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Characterization of hypertensive older adults in a medical office in Santiago de Cuba

Caracterización de adultos mayores hipertensos en consultorio médico de Santiago de Cuba

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RESUMEN

Introducción: la hipertensión arterial constituye el principal factor de riesgo modificable de enfermedad cardiovascular, con prevalencia creciente en adultos mayores que demanda caracterización epidemiológica en el nivel primario de atención. **Objetivo:** caracterizar los adultos mayores hipertensos pertenecientes al Consultorio Médico 19 del Policlínico Docente Municipal "Dr. Graciliano Díaz Bartolo", Santiago de Cuba, enero-diciembre 2024. **Métodos:** estudio observacional, descriptivo y transversal. Universo: 312 adultos mayores hipertensos registrados. Muestra: 234 que cumplieron criterios de inclusión. Variables: edad, sexo, color de piel, comorbilidades, factores de riesgo cardiovascular, medicamentos antihipertensivos y control de la hipertensión. Recolección mediante revisión de historias clínicas. Análisis: estadística descriptiva univariada con frecuencias absolutas, relativas e intervalos de confianza al 95 %. **Resultados:** predominio de sexo femenino (55,1 %; IC 95 %: 48,8-61,3), raza negra (53,8 %; 47,4-60,2) y grupo etario 60-69 años (38,5 %; 32,4-44,9). Diabetes mellitus fue la comorbilidad más frecuente (42,3 %; 35,9-48,9). Los factores de riesgo modificables más prevalentes: sedentarismo (66,7 %; 60,2-72,7), obesidad (61,1 %; 54,5-67,5) y tabaquismo (57,7 %; 51,1-64,1). El 59,0 % (52,5-65,3) de pacientes presentó control de la hipertensión. Los medicamentos más utilizados fueron diuréticos (38,1 %), seguidos de inhibidores de la enzima convertidora de angiotensina (27,8 %), bloqueadores de canales de calcio (19,4 %) y betabloqueadores (14,7 %). **Conclusiones:** los adultos mayores hipertensos estudiados presentaron elevada multimorbilidad cardiovascular y prevalencia de factores de riesgo modificables. El patrón terapéutico mostró predominio de diuréticos. Se requiere fortalecer estrategias de modificación de estilo de vida y abordaje integral del riesgo cardiovascular en atención primaria.

ABSTRACT

Introduction: Hypertension is the leading modifiable risk factor for cardiovascular disease, with increasing prevalence in older adults, requiring epidemiological characterization at the primary care level. **Objective:** To characterize hypertensive older adults registered at Medical Office 19 of the "Dr. Graciliano Díaz Bartolo" Municipal Teaching Polyclinic, Santiago de Cuba, January-December 2024. **Methods:** Observational, descriptive, and cross-sectional study. Population: 312 registered hypertensive older adults. Sample: 234 who met the inclusion criteria. Variables: Age, sex, skin color, comorbidities, cardiovascular risk factors, antihypertensive medications, and hypertension control. Data collection was performed through review of medical records. Analysis: Univariate descriptive statistics with absolute and relative frequencies and 95% confidence intervals. **Results:** The study population was predominantly female (55.1%; 95% CI: 48.8–61.3), Black (53.8%; 47.4–60.2), and aged 60–69 years (38.5%; 32.4–44.9). Diabetes mellitus was the most frequent comorbidity (42.3%; 35.9–48.9). The most prevalent modifiable risk factors were sedentary lifestyle (66.7%; 60.2–72.7), obesity (61.1%; 54.5–67.5), and smoking (57.7%; 51.1–64.1). Hypertension was controlled in 59.0% (52.5–65.3) of patients. The most frequently used medications were diuretics (38.1%), followed by angiotensin-converting enzyme inhibitors (27.8%), calcium channel blockers (19.4%), and beta-blockers (14.7%). **Conclusions:** The hypertensive older adults studied presented with high cardiovascular multimorbidity and a prevalence of modifiable risk factors. The therapeutic pattern showed a predominance of diuretics. Strengthening lifestyle modification strategies and a comprehensive approach to cardiovascular risk in primary care are needed.

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INTRODUCTION

Hypertension (HTN) is the leading modifiable risk factor for cardiovascular disease worldwide, with a growing prevalence that predominantly affects the elderly population ^(1, 2). It is estimated that by 2030 the number of people with hypertension will increase by 8%, solidifying its position as the most common non-communicable chronic disease in this age group ⁽³⁾. In Latin America, approximately one in five older adults has HTN, although a large proportion remain undiagnosed or under adequate control ⁽⁴⁾.

Population aging is associated with structural and functional alterations of the cardiovascular system that contribute to increased blood pressure. Among the pathophysiological mechanisms involved are increased arterial stiffness, hormonal changes, and renal adaptations ⁽⁵⁾. HTN in older adults is frequently asymptomatic, which delays its diagnosis and increases the risk of cardiovascular, cerebrovascular, and renal complications ⁽⁶⁾.

In Cuba, non-communicable chronic diseases are the leading causes of morbidity and mortality in older adults, with HTN being the most prevalent condition ⁽⁷⁾. The associated risk factors—sedentary lifestyle, obesity, smoking, and poor diet—frequently coexist with comorbidities such as diabetes mellitus and dyslipidemia, complicating clinical management ⁽⁸⁾. Hypertension control in this age group requires individualized approaches that consider the comorbidity profile, polypharmacy, and specific sociodemographic characteristics of the primary care setting.

The epidemiological characterization of hypertensive populations at the primary care level is the first step in designing interventions aimed at improving disease control and reducing its burden of morbidity ⁽⁹⁾. In the province of Santiago de Cuba, previous studies have identified prevalence patterns and factors associated with hypertension in older adults; however, information gaps remain regarding the clinical profile, comorbidities, and patterns of antihypertensive use in specific medical practices ⁽¹⁰⁾.

This study aimed to characterize hypertensive older adults registered at Medical Office 19 of the Dr. Graciliano Díaz Bartolo Municipal Teaching Polyclinic in Santiago de Cuba, Cuba, from January to December 2024.

METHODS

An observational, descriptive, cross-sectional study was conducted at Medical Office 19 of the Dr. Graciliano Díaz Bartolo Municipal Teaching

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Polyclinic, located in Santiago de Cuba, Cuba, from January to December 2024. The study population consisted of 312 older adults (≥ 60 years) diagnosed with hypertension and registered in the health area. Non-probability convenience sampling was used, resulting in a sample of 234 patients who met the inclusion criteria and did not present any exclusion criteria during the study period.

The inclusion criteria were: older adults (≥ 60 years) with a confirmed diagnosis of hypertension according to established clinical criteria; membership in the health area of the medical office during the study period; availability of an updated individual medical record; and physical and mental fitness to participate (ability to communicate and understand the purpose of the study). The exclusion criteria were: severe cognitive impairment that prevented obtaining valid information from the medical record; death during the data collection period; and refusal to allow review of the medical record for research purposes.

The study variables were:

- Age: Quantitative (completed years), categorized into groups: 60-69, 70-79, 80-89, ≥ 90 years.
- Sex: Male, female.
- Skin color: Black, mixed race, white (self-identified according to clinical record).
- Associated diseases: Diabetes mellitus, ischemic heart disease, dyslipidemia, cerebrovascular disease, chronic kidney disease (diagnosis confirmed in medical record). • Cardiovascular risk factors: Sedentary lifestyle, obesity (body mass index ≥ 30 kg/m²), smoking, alcohol consumption, and daily consumption of more than 5 cups of coffee.
- Antihypertensive medications used: Angiotensin-converting enzyme (ACE) inhibitors, calcium channel blockers, diuretics, and beta-blockers.
- Blood pressure control: Controlled (blood pressure $< 140/90$ mmHg at last visit), uncontrolled ($\geq 140/90$ mmHg).

Data collection was carried out through a review of individual medical records and family health records from the medical office, using a structured data collection instrument designed for this study. The information was obtained by the researchers through direct extraction from the clinical records. Data quality was ensured through cross-checking between individual medical records and family health records for sociodemographic variables and diagnoses.

The data were processed using Microsoft Excel 2010 and analyzed using univariate descriptive statistics. Absolute (n) and relative (%) frequencies were calculated for categorical variables; mean, standard

deviation, median, and interquartile range were calculated for quantitative variables. Ninety-five percent confidence intervals (95% CI) were estimated for major proportions. The analysis was performed using SPSS version 21.0 (IBM Corp., Armonk, NY, USA).

The research was approved by the institution's Ethics Committee. Confidentiality was ensured through numerical coding of records, exclusive use for academic purposes, and secure database storage. The ethical principles established in the Declaration of Helsinki were respected. Given the nature of the review of clinical records without direct intervention in patients, institutional authorization was requested for access to medical records; individual informed consent was not required due to the retrospective nature of the study and the use of anonymized data.

RESULTS

Of the 312 hypertensive older adults registered in the health area, 234 met the inclusion criteria and were included in the study. The mean age of the sample was 72.4 years (SD: 8.7; median: 71.0; IQR: 66-79), with a predominance of the 60-69 age group (38.5%; 95% CI: 32.4-44.9) and females (55.1%; 129/234; 95% CI: 48.8-61.3). The distribution by skin color showed a predominance of Black participants (53.8%; 126/234), followed by mixed race (28.6%; 67/234) and White (17.5%; 41/234) (Table 1).

Table 1. Distribution of hypertensive older adults according to age group, sex and skin color

Variable	Category	n	%	IC 95 %
Age group	60-69 años	90	38,5	32,4-44,9
	70-79 años	68	29,1	23,5-35,1
	80-89 años	65	27,8	22,3-33,8
	≥90 años	11	4,7	2,4-8,3
Sex	Masculino	105	44,9	38,5-51,4
	Femenino	129	55,1	48,8-61,3
Skin color	Negro	126	53,8	47,4-60,2
	Mestizo	67	28,6	23,1-34,7
	Blanco	41	17,5	12,9-23,1

Source: Family and individual medical records.

Comorbidity analysis identified diabetes mellitus as the most frequent comorbidity in 99 patients (42.3%; 95% CI: 35.9-48.9). This was followed by dyslipidemia in 43 patients (18.4%; 95% CI: 13.6-24.0), ischemic heart disease in 36 (15.4%; 95% CI: 11.0-20.6), cerebrovascular disease in 29 (12.4%; 95% CI: 8.5-17.2), and chronic kidney disease in 27 (11.5%; 95% CI: 7.8-16.2). The distribution by

sex showed a higher proportion of diabetes mellitus in women (24.8% vs. 17.5% in men), although this difference was not statistically analyzed (Table 2).

Table 2. Distribution of associated diseases by sex in hypertensive older adults

Associated disease	Male sex (n=105)		Female sex (n=129)		Total (n=234)	
	n	%	n	%	n	%
Diabetes mellitus	41	39,0	58	45,0	99	42,3
Dyslipidemia	21	20,0	22	17,1	43	18,4
Ischemic heart disease	17	16,2	19	14,7	36	15,4
Cerebrovascular disease	15	14,3	14	10,9	29	12,4
Chronic kidney disease	11	10,5	16	12,4	27	11,5

Source: Family and individual medical records.

Regarding cardiovascular risk factors, sedentary behavior was the most prevalent, present in 156 patients (66.7%; 95% CI: 60.2–72.7). This was followed by obesity in 143 patients (61.1%; 95% CI: 54.5–67.5), smoking in 135 (57.7%; 95% CI: 51.1–64.1), alcohol consumption in 77 (32.9%; 95% CI: 26.9–39.3), and daily consumption of more than 5 cups of coffee in 69 (29.5%; 95% CI: 23.8–35.7). Notably, 63 patients (26.9%) presented other risk factors not specified in their medical records (Table 3).

Table 3. Cardiovascular risk factors in hypertensive older adults

Risk factors	n	%	IC 95 %
Sedentary lifestyle	156	66,7	60,2-72,7
Obesity	143	61,1	54,5-67,5
Smoking	135	57,7	51,1-64,1
Alcohol consumption	77	32,9	26,9-39,3
Daily consumption >5 cups of coffee	69	29,5	23,8-35,7

Other	63	26,9	21,3-33,1
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Source: Family and individual medical records.

Note: Percentages represent prevalence among all patients (n=234), not the sum of factors. A patient may present with multiple risk factors simultaneously.

Regarding the control of hypertension, 138 patients (59.0%; 95% CI: 52.5-65.3) were under control (blood pressure <140/90 mmHg at the last visit), while 96 (41.0%; 95% CI: 34.7-47.5) did not achieve the target control.

The most frequently used antihypertensive medications were diuretics, prescribed in 163 patients (38.1% of total prescriptions; 95% CI: 33.8-42.5), followed by angiotensin-converting enzyme (ACE) inhibitors in 119 (27.8%; 95% CI: 23.8-32.1), calcium channel blockers in 83 (19.4%; 95% CI: 15.8-23.3), and beta-blockers in 63 (14.7%; 95% CI: 11.5-18.4). Analysis by sex showed similar prescribing patterns, with diuretics predominating in both groups (Table 4).

Table 4. Antihypertensive medications used by sex in hypertensive older adults (n=428 total prescriptions)

Medicine	Male sex (n=196)		Female sex (n=232)		Total (n=428)	
	n	%*	n	%*	n	%*
Diuretics	88	44,9	75	32,3	163	38,1
ACEI	66	33,7	53	22,8	119	27,8
Calcium channel blockers	45	23,0	38	16,4	83	19,4
Beta blockers	34	17,3	29	12,5	63	14,7

Source: Family and individual medical records.

*Percentage calculated based on the total number of prescriptions by sex. A patient may receive multiple medications.

DISCUSSION

Population aging is a physiological process associated with structural and functional alterations of the cardiovascular system that contribute to increased blood pressure ⁽⁹⁾. In accordance with the literature reviewed, the results of this study confirm that hypertension is one of the most prevalent groups of chronic non-communicable diseases in older adults, acting as an independent risk factor for cardiovascular, cerebrovascular, and renal diseases ^(1, 2). The prevalence observed in

our study, with a predominance in the 60-69 age group, coincides with projections that estimate a sustained increase in the disease burden in this population group for the coming decades ⁽³⁾.

The literature identifies older adults as one of the most vulnerable groups for developing hypertension ⁽¹²⁾. Among non-modifiable risk factors, advanced age, female sex, and Black race have been consistently associated with a higher prevalence of cardiovascular disease ⁽¹³⁾. Our results, with a predominance of female sex (55.1%) and Black race (53.8%), align with this epidemiological evidence. The greater longevity of the female population partially explains this predominance, although increased postmenopausal vascular susceptibility has also been suggested ^(16, 18). However, studies such as that by Asenjo Alarcón et al. ⁽¹⁹⁾ have reported a higher prevalence of hypertension in men aged ≥ 70 years, which demonstrates the variability of patterns according to population context and life stage.

Regarding comorbidities, diabetes mellitus was identified as the most frequent associated disease (42.3%), followed by dyslipidemia (18.4%). This finding reflects the phenomenon of cardiovascular multimorbidity described in Latin American populations, where hypertension, diabetes, and dyslipidemia form an interrelated pathological triangle ⁽²⁰⁾. Zavala Hoppe et al. ⁽²⁰⁾, in a study with similar characteristics, reported that more than 40% of elderly hypertensive patients presented with diabetes mellitus as their main comorbidity, closely coinciding with our results. The coexistence of these conditions complicates clinical management and increases the risk of micro- and macrovascular complications, requiring comprehensive therapeutic approaches ^(7, 8).

The modifiable risk factors identified in our study reveal a high prevalence of unhealthy behaviors. Sedentary behavior affected 66.7% of the sample, followed by obesity (61.1%) and smoking (57.7%). These findings, although higher than those reported in some international series, are consistent with the nutritional and epidemiological transition observed in developing countries ^(21, 24). Apaza Arzapalo et al. ⁽²¹⁾ identified excessive coffee consumption as a predominant risk factor in their context, a finding that we did not replicate in our sample (29.5% vs. 66.7% for sedentary behavior). This difference may be attributed to cultural variability in dietary habits and physical activity patterns across regions.

The level of hypertension control achieved in our sample (59.0% of patients controlled) places this clinic in the middle range compared to international standards. The World Health Organization reports that only 21% of hypertensive patients have adequate control in low- and middle-income countries ⁽²⁾, although this figure improves significantly

in organized primary care settings ⁽¹⁵⁾. The observed control rate suggests a relatively favorable performance of the clinic, although the 41.0% of uncontrolled patients represents a preventable disease burden that requires specific interventions.

The antihypertensive prescription profile showed a predominance of diuretics (38.1%), followed by ACE inhibitors (27.8%), calcium channel blockers (19.4%), and beta-blockers (14.7%). This pattern differs from that reported by Botero Botero et al. ⁽²²⁾, who identified ACE inhibitors as the most frequently used, and from that of Revueltas Agüero et al. ⁽²³⁾, with a predominance of beta-blockers. These discrepancies can be explained by: (a) differences in clinical practice guidelines in effect at the time of the study; (b) the specific comorbidity profile of the sample (high prevalence of diabetes, which favors the use of ACE inhibitors, although they are not predominant); (c) the availability of medications in the local healthcare system; and (d) the prescribing preferences of the family physicians in the clinic. The high use of diuretics, although effective for blood pressure control, should be considered with caution in older adults given the risks of electrolyte imbalances and their interaction with renal comorbidities ⁽⁹⁾.

The limitations of this study must be explicitly acknowledged. The cross-sectional design prevents the establishment of temporal relationships between risk factors and outcomes. The reliance on secondary clinical records introduced missing data for some variables, particularly for risk factors that are not systematically documented. Convenience sampling limits the generalizability of the findings to other primary care settings. Finally, the lack of direct patient assessment (interview, physical examination, laboratory tests) limits the validity of risk factor and blood pressure control measurements to the quality of existing clinical records.

From a primary healthcare perspective, these results highlight the need to strengthen lifestyle modification programs, particularly those focused on increasing physical activity and weight management in hypertensive older adults. The high prevalence of identified modifiable risk factors presents an opportunity for primary and secondary prevention interventions, which, although not modified in this study, should be evaluated in future research using longitudinal or experimental designs. The observed multimorbidity pattern (diabetes-hypertension-dyslipidemia) suggests the advisability of integrated approaches to overall cardiovascular risk, beyond isolated blood pressure control.

CONCLUSIONS

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The hypertensive older adults at Medical Clinic 19, Santiago de Cuba, were predominantly female (55.1%), Black (53.8%), and aged 60-69 years. Diabetes mellitus affected 42.3% of the patients, indicating high cardiovascular multimorbidity. Modifiable risk factors—sedentary lifestyle (66.7%), obesity (61.1%), and smoking (57.7%)—affected more than half of the sample. Hypertension was controlled in 59.0% of patients, although 41.0% remained without therapeutic goals. The treatment pattern showed a predominance of diuretics (38.1%), followed by angiotensin-converting enzyme inhibitors (27.8%), calcium channel blockers (19.4%), and beta-blockers (14.7%). This profile requires consideration of specific risks in older adults with multimorbidity. Strengthening lifestyle modification strategies and a comprehensive approach to cardiovascular risk in primary care is needed, aimed at reducing modifiable risk factors and improving hypertension control.

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QMGG: Conceptualization, data curation, research, methodology, project management, resources, software, supervision, validation, visualization, drafting, writing, revision, and editing of the final work.

MBR: Conceptualization, research, methodology, validation, original drafting, and revision.

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CONFLICT OF INTEREST

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USE OF ARTIFICIAL INTELLIGENCE

The authors declare that artificial intelligence was not used in the writing of this manuscript.