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Research Article

Clinical and Epidemiological Characterization of Patients Discharged with Acute Myocardial Infarction

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Abstract

Introduction: Ischemic heart disease has a worldwide prevalence of approximately 78 million cases, of which 7.3 million are related to acute myocardial infarction (AMI). This remains one of the main causes of morbidity and mortality globally, especially in young men under 50 years of age.

Objective: To characterize, from a clinical-epidemiological point of view, patients with acute myocardial infarction discharged from the Camilo Cienfuegos General Hospital in Sancti Spíritus.

Methods: A descriptive and cross-sectional study was carried out on patients with acute myocardial infarction who were graduated from the Camilo Cienfuegos General Hospital of Sancti Spíritus, in the period between January 2021 and December 2022. The sample was made up of 26 graduates who met the inclusion criteria.

Results: Intense chest pain (84.61%) and the feeling of death (80.76%) were the main symptoms presented in the graduates. The male sex (57.59%) had a greater predominance than the female sex (42.30%). The age group with the greatest relevance was those aged 70 and over (46.66%).

Conclusions: With the data obtained, it was possible to characterize the patients with AMI discharged from the Camilo Cienfuegos General Hospital in Sancti Spíritus, Cuba, where the non-modifiable risk factors that prevailed were age and male sex.

Kew Words: clinical epidemiological characterization; discharged patients; acute myocardial infarction

Introduction

Coronary artery disease (CAD) is one of the leading causes of death worldwide and is highly prevalent in industrialized countries. This pathophysiology is caused by fatty plaques that gradually or suddenly obstruct the coronary arteries. Consequently, the cells of the heart muscle (myocardium) receive less blood flow with oxygen and nutrients. [1].

Acute myocardial infarction (AMI) remains a leading cause of morbidity and mortality worldwide, particularly in young men under 50 years of age. Despite the decline in AMI prevalence in older populations, younger men have not experienced the same trend, suggesting the need for further investigation of the clinical characteristics and risk factors associated with this population. [2]

In this context, the focus is on the comparison between acute myocardial infarctions occurring in the hospital and those occurring outside the hospital setting. A study based on the Saxony-Anhalt Regional Myocardial Infarction Registry reveals that the majority of infarctions in the hospital are non-ST-type (NSTEMI), which contrasts with the traditional approach that has placed greater emphasis on ST-type infarctions (STEMI). [3]

Ischemic heart disease has a worldwide prevalence of approximately 78 million cases, of which 7.3 million are related to acute myocardial infarction, which also has a high mortality rate. Consequently, treatment of patients with acute myocardial infarction, when performed in an inadequately managed setting, increases morbidity and mortality rates.[4]

Acute myocardial infarction is a very common clinical occurrence in developing countries. In the United States, approximately 660,000 patients suffer from AMI, and another 305,000 patients present with clinical symptoms of recurrent AMI. Approximately 50% of deaths related to acute myocardial infarction occur before the patient arrives at the hospital emergency room. It is worth mentioning that the mortality rate from acute myocardial infarction has increased in the last decade, falling from 10% to 5%. This mortality rate is four times higher in patients over 75 years of age compared to younger age groups.[5]

In Cuba, at the end of 2021, heart disease ranked first with a rate of 238.1 per 100,000 inhabitants, followed by death from malignant tumors, whose rate was 223; both causes accounted for 47.5% of total deaths for the year. 61.3% of deaths from heart disease occurred from ischemic diseases, of which 44.2% were from acute myocardial infarction. By sex, the male mortality rate (14,355 deaths) is 1.2 times higher for heart disease than in women.[6]

Chest discomfort at rest is the most common symptom of acute coronary syndromes and affects approximately 79% of men and 74% of women, although approximately 40% of men and 48% of women present with nonspecific symptoms, such as dyspnea, alone or, more commonly, in combination with chest pain.[7]

The clinical and epidemiological characterization of patients with acute myocardial infarction has been the subject of several recent studies, providing valuable information on the risk factors, treatments, and outcomes associated with this condition. Therefore, this study aims to characterize patients with acute myocardial infarction discharged from the Camilo Cienfuegos General Hospital in Sancti Spíritus from a clinical and epidemiological perspective.

Methods

Was carried out in patients with acute myocardial infarction who were discharged from the Camilo Cienfuegos General Hospital in Sancti Spíritus, between January 2021 and December 2022. The universe consisted of all patients who were discharged alive from said center with a diagnosis of acute myocardial infarction between January 2021 and December 2022. The sample consisted of 26 graduates who met the inclusion criteria through simple random sampling. To address our objective, an instrument was developed that captured the variables selected for the research, including age and sex, presenting symptoms, risk factors, personal medical history, nutritional assessment, and smoking habits (numbers and percentages). Some data were also obtained from the medical records of graduates from the General Hospital. The data were manually processed and tabulated using the individual headcount method. The data obtained were presented in tables, which allowed for comparative analysis with other studies.

The research was approved by the Research Ethics Committee and the Scientific Council of Camilo Cienfuegos General Hospital and the University of Medical Sciences of Sancti Spíritus. The graduates signed an informed consent form to accept their participation in the study, as well as the consent of their families in a written document. The authors agreed that the information obtained would be used solely for research purposes, without revealing the graduates' personal information.

Results

It is shown that the male sex (57.59%) had a greater predominance than the female sex (42.30%). The most relevant age group was 70 years and older (46.66%) (Table 1).

Agegroup	Sex				Total	
	Male		Female			
	No.	%	No.	%	No.	%
Under 49 years old	1	6.66	1	9.09	2	7.69
From 50 – 59 years old	2	13.33	2	18.18	4	15.38
From 60 to 69 years old	5	33.33	2	18.18	7	26.92
70 and over	7	46.66	6	54.55	13	50
Total	15	57.59	11	42.30	26	100

Source: graduate survey

Table 1: Patients discharged with acute myocardial infarction diseases according to age and sex

Intense precordial pain (84.61%) and the feeling of death (80.76%) were the main symptoms presented by the graduates (Table 2).

MainSymptoms	No.	%
Severe precordial pain	22	84.61
Fainting or fainting	3	11.53
Nausea, vomiting	12	46.15
Sweating, coldness	18	69.23
Feeling of death	21	80.76
Pallor	17	65.38

Source: graduate survey

Table 2: Patients discharged according to the symptoms presented

In the nutritional assessment of the graduates, overweight predominated (69.23%), followed by normal weight (26.92%). Smokers were particularly prominent in this group of graduates (65.38%) (Table 3).

Nutritional Assessment	No.	%
Underweight	1	3.84
Normal weight	7	26.92
Excessive weight	18	69.23
Total	26	100
Smoking habit	**No.**	**%**
Non-smokers	9	34.61
Smokers	17	65.38
Total	26	100

Source: graduate survey

Table 3: Patients discharged with acute myocardial infarction according to nutritional evaluation and smoking habit

Age over 60 years (76.92%) was the most prevalent risk factor, followed by obesity (69.23%). Among the personal medical history, dyslipidemia (40%) was the most common type of discharge, followed by ischemic heart disease (26.66%) (Table 4).

Riskfactors	No.	%
Age over 60 years	20	76.92
Male gender	15	57.69
Smoking habit	17	65.38
Personal pathological history	15	57.69
Family pathological history	6	23.07
Obesity	18	69.23
Sedentary lifestyle	9	34.61
Personal pathological history	**No.**	**%**
High blood pressure	2	13.33
Ischemic heart disease	4	26.66
Diabetes mellitus	1	6.66
Dyslipidemias	6	40
Cerebrovascular disease	2	13.33
Total	15	100

Source: graduate survey

Table 4. Patients discharged according to risk factors and personal pathological history

Discussion

The high prevalence and incidence of ischemic heart disease, including acute myocardial infarction among others during the hospital phase, is found with rising figures, which leads to propose that clinical, echocardiographic and therapeutic elements have a fundamental role or are identified as possible factors in the appearance of acute complications of acute myocardial infarction during hospitalization. [8]

In our study, patients aged 70 and older, males, and those with a history of dyslipidemia and ischemic heart disease predominated. Severe chest pain and a feeling of death were the main symptoms experienced by discharged patients. Excessive weight and smoking were highly prevalent among the study subjects. Negative risk factors included age over 60 years, obesity, and smoking.

Several investigations have characterized this problem that affects the health sector worldwide, among them we find the study carried out by Sánchez et al.,[9]where he characterized 38 cases diagnosed with acute myocardial infarction evaluated in the Medical Emergency Service of the Carlos Enrique Font Clinical and Surgical Teaching Hospital in Banes, Holguín province, Cuba. In the results obtained, the male sex prevailed in 63.1%, the age group from 60 to 69 years was the most affected with 31.6%. The painful acute myocardial infarction was 71.1%. The risk factors with the highest incidence for both sexes were arterial hypertension (30%), history of cardiovascular disease (24%) and diabetes mellitus (23%).

On the other hand, Cecilia et al.,[10]in their study described 70 patients admitted with a diagnosis of acute myocardial infarction at the Abel Santamaría Cuadrado General Teaching Hospital in Pinar del Rio, Cuba, during the period from June to August 2019 in the Coronary Intensive Care Unit. In the results, there was a predominance of the female sex with 51.4%, the most affected age group was 56 to 67 (32.9%) years. 33.3% of the patients presented high blood pressure as a risk factor, the predominant symptom was precordial pain with 75.7%, the latter coincides with our studies, not so in the other results obtained in the research.

In Vinhatico and Díaz, [11] characterized 24 patients who presented a diagnosis of AMI and were treated in the Internal Medicine and Emergency services of the Caazapá Regional Hospital in Paraguay during the period from January to December 2021. It was observed that the male sex was the most affected with 66.6%, and the age group of 51 to 60 years representing 70.83%. High blood pressure prevailed among the other risk factors with 70.83%, followed by smoking habit and obesity with 25% respectively, with smoking habit being similarly prevalent in our study.

Bonilla et al.,[12]studied 423 patients diagnosed with acute coronary syndrome with ST-segment elevation admitted to the Coronary Care Unit of the Enrique Cabrera General Teaching Hospital in Havana, from September 2018 to September 2021. A predominance of the male sex was observed (71.2%) and the prevailing age group was 51 to 60 years (31.44%) with 133 patients. 74.2% of the patients had arterial hypertension and 62.2% were smokers, where our study coincides in smokers. Heart failure, hypotension and pericarditis were presented as the most frequent complications.

Martínez et al.,[13]analyzed 102 records of patients diagnosed with acute myocardial infarction with ST-segment elevation from the National Medical Center, National Hospital of Itauguá, Paraguay, during the period 2021-2023. 68% were male, precordial pain (85%) was the predominant reason for consultation, as in our research. Arterial hypertension was a risk factor (91.17%) with a higher number of patients (93), influencing these being males (88%).

Alberna et al.,[14] identified 43 patients admitted to the Cardiology Ward at the Dr. Antonio LuacesIraola Provincial General Teaching Hospital in the province of Ciego de Ávila, Cuba, between July 2016 and June 2019. In most patients, the predominant risk factors were arterial hypertension (90.7%) and diabetes mellitus (62.8%), the age group between 60 and 69 (48.8%) years and male sex (51.7%). The most frequent form of presentation was chest pain (86%), where our study coincides with this form of presentation.

Enamorado et al.,[15] analyzed 138 patients admitted for Acute Myocardial Infarction with ST-segment elevation, in the Cardiology Service of the Celia Sánchez Manduley Hospital in Manzanillo, Cuba, in the period between January and December 2019. The male sex had a greater representation (59.8%), as well as the 60 to 69 age group (31.8%).

Toledo et al.,[16] characterized 254 patients discharged alive and deceased from Dr. Carlos Juan Finlay Hospital with a diagnosis of AMI in the period from January 2014 to December 2018. The most affected age group was 60 to 69 (28.3%) years, followed by 70 to 79 (27.2%) years, male sex (52%) predominated over female. 69.3% (176) were discharged alive, the main risk factors associated with AMI were dyslipidemia, previous AMI, smoking and arterial hypertension.

Del Toro et al.,[17] studied 260 patients treated at the Abel Santamaría Hospital Cuadrado de Pinar del Rio, Cuba, between January and December 2021. A predominance of male patients (66.9%) and the age group of 61 to 70 (35%) years of age was found. Valladares et al.,[18] described 169 subjects with a discharge diagnosis of ST-segment elevation acute myocardial infarction at the Comprehensive Heart Care Unit, the Polyvalent Intensive Care Unit, and the Clinical Intensive Care Unit of the Dr. Gustavo Aldereguía Lima University General Hospital in Cienfuegos, Cuba, during the period from July 1, 2020, to June 30, 2021. The male sex (61.5%) had the highest incidence, as did active smokers (39.1%). The predominant pathological history in these patients was arterial hypertension (65.1%) and type 2 diabetes mellitus (22.5%).

Pérez et al.,[19] conducted a study on 70 patients diagnosed with AMI, with reviewed medical records, who were discharged alive from the Intensive Care Units of the Julio Trigo López Clinical-Surgical Teaching Hospital in the Arroyo Naranjo municipality of Havana, Cuba, during the period from 2021 to 2022. The male sex (71.42%) was the most affected, the age group with the majority of patients discharged with AMI was 70 years and older with 52.9%. In the risk factors that predispose to the appearance of AMI, it was found that 97.1% were grouped into those over 50 years of age (97.1%), followed by high blood pressure (78.6%) and sedentary lifestyle (52.9%). The habit of smoking was present in 42.9% of patients. In the analysis of almost all the research by the aforementioned authors, we agree that the male gender predominates among the patients characterized. This is due to several factors, including biological, hormonal, and lifestyle differences. However, it is important to note that the risk of heart attack in women increases after menopause, which may even out the figures at older ages.

Conclusions

With the data obtained, it was possible to characterize patients with AMI discharged from the Camilo Cienfuegos General Hospital in Sancti Spíritus, Cuba, where the non-modifiable risk factors that prevailed were age and male sex, the modifiable ones were related to smoking and obesity, as well as personal pathological history as controllable risk factors, within these, dyslipidemias and ischemic heart disease were very important, with symptoms of precordial pain, sensation of death and pallor.

Conflict of interest

The authors declare no conflicts of interest related to the study.

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