiac events.⁴

The limitations of this study are concentrated in the lack of resources in the domain of public health services and in the operation structure of the UBS under study. The fact that the study was conducted at a single UBS hinders the generalization of results. It is worth highlighting the need for further research to verify the difficulties in complying with proper treatment of SAH and meet the real population's needs, seeking to avoid that users at low and medium cardiovascular risk have complications.

CONCLUSION

Hypertensive PHC users with DM, AMI, CHF, and those using diuretic drugs evolved with a higher risk for cardiovascular events. In this context, there is a need for providing an integrated and preventive care not only to minimize the occurrence of complications, but mainly to extend the life of hypertensive PHC users on a qualitative basis.

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Corresponding Address

Tayse Tâmara da Paixão Duarte
Faculdade de Ceilândia - Universidade de
Brasília
Departamento de Enfermagem
Centro Metropolitano, conjunto A, lote 01
CEP: 72220-900 - Brasília (DF), Brazil