



## ORIGINAL ARTICLE

### Total cardiovascular risk category in hypertensive patients

Categoría de riesgo cardiovascular total en pacientes hipertensos

**Magaly Gort-Hernández**<sup>1</sup>  , **Issifou Mamane-Malam**<sup>2</sup> , **Kateryn Márquez-Blanco**<sup>2</sup> , **Alina Tamayo-Rubiera**<sup>2</sup> , **Sonia Rodríguez-Núñez**<sup>2</sup> 

<sup>1</sup>University of Medical Sciences of Pinar del Río. Municipal Health Directorate. Los Palacios, Pinar del Río, Cuba.

<sup>2</sup>University of Medical Sciences of Pinar del Río. University Polyclinic Elena Fernández Castro. Los Palacios, Pinar del Río, Cuba.

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#### ABSTRACT

**Introduction:** The relationship of blood pressure and risk of cardiovascular events is independent of other risk factors and when hypertension coexists with other factors, it can be enhanced, resulting in a higher total cardiovascular risk than the sum of its individual components.

**Objective:** to determine the total cardiovascular risk in hypertensive patients in clinic 12 of the Los Palacios municipality during the year 2022.

**Methods:** descriptive and cross-sectional study; universe 203 hypertensive patients aged 18 years and older; sample 183 patients with a diagnosis of arterial hypertension who met the inclusion criteria. Summary measures were used for qualitative data.

**Results:** female sex (67,2 %) and age 60 years and older (57,4 %) predominated; family history of hypertension, sedentary lifestyle and obesity prevailed as risk factors. Forty-three percent were classified as moderate risk. The relationship between pulse pressure greater than 60 mm Hg and cardiovascular disease was highly significant.

**Conclusions:** the moderate and high total cardiovascular risk categories predominated in hypertensive patients, so it is necessary to work with the identified risks for better prevention and control.

**Keywords:** Heart Disease Risk Factors; Hypertension; Patient.

## RESUMEN

**Introducción:** La relación de presión arterial y riesgo de eventos cardiovasculares es independiente de otros factores de riesgo y cuando coexisten la hipertensión con otros factores, puede potenciarse, lo que resulta en un riesgo cardiovascular total mayor, que la suma de sus componentes individuales

**Objetivo:** determinar el riesgo cardiovascular total en pacientes hipertensos del consultorio 12 del municipio Los Palacios, durante el año 2022.

**Métodos:** estudio descriptivo y transversal; universo 203 pacientes hipertensos de 18 años y más; la muestra 183 pacientes con diagnóstico de hipertensión arterial que cumplieron los criterios de inclusión. Se utilizaron medidas de resúmenes para datos cualitativos.

**Resultados:** predominó el sexo femenino (67,2 %) y las edades de 60 y más años (57,4 %); como factores de riesgo prevalecieron los antecedentes familiares de hipertensión, sedentarismo y obesidad. El 43 % resultó clasificado como riesgo moderado. La relación presión de pulso mayor de 60 mm Hg y enfermedad cardiovascular fue altamente significativa.

**Conclusiones:** predominó la categoría de riesgo cardiovascular total moderada y alta en los pacientes hipertensos, por lo que se hace necesario trabajar con los riesgos identificados para una mejor prevención y control.

**Palabras clave:** Factores de Riesgo de Enfermedad Cardíaca; Hipertensión; Paciente.

## INTRODUCTION

The relationship of blood pressure and risk of cardiovascular and cerebrovascular disease events is continuous, consistent and independent of other risk factors.<sup>(1)</sup> The higher the blood pressure, the greater the chance of myocardial infarction, heart failure, stroke and renal disease. The need to reduce morbidity and mortality from cardiovascular disease is the main reason for approaching the problem of hypertension control from a more comprehensive point of view and not just focusing on blood pressure figures as the main variable for deciding the need for and type of treatment.<sup>(1,2)</sup>

The therapeutic strategy should take into account the total cardiovascular risk, in addition to blood pressure levels, to maximize cost-effectiveness in the treatment of arterial hypertension. The prevention of cardiovascular diseases in hypertensive patients should be adapted to their total cardiovascular risk; the higher the risk, the more intensely the strategy should be applied to control and reduce it.<sup>(3,4)</sup>

In Cuba there are no large cohort studies whose final objective is to evaluate the influence of a given cardiovascular risk factor on cardiovascular mortality. Given this limitation, the Cuban Hypertension Guidelines,<sup>(1)</sup> propose using a modification of the Framingham, World Health Organization and Systematic Coronary Risk Evaluation models in which total cardiovascular risk is stratified into different categories based on blood pressure, cardiovascular risk factors, asymptomatic organ damage or target organ lesion and the presence or absence of diabetes mellitus, and total cardiovascular risk is classified into low, moderate and high. Therefore, it is recommended that all hypertensive patients should have their total cardiovascular risk stratified in the initial evaluation in order to decide the type and intensity of the therapeutic strategy to be used.<sup>(1)</sup>

The municipality of Los Palacios, like the rest of the country, has among its main causes of death cardiovascular diseases in which arterial hypertension plays a fundamental role. For this reason, based on the Cuban Guide for the diagnosis, evaluation and treatment of arterial hypertension,<sup>(1)</sup> it is necessary to determine the total cardiovascular risk of hypertensive patients and thus be able to design prevention and control strategies aimed at modifying and/or eliminating the risk factors detected.

## METHODS

A descriptive and cross-sectional study was carried out in clinic 12 of the Elena Fernández Castro polyclinic in the municipality of Los Palacios during the year 2022.

### A. Universe and Sample

The population was represented by all patients aged 18 years and older with a diagnosis of arterial hypertension belonging to clinic 12 of the Elena Fernández Castro polyclinic, Los Palacios municipality in the year 2022 (203 patients), from which a sample of 183 patients was obtained who met the following inclusion criteria:

- ✓ Informed consent
- ✓ 40 years of age or older
- ✓ No mental illness that would prevent cooperation with the study.

Exclusion criteria: Not meeting the inclusion criteria.

### B. Variables:

Age, sex, risk factors, pulse pressure, cardiovascular risk category.

Pulse pressure: <sup>(1)</sup> Differential between systolic blood pressure (SBP) and diastolic blood pressure (DBP). Pulse pressure above 60 mm Hg is considered an independent marker of total cardiovascular risk.

#### Risk category <sup>(1)</sup>

**Low risk:** hypertensive patient with no additional cardiovascular risk factors and arterial blood pressure grade 1; prehypertensive patient with one or two additional risk factors.

**Moderate risk:** hypertensive patient without additional cardiovascular risk factors and blood pressure grade 2; patient with one or two cardiovascular risk factors and blood pressure grade 1 or 2; prehypertensive patient with three or more cardiovascular risk factors or with diabetic or diabetic organ damage.

**High risk:** patient with no other cardiovascular risk factors and blood pressure grade 3; patient with one or two cardiovascular risk factors and blood pressure grade 3, and patient with three or more cardiovascular risk factors or with target organ damage or diabetes mellitus and any blood pressure grade.

The data were taken from the individual medical records, which reflected the interrogation, physical and complementary examinations performed on the patients.

**Ethical considerations:** All data were handled by health personnel with prior authorization from the responsible managers and their use was intended for scientific purposes only.

## RESULTS

The predominant age group was 60 years and older (57,4 %) and female sex (67,2 %). Table 1

**Table 1:** Hypertensive patients according to age and sex. Clinic 12. Los Palacios 2022

AGE GROUPS	MALE		FEMALE		TOTAL	
	Nº.	%	Nº.	%	Nº.	%
40 - 49	6	10,0	15	12,2	21	11,5
50 - 59	13	21,7	44	35,8	57	31,1
60 Y MÁS	41	68,3	64	52,0	105	<b>57,4</b>
TOTAL	60	32,8	123	<b>67,2</b>	183	100,0

Source: Individual medical history

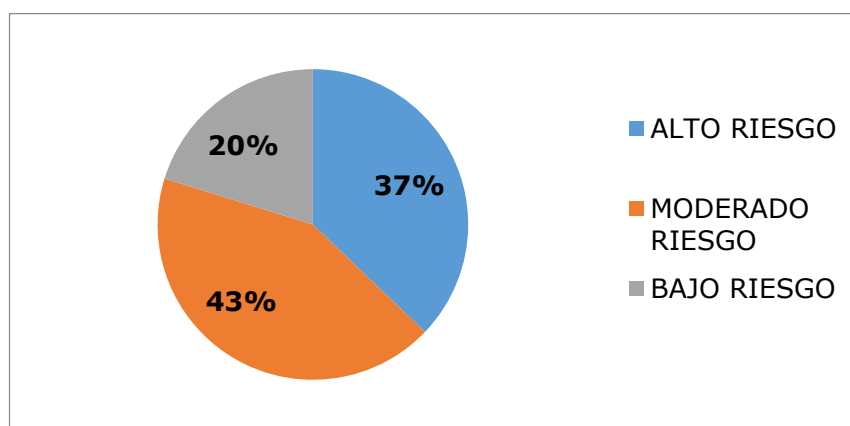
Among the cardiovascular risk factors, family history of hypertension predominated (66,6 %), followed by sedentary lifestyle and obesity (Table 2).

**Table 2:** Risk factors present

RISK FACTORS (N = 183)	No.	%
Family history of hypertension	122	<b>66,6</b>
Sedentary lifestyle	83	45,3
Obesity	39	21,3
Smoking	32	17,5
Dyslipidemia	30	16,4
Diabetes	23	12,6
Alcoholism	12	6,6

Source: Individual medical history

Moderate (43 %) and high risk (37 %) prevailed in the sample studied (Graf. 1).



**Graf. 1** Cardiovascular Risk Category

23,5 % of the patients showed elevated pulse pressure and of these, 44,2 % had cardiovascular disease (table 3), which was highly significant.

**Table 3:** Hypertensive patients according to pulse pressure and cardiovascular disease.

CARDIOVASCULAR DISEASE	PULSE PRESSURE				TOTAL	
	< 60 MM HG		> 60 MM HG		N	%
	N	%	N	%		
YES	12	8,6	19	44,2	31	16,9
NO	128	91,4	24	55,8	152	83,1
TOTAL	140	76,5	43	23,5	183	100,0

Source: Individual medical records  
X<sup>2</sup> = 29,66 P = 0,00000 P < 0,001

## DISCUSSION

From the sociodemographic point of view, regarding the prevalence of the female sex Paramio Rodríguez A et al.<sup>(5)</sup> presented similar results while other studies show data that are not related to what was presented.<sup>(2,6,7)</sup> Among the non-coincidental Rivera Ledesma et al.,<sup>(6)</sup> point out in their research how the percentage of the male sex was significantly higher than that of the female group, showing also how the average probability of developing a cardiovascular episode was significantly higher in men than in women. Regarding sex, it should be pointed out that most of the studies indicate that the male sex predominates in morbidity until menopausal ages,<sup>(2,6,7)</sup> when the estrogenic protective factor disappears in women, and the possibilities are equal in both sexes after menopause, given that in the sample the postmenopausal ages prevailed, this may have influenced the superiority of the female sex.

In relation to the age factor, it is recognized that age by itself increases the absolute risk of suffering from cardiovascular disease as a result of the progressive accumulation of coronary atherosclerosis.<sup>(6)</sup> González de la Fé et al.,<sup>(7)</sup> in this regard, showed a predominance in older adults similar to that found in the present study.

The findings regarding risk factors are partly consistent with studies such as that of Hierrezuelo Rojas N et al.,<sup>(4)</sup> where sedentary lifestyle and stress predominated; while a study carried out in Holguín by Cobiellas and Anazco<sup>(8)</sup> showed that the magnitude of the estimated risk is higher in smokers and obese people. Internationally, several studies,<sup>(9,10,11)</sup> have shown the strong influence of all these risk factors on the progression of HT and the occurrence of major cardiovascular events.

The stratification of cardiovascular risk by means of scales is a fundamental pillar for making therapeutic decisions in primary health care.

At the individual level, special attention should be paid to those who showed the highest risks, as they deserve priority preventive and health care actions that will lead to their control and better cardiovascular health.

The calculation or determination of CVR is a useful element for assessing the cardiovascular health of subjects and populations. It is necessary to seek strategies to achieve a better acceptance of the recommendations, to induce favorable changes in the individual's lifestyle and to generate public actions to promote health and reduce the levels of risk factors present in the community.<sup>(12,13)</sup>

The evaluation of cardiovascular risk is essential in the Cuban population, because it will contribute to the care and management of the factors that determine it, and will result in the reduction of morbimortality due to cardiovascular diseases, which are the leading cause of death in Cuba.<sup>(14)</sup>

Different studies have shown that the elevation of pulse pressure is a marker of cardiovascular events in both normotensive and hypertensive populations.<sup>(1,15)</sup>

Table 3 shows that about 25 % of the patients had elevated pulse pressure and of these, 44,2 % had cardiovascular disease, which was highly significant.

Indeed, in recent years, pulse pressure has been shown to be an independent marker of cardiovascular risk in processes such as myocardial hypertrophy, coronary heart disease, acute myocardial infarction, heart failure, carotid artery stenosis, ischemic stroke, end-stage renal disease, cardiovascular mortality, including in the normotensive population, and total mortality. The frequency of these complications increases with the increase in pulse pressure.<sup>(15)</sup>

The results obtained have shown that the moderate and high total cardio-vascular risk category predominated in the patients, the sociodemographic characteristics were identified, the risk factors present and the existence of an association between elevated pulse pressure and cardiovascular disease was demonstrated, all of which will make it possible to draw up prevention and control strategies aimed at modifying and/or eliminating the risk factors detected.

### Conflict of Interest

The authors declare that they have no conflicts of interest.

### Contributions of the Authors

**MGH:** conceived and designed the research, participated in writing, revising and editing.

**IMM and KMB:** clinical examination of patients, curation of data, preparation of the database, review of the final version of the study.

**SRN and ATR:** Information search and literature review, clinical examination of patients, statistical processing and review of final version of the study.

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