

## Behavior of acute myocardial infarction in older adults assisted at “Policlínico XX Aniversario”

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### ARTICLE INFORMATION

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AMI: acute myocardial infarction

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### ABSTRACT

**Introduction:** At present, ischemic heart disease is one of the most serious health problems worldwide and also statistically considered the leading cause of death in the developed world.

**Objective:** To characterize the behavior of acute myocardial infarction in older adults.

**Method:** A retrospective descriptive study was carried out on 62 elderly belonging to the health area of the «Policlínico XX Aniversario» from Santa Clara, Cuba, who were discharged from hospital with a diagnosis of acute myocardial infarction. Main variables were risk factors, myocardial infarction location, and complications.

**Results:** There was a male predominance of (62.9%), age group between 60 and 69 years (59.7%). There was greater account of patients from the «Condado Sur» Family Doctor's Office (41.9%). Cardiovascular risk factor most frequently found was hypertension (53.2%), with significant difference ( $p < 0.05$ ), followed by alcoholism (35.5%) and obesity (29.0%). Inferior infarction was the most common, found in 24 patients (38.7%); followed by antero-septal (22.6%) and anterolateral (21.0%). Pump failure was diagnosed in 24 patients (38.7%), which represents a statistically significant difference ( $p = 0.01$ ), followed in frequency by electrical complications.

**Conclusions:** Males and age group between 60-69 years predominate. High blood pressure, as risk factor, inferior location of infarction, and pump failure as complication, were the most frequently found.

**Key words:** Acute myocardial infarction, Elderly, Risk factor

### *Comportamiento del infarto agudo de miocardio en adultos mayores atendidos en el Policlínico XX Aniversario*

### RESUMEN

**Introducción:** La cardiopatía isquémica constituye, en la actualidad, uno de los problemas de salud más serios a nivel mundial; es considerada estadísticamente la primera causa de muerte en el mundo desarrollado.

**Objetivo:** Caracterizar el comportamiento del infarto agudo de miocardio en adultos mayores.

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**Método:** Se realizó una investigación descriptiva retrospectiva con los 62 adultos mayores pertenecientes al área de salud del Policlínico XX Aniversario de la ciudad de Santa Clara, Cuba, que fueron egresados del hospital con el diagnóstico de infarto agudo de miocardio. Las variables fundamentales fueron los factores de riesgo, la localización del infarto y sus complicaciones.

**Resultados:** Predominaron los hombres (62,9 %) y el grupo de edad entre 60 y 69 años (59,7 %). Hubo mayor representación de los pacientes del Consultorio de Condado Sur (41,9 %). La hipertensión arterial fue el factor de riesgo cardiovascular más frecuentemente encontrado (53,2 %), con diferencia significativa ( $p < 0,05$ ), seguido por el alcoholismo (35,5 %) y la obesidad (29,0 %). El infarto inferior fue el más prevalente, encontrado en 24 pacientes (38,7 %); seguido por el ántero-septal (22,6 %) y el ántero-lateral (21,0 %). El fallo de bomba fue diagnosticado en 24 pacientes (38,7 %), lo que representa una diferencia estadística muy significativa ( $p = 0,01$ ), y le siguieron en orden de frecuencia las complicaciones eléctricas.

**Conclusiones:** Existió un predominio del sexo masculino y del grupo de edad entre 60-69 años. La hipertensión arterial, como factor de riesgo, la topografía inferior del infarto y al fallo de bomba, como complicación, fueron los más frecuentemente encontrados.

**Palabras clave:** Infarto agudo de miocardio, Adulto mayor, Factor de riesgo

## INTRODUCTION

Aging is not an exclusive phenomenon of modern societies; it has been present in all stages of social and human development and has always been of interest to philosophers, doctors and artists. However, during the past century we witnessed a unique situation because more people come to what has been called "old age stage" which has shifted from being a privilege for just some people to be also an opportunity for others, so population aging becomes a challenge for modern societies<sup>1,2</sup>.

Since the beginning of this age, world population has had an upward trend of progressive and faster growth; however, when analyzing current population changes, growth rate varies in different latitudes, some grow quickly, while others do it slowly; these differences are related to economic and social development levels<sup>2,3</sup>. Thus, the group of people aged 60 years and over has the fastest growing in the world<sup>3,5</sup>. It is known that about 50 years ago this sector of the population was estimated at 215 million and it was predicted that in the early years of this century more than 30% of the total population in many countries would consist of senescent and elderly<sup>6-8</sup>.

Around six diseases coincide in the elderly, although regular doctors may not be aware of half of them. An organic system disease weakens another system, which causes deterioration on both, leading

up to illness, dependency, or even death if not interrupted or modified. This accumulation of multiple diseases gets worse resulting from social problems, emotional vulnerability and low purchasing power. Older people have qualitatively different health needs<sup>9</sup>. It is important to study the elderly, specifically those conditions related to the cardiovascular system, because of the consequences of ischemic episodes at this stage of life.

Santa Clara city holds one of the first places in deaths from ischemic heart disease associated with multiple risk factors and age, which stands out as one of the most important, because it is the province with the largest aging population in the country<sup>10</sup>. According to statistical reports which assert these results, the need to influence on the risk factors associated with this stage of life and also identify their frequency and impact, is assumed. Hence the present work's objective has been to characterize the behavior of acute myocardial infarction (AMI) in older adults from the "XX Aniversario" Polyclinic.

## METHOD

A descriptive retrospective research was conducted with 62 older adults belonging to the "XX Aniversario" Polyclinic-health-area in Santa Clara, Cuba,

who were discharged alive from hospital with AMI diagnosis, according to the eighth and ninth International Classification of Diseases in a period of one calendar year.

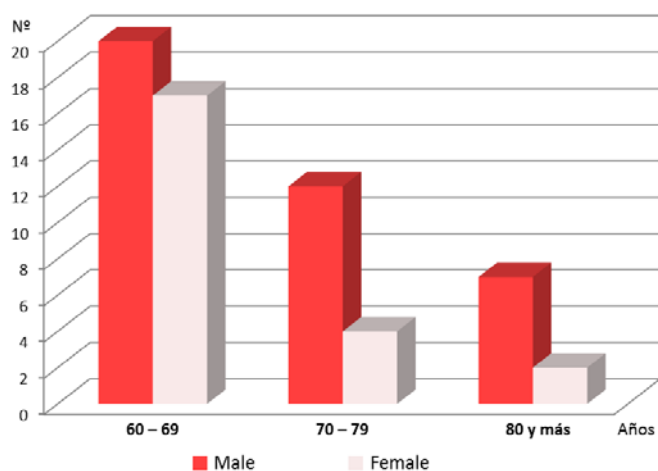
Data for analysis was collected from the logbook in the Polyclinic statistics department and medical records. Home visiting, together with patients' dispensarization data were also taken into account.

A form, containing the variables of interest for the study, which included age, sex, cardiovascular risk factors, topography of infarction, and hospital complications was made.

The information was organized in a database and processed using SPSS version 13 for Windows.

## RESULTS

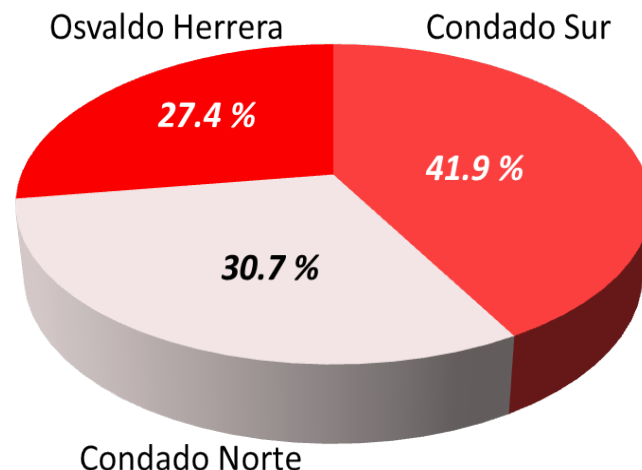
General distribution of older adults with acute myocardial infarction (**Figure 1**) shows predominance in males (62.9%) and the age group between 60 and 69 years (59.7%). Male sex predominated in all age groups and was underrepresented by aged 80 and older patients.



**Figure 1.** Distribution of older adults with AMI, by sex and age groups.

**Figure 2** shows the grouping of patients according to the family doctor's office they belong to. "Condado Sur" patients were most represented

(41.9%) with similar numbers in "Condado Norte" (30.7%) and "Osvaldo Herrera" (27.4%).



**Figure 2.** Distribution of patients, according to the doctor's office by residential areas.

Hypertension (53.2%) was the most frequently found risk factor (**Table 1**) with a significant difference from the rest ( $p < 0.05$ ), followed by alcoholism (35.5%), and obesity (29.0%).

**Table 1.** Cardiovascular risk factors present in older adults with AMI (n=62).

Risk factors	Nº	%
HT *	33	53,2
Alcoholism	22	35,5
Obesity	18	29,0
Diabetes mellitus	12	19,4
Smoking	10	16,1
Sedentary lifestyle	8	12,9
Dyslipidemia	7	11,3
HT from FMH	3	4,8

\* $p < 0,05$

FMH, family medical history; HT hypertension.

**Table 2.** Topographical location of AMI.

AMI location	Nº	%
Inferior	24	38,7
Anteroseptal	14	22,6
Anterolateral	13	21,0
Large anterior	7	11,3
Other	4	6,4
Total	62	100

**Table 3.** Most frequent complications (n=62).

Complicación	Nº	%
Pump failure*	24	38,7
Atrial Fibrillation	17	27,4
Ventricular tachycardia	8	12,9
Atrioventricular block	4	6,4
Ventricular fibrillation	3	4,8
Other	9	14,5

\*p=0,01

Inferior infarction (**Table 2**) was the most prevalent, found in 24 patients (38.7%); followed by anteroseptal (22.6%), and anterolateral (21.0%).

Pump failure, defined as Killip-Kimball class II and III, was diagnosed in 24 patients (38.7%), which represents a statistically significant difference ( $p=0.01$ ) compared to the rest of the complications found. Electrical complications followed as most frequent (**Table 3**) as well as other including fever, postinfarction angina, respiratory and urinary infections, and episthenocardiac pericarditis.

## DISCUSSION

According to provincial statistics, older population groups have similar behavior concerning this type of

disease, where the largest numbers belong to early stages of geriatric age and the lowest to long lived groups<sup>5,8,9</sup>.

It is evident that the possibility of ischemic heart disease increases with age due to the effect of risk factors' impact for years which makes these patients more subject to acute ischemic episodes<sup>11</sup>. At this stage of life, age-like changes are experienced, non-communicable chronic diseases increase and a health decline is added, among other things, by the corresponding organic and psychological immunosuppression<sup>11-13</sup>; in addition, some statistics suggest that men age faster than women<sup>10</sup>.

It is important to say that working conditions, stress, and living standards favor the onset of ischemic episodes. Unlike men, women achieve greater life expectancy, which may be caused by the greater exposure of men to stress and toxic lifelong substances, which explains a higher proportion of acute coronary syndrome at earlier geriatric age in this sex<sup>14</sup>. It has also been observed in practice that, unlike what is generally recorded in literature, women from this area come more quickly to the doctor in any suggestive symptoms of myocardial ischemia, probably due to the high level of health education achieved in this municipality, allowing earlier diagnosis than in men<sup>2,15</sup>. In addition, they are more disciplined when attending scheduled visits and therapeutic adherence<sup>16</sup>.

Geographical distribution as well as industrial development characteristics in this municipality of Villa Clara, justify the increased number of patients at the doctor's office in "Condado Sur".

Our results are consistent with other studies carried out in this health area, showing similar behavior<sup>9,15,17,18</sup>.

Cardiovascular risk factors found in this study correspond to those recognized as predictors of coronary disease in other investigations<sup>15,18,19</sup>.

High occurrence of pump failure is attributed to the great number of patients with previous heart attacks, when summing up, it is perceived that 34 patients had some type of AMI included within the ischemic area, the anterior wall of the left ventricle. The absence of patients with cardiogenic shock (Killip-Kimball IV) respond to the disease's high mortality rates, which is why most of those who suffer it are not discharged alive from hospital because this is an hemodynamic instability situation with a very high mortality, despite some advances in its treatment<sup>8,19,20</sup>; and therefore, they were not included at this stage of research.

## CONCLUSIONS

Among older adults discharged from hospital with AMI diagnosis, males and the age group between 60-69 years predominated. Hypertension was the most prevalent risk factor. Inferior myocardial infarction and pump failure as a complication, were the most frequently found.

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