

## ORIGINAL RESEARCH ARTICLE

# Vulnerability to COVID-19 in older adults with cardiovascular disease

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## ABSTRACT

**Introduction:** The identification of vulnerable population groups through active screening aims to prevent infection through different measures or interventions. **Objective:** To characterize COVID-19 vulnerable older adults with a personal history of cardiovascular disease. **Methods:** An observational, descriptive and cross-sectional study was carried out in the Family Medical Clinic 3 of the University Polyclinic “Manuel Piti Fajardo Rivero” in the province of Las Tunas from March to July 2020. The universe consisted of 90 older adults with a personal pathological history of cardiovascular disease aged 65 years or older, working with all of them. **Results:** Female sex was predominant (70%) and the age group from 65 to 70 (35.6%). According to personal pathological history, 100% of the older adults were hypertensive, and 70% presented cardiovascular diseases other than arterial hypertension. Eighty-five point seven percent of the patients maintained regular therapeutic adherence to the treatments for the underlying diseases. Sixty percent of the patients were compensated during the study period. **Conclusions:** The vulnerable older adults with a history of cardiovascular disease were mainly women. Arterial hypertension was shown to be the main cardiovascular history. Regular therapeutic adherence and compensation of the baseline disease was common in patients.

**Keywords:** severe acute respiratory syndrome; elderly; cardiovascular diseases; risk factors

## 1. Introduction

Since the emergence of COVID-19 caused by SARS-CoV-2 (severe acute respiratory syndrome), first reported in Wuhan, Hubei province, China and declared a pandemic, humanity has been severely threatened<sup>[1]</sup>. As of 21 September 2020, 32,968,853 patients have been confirmed positive for the disease by reverse transcription-polymerase chain reaction (RT-PCR) tests, and 995,836 deaths have been reported, affecting 216 countries, territories or areas according to official data from the World Health Organization<sup>[2]</sup>.

Older adults, as well as those patients suffering from chronic non-communicable diseases, including arterial hypertension (AHT), diabetes mellitus (DM) and chronic renal insufficiency, have been identified as

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the groups most vulnerable to COVID-19<sup>[3]</sup>. In the “Frank País García” Hospital, adults over 60 years of age accounted for 30.43% of the positive cases<sup>[4]</sup>, while in the “Joaquín de Agüero y Agüero” Hospital in Camagüey they accounted for 38.4%<sup>[5]</sup> and in the province of Las Tunas they accounted for 38.8% of the positive cases<sup>[6]</sup>.

The literature and the media report a relationship between the renin-angiotensin-aldosterone system, the use of angiotensin-converting enzyme inhibitors (ACE inhibitors), angiotensin-2 receptor blockers (ARBs) and the pathophysiology of COVID-19. This has led to treatment abandonment and decompensation in patients with arterial hypertension<sup>[7,8]</sup>.

Vázquez-González et al.<sup>[9]</sup> identified advanced age and comorbidities with cardiovascular diseases as predictors of poor evolution in patients with COVID-19 in the Family Medical Clinic 3 of the Manuel Fajardo Rivero Teaching Polyclinic in Las Tunas province.

Establishing continuity with this research, it is necessary for primary care to carry out a survey, personalized care and prevention of older adults with a personal history of cardiovascular disease. Therefore, the present study was developed with the aim of characterizing older adults vulnerable to COVID-19 with a personal history of cardiovascular disease.

## 2. Method

An observational, descriptive and cross-sectional study was carried out in adults over 65 years of age attended at the Family Medical Clinic number 3 of the “Manuel Fajardo Rivero” Teaching Polyclinic in the province of Las Tunas between March and July 2020. The universe consisted of 90 older adults with a personal pathological history of cardiovascular disease who agreed to participate in the research, working with all of them.

For the development of the activity, the variables studied were age, sex, personal pathological history (arterial hypertension, cardiovascular diseases other than arterial hypertension, other history), compensation of the underlying diseases in the study period (decompensated or compensated), therapeutic adherence (adherent or non-adherent), attitude towards the decompensation of the disease (attending health institutions or self-medication).

A data collection form was used to extract information from the medical records. In addition, a semi-structured interview was conducted to extract different data. The data obtained were stored in a database created for this purpose and processed in the SPSS version 21.0 statistical package. Descriptive statistics were used for the statistical analysis of the data, using absolute and relative percentage frequencies.

Informed consent was requested from each patient. Approval was obtained from the Medical Ethics Committee of the “Manuel Fajardo Rivero” Teaching Polyclinic, as well as from the institution's Scientific Council. The principles and recommendations for physicians in biomedical research on human beings adopted in the Declaration of Helsinki were followed in this research.

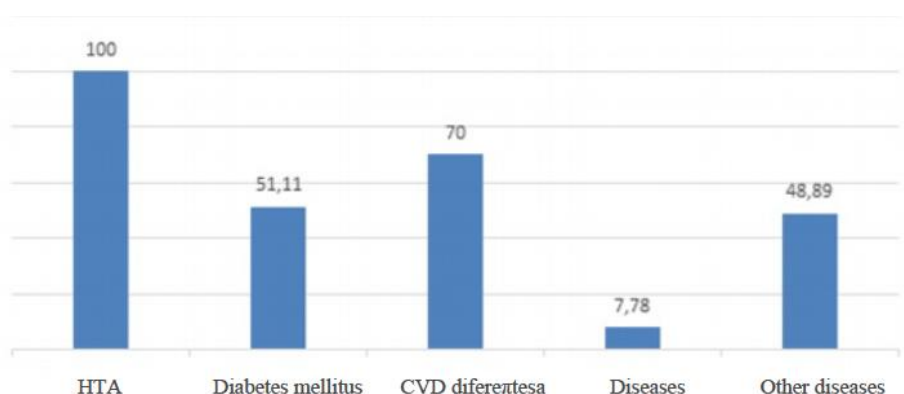
## 3. Results

When analyzing the older adults with a history of cardiovascular disease, we found a predominance of the female sex (70%) and the 65–70 age group (35.6%) (**Table 1**).

100% of the older adults according to personal pathological history were hypertensive, and 70% had cardiovascular diseases other than hypertension (**Figure 1**).

**Table 1.** Distribution according to age and sex of older adults with a history of cardiovascular diseases belonging to the Family Medical Clinic number 3 of the Manuel Fajardo Rivero Teaching Polyclinic in the province of Las Tunas in the period from March to July 2020.

Age	Sex				Total	
	Female		Male		No	%
	No	%	No	%		
65–70	27	30	5	5.6	32	35.6
71–75	9	10	9	10	18	20
76–80	22	24.4	4	4.4	26	28.8
More than 80	5	5.6	9	10	14	15.6
Total	63	70	27	30	90	100



**Figure 1.** Distribution of older adults according to personal pathological history.

85.7% of the patients maintained regular therapeutic adherence to the treatments for their underlying diseases. Sixty percent of the patients were compensated during the study period (**Table 2**).

**Table 2.** Distribution according to therapeutic adherence of the underlying diseases and compensation of the underlying diseases from March to July of the current year.

Compensation of diseases	Regular adherence		Irregular adherence		Total	
	No	%	No	%	No	%
Compensated	46	51.2	8	8.8	54	60
Uncompensated patients attended health institutions	13	14.5	0	0	13	14.5
Uncompensated who self-medicate	18	20	5	5.5	23	25.5
Total	77	85.7	13	14.3	90	100

## 4. Discussion

Attention to at-risk groups in Primary Health Care is one of the guidelines of the Cuban health system, which is intensified in the presence of COVID-19. The constant work of the personnel at this level of care, together with students, personnel associated with health services, and members of the different social sectors, makes it possible to obtain better results in this context.

There are several educational actions that have been added to this task of all the people, in which it has been identified that, in spite of the formative actions that are deployed in the different media, active screening and the work of the family doctor's office are the most effective and accepted<sup>[10]</sup>. Therefore, the development of activities and actions with at-risk groups is invaluable, and should be carried out in a personalized manner and based on the needs of each patient<sup>[3]</sup>.

Díaz-Rodríguez et al.<sup>[11]</sup> designed an educational intervention on the level of knowledge of the COVID-19 in older adults where, once the intervention was applied, they achieved an adequate level of knowledge in 97.62% of the patients. In that study, the age group between 70 and 79 years (38.10%) and the female sex (54.76%) predominated, which differs from the results of the present investigation. This may be due to population differences between the provinces of Havana and Las Tunas<sup>[12]</sup>.

Urquiza-Yero et al.<sup>[6]</sup> found in their study that 11.11% of patients with severe forms of COVID-19 were hypertensive. If comorbidities such as other cardiovascular diseases or thromboembolic disease are also associated, the risk of death increases<sup>[13]</sup>.

Adherence to therapy is a major factor in the effectiveness of medical treatment. Abrupt discontinuation of ACEI/ARB therapy leads to progressive and rapid worsening accompanied by clinical instability<sup>[8]</sup>. Medical evidence suggests maintaining current treatments without drug discontinuation.

The perception of risk and responsibility contribute to a rational approach to this pandemic<sup>[14]</sup>. It is necessary that, in situations of decompensation of diseases, or the appearance of non-specific symptoms, the attitude assumed should not be self-medication, but to immediately go to health institutions. Having a characterization of the risk groups serves as a guide for the basic teams of the family medical offices to plan actions to be developed aimed at guaranteeing a better quality of life for the elderly and strengthening the prevention of the disease.

One of the limitations of the present study was that it did not include an assessment of the cognitive or visual abilities of the older adults that could affect their adherence and their opinion of the medication based on the information circulating about its effect.

It was concluded that the vulnerable older adults with a history of cardiovascular disease were mainly women. Arterial hypertension was shown to be the main cardiovascular history. Regular therapeutic adherence and compensation of the baseline disease was common in patients.

## Conflict of interest

The authors declare no conflict of interest.

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