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EPIDEMIOLOGICAL PROFILE OF PATIENTS WITH ACUTE MYOCARDIAL INFARCTION: A LITERARY REVIEW

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ABSTRACT

Acute myocardial infarction (AMI), also known as a "heart attack", consists of necrosis of the heart muscle resulting from ischemia. Objective: The objective of this study was to identify the epidemiological profile of individuals affected by AMI. Methodology: The method used was the integrative literature review (RIL) of quantitative and descriptive approach with data collection in the database on the platforms: Lilacs, Medline and Scielo. Results: A total of eleven articles that met the pre-established inclusion criteria were analyzed in this RIL. Discussion: the most present risk factors are: systemic arterial hypertension (SAH), overweight / obesity, alcohol consumption, sedentary lifestyle, smoking habits, family history and stress. Male patients represented the majority of the total individuals, people between 50 and 60 years are the most affected, and individuals of the white color are the most susceptible. Final considerations: The study showed that the majority of the individuals are men of higher age, of the white race, with bad habits of life and carriers of HAS and DM.

INTRODUCTION

Myocardial infarction (MI), also known as "heart attack", consists of necrosis of the cardiac muscle that results from ischemia. Although it can occur at almost any age, the frequency of MIs progressively increases with increasing age and atherosclerotic risk factors. However, approximately 10% of MIs occur before age 40, and 45% occur before age 65. IMs affect whites and blacks equally. Men are at significantly higher risk than women, but the difference between genders gradually decreases with increasing age (Kumar, Abbas, Aster, 2013). Cardiovascular diseases play a leading role among the causes of morbidity and mortality, with Acute Myocardial Infarction (AMI) being the main cause of death in developed and developing countries, corresponding to more than 30% of deaths in Brazil (Jesus, Campelo, Silva, 2013). Acute Myocardial Infarction (AMI) is responsible for 6 to 10% of deaths in Brazil. It is estimated in 300 thousand to 400 thousand annual cases, that is, in each 5 to 7 cases there is 1 death. Over 50% of these deaths occur suddenly, before the patient arrives at the hospital, that is, in the pre-hospital phase, with 40% to 65% in the first hour of symptom onset and approximately 80% in the first 24 hours (Figueiredo *et al*, 2013). Cardiovascular diseases (CVD) affect a large part of the Brazilian population, among them Acute Myocardial Infarction (AMI) is the main cause. Data from the Informatics Department of the Unified Health System (DATASUS) in 2013 reveal that AMI was the main cause of death from heart disease in Brazil, with an increase of 48% between 1996 and

2011. "If this trend persists, the prediction is that AMI will become the main single cause of death in 2020" (Schmidt *et al*, 2015). Characterized by an ischemic lesion in the cardiac muscle tissue, after thrombosis or vasospasm on an atherosclerotic plaque, Acute Myocardial Infarction occurs due to intrinsic factors, such as sex, age, race and genetics and extrinsic factors, such as the lifestyle that includes sedentariness , poor diet, smoking and drinking and comorbidities such as high blood pressure, obesity, dyslipidemia and diabetes mellitus (Paz, Peres, 2016). Regarding the risk factors that involve AMI, they can be classified as non-modifiable, such as age, sex, race and family history of atherosclerotic diseases, that is, these the individual cannot reverse; or as modifiable, those in which the individual, through lifestyle changes, is able to revert, among them are dyslipidemia, obesity, smoking, diabetes, physical inactivity and stress (Alves *et al*, 2017). This study aimed to show current data on an important national and global health problem through an updated systematic review of research published in the last 5 years and to point out the real situation of cardiac health of the Brazilian population and to outline the epidemiological profile of individuals affected by this pathology. The methodology used was the integrated literature review through an automatic search in databases in the last five years.

MATERIALS AND METHODS

The method used was the integrative literature review (RIL) with a quantitative and descriptive approach that aims to identify the epidemiological profile of patients suffering from acute myocardial infarction through Brazilian scientific publications. An integrative review is a specific method, which summarizes the past of empirical or theoretical literature, to provide a more comprehensive understanding of a particular phenomenon. This research method aims to provide an analysis of the knowledge already built in previous research on a given topic. The integrative review allows the synthesis of several studies already published, allowing the generation of new knowledge, based on the results presented by previous research (Mendes, Silveira, Galvão, 2008).

The elaboration of the work consists of the following phases: elaboration of the guiding question; search or sampling in the literature; data collect; critical analysis of the included studies; discussion of results; presentation of the integrative review (Souza, Silva, Carvalho, 2010). The data survey was obtained through online search of national scientific productions, from 2013 to 2018, in the database of the Virtual Health Library (VHL) on the platforms: LILACS (Latin American Literature in Health Sciences)), MEDLINE (Medical Literature Analysis and Retrieval System Online) and Scielo (Scientific Electronic Library Online), searches were also performed on Google Scholar. To survey the productions, we used the following descriptors: "Epidemiological profile"; "Acute myocardial infarction" and "infarcted patients". First, the descriptors were searched separately, when confirming the large collection of articles with different contextualizations, the research was carried out in a cross-sectional way, using the following proposition: "Epidemiological profile" AND "Acute myocardial infarction" AND "infarcted patients." . The search resulted in a total of 15 articles. The inclusion criteria used were: full-text articles, published during the years 2013 to 2018, indexed in the LILACS, MEDLNE and CIELO databases. The exclusion criteria were articles that did not meet the objectives of the study. An instrument was used to collect the information in order to answer the objective of this review, consisting of the following items: Author / year of publication, title, method / type of study, objective of the study and main results. From the data collection, it was noted that only eleven articles were relevant to the research, meeting the pre-established inclusion criteria.

RESULTS

In the present RIL, a total of eleven articles that met the pre-established inclusion criteria were analyzed. Among the articles included, one was published in 2013, another in 2014, one in 2015, two in 2016, two in 2017, and four in 2018. Table 1 below presents an overview of the articles selected for the study. Of the 11 studies selected for the integrated literature review in this work, 7 of them sought to trace the clinical, epidemiological, and clinical epidemiological profile of patients suffering from AMI.

Table 1. Presentation of the synthesis of articles included in the integrative review (To be continued)

Author/ Year	Title	Kind of study	Goal	Results
Ribeiro et al/ 2013	Epidemiological profile of patients with disorders Cardiovascular assisted in the emergency room of a hospital University	Epidemiological study retrospective study, in which 287 medical records were consulted. The data were recorded in a structured form, analyzed using descriptive statistics and discussed descriptively.	Characterize patients with cardiovascular disorders seen in the emergency department of a university hospital in northern Paraná.	The results reveal that it is necessary to plan interventions aimed at preventing diseases cardiac conditions, decreased comorbidities, early treatment to reduce the health problems and promote the health of the population.
Almeida et al/ 2014	Comparison of the Clinical-Epidemiological Profile between Men and Women in Acute Coronary Syndrome	The clinical and epidemiological profile of 927 patients (60.0% men) was evaluated, with a mean age of 67.0 ± 12.0 years with a diagnosis of the syndrome acute coronary disease (ACS), admitted to the coronary artery of a hospital in the supplementary reference in cardiology in the city of Recife, PE, Brazil, in the period from September 2009 to December 2012.	Analyze and compare the clinical-epidemiological profile of men and women in the syndrome acute coronary artery disease.	Women with ACS had a higher prevalence of systemic arterial hypertension and physical inactivity and a higher occurrence of adverse outcomes, indicating the need to intervene earlier and encourage control over risk factors, aiming to reduce complications and hospital mortality.
Soriano et al/ 2015	Profile of patients suffering from acute myocardial infarction admitted to a unit coronary artery disease in Belo Horizonte	This is a descriptive study, with a quantitative approach. Were 158 medical records of patients with admission diagnosis of Acute Myocardial Infarction were analyzed.	This study aimed to describe the profile of hospitalized patients suffering from acute myocardial infarction in a coronary care unit, of a university hospital in Belo Horizonte, characterizing them according to age,sex, color, religion and naturalness.	Most patients were aged between 50 and 59 years (35%), were male (65%) and came from the interior of the State of Minas Gerais (47%). As for color, most patients declared themselves to be color brown (39%), as for religiosity, in 86% of medical records did not contain this information.

Marino et al/ 2016	Epidemiological Profile and Quality Indicators in Patients with Acute Coronary Syndrome in the Northern Region of Minas Gerais - Minas Telecardio Project 2.	Prospective observational study of patients with ACS admitted between June 2013 and March 2014 at the six emergency doors of Montes Claros and followed up until hospital discharge.	The aim of this study was to describe the profile of cases of acute coronary syndrome (ACS) treated in the period preceding the implementation of the program.	A low reperfusion rate was observed in patients with STEMI and limited adherence to the recommended treatments to approach ACS in the Expanded North Region of MG. These observations provide opportunities for improving health care.
Mertins et al/ 2016	Prevalence of risk factors in patients with acute myocardial infarction myocardium	Quantitative, descriptive and cross-sectional study, carried out in the period included April 25th to June 25th 2012 with 48 patients. The variables of interest for this study were sociodemographic conditions, anthropometric data, eating habits and health factors. cardiovascular risk.	Identify the prevalence of risk factors in patients with acute myocardial infarction, admitted to a Coronary Intensive Care a hospital in the northwest region of the state of Rio Grande do Sul Brazil.	The data presented show the high prevalence of risk factors risk in patients who had an acute infarction of the myocardium and direct us to understand the role of health education as a strategy to reduce the causes of morbidity and mortality, in addition to proposing actions of care and self-care and changes in habits of life.
Koerich et al/ 2017	Epidemiological profile of the population undergoing cardiac revascularization and access to the single health system	Descriptive, cross-sectional study, sample of 99 participants, between March 2013 and February 2014. Regarding the profile, 70 (70.7%) men, 61 (61.6%) married, 53 (53.5%) retired, 86 (86.9%) from the metropolitan area, with an average age of 61.3 ($\pm$ 8.5) and an average of six years of schooling ($\pm$ 3.4), the prevalent comorbidities were Systemic Arterial Hypertension 84 (84.8%) and Diabetes Mellitus 42 (42.4%).	Objective of this study was to describe the epidemiological profile of a population undergoing cardiac revascularization and to understand how this population accesses health services for promotion, prevention, treatment and rehabilitation.	Regarding Access to health services, 49 (49.4%) accessed the hospital and 31 (31.3%) the Basic Health Unit. There is a need for strategic actions that facilitate access and monitoring of this population to services health care, especially in primary health care, before and after cardiac revascularization.
Bordoni et al/ 2017	Deaths from Acute Myocardial Infarction in the Legal Medical Institute of Belo Horizonte, 2006 - 2012	A descriptive and retrospective study was conducted in which deaths were assessed arising from autopsied AMI at IML-BH in the period between the first from January 2006 to thirty-one December 2012.	This research aimed to analyze the profile epidemiological profile of deaths from AMI at the Instituto Médico Legal de Belo Horizonte, in Minas Gerais In the period from 2006 to 2012.	In the 213 AMI reports studied, men, aged 40 years or over, brown, who lived alone and were inactive from an occupational point of view. Only 12 cases were younger than 40 years and there were no deaths among children under 18.
Silva et al/ 2018	Epidemiological and clinical profile of patients with acute coronary syndrome	Quantitative, cross-sectional and exploratory study, in which 367 records were analyzed. The data were recorded in a structured form to identify the sociodemographic data and analyzed using the SPSS Program - version 16.0, using descriptive statistics by means and relative and absolute frequencies.	To identify the epidemiological profile, clinical evolution and outcome of patients seen with a diagnosis of Acute Coronary Syndrome in an emergency room	Mean age was 62.1 years and male, white and married were predominant. The prevalence of acute myocardial infarction was 84.5%, diagnosed by electrocardiogram, echocardiogram and serial cardiac enzymes. The most frequently used treatments were antiplatelet drugs (64.3%), cardiac catheterization (65.4%) and percutaneous coronary intervention (27.2%). Most were discharged from the hospital, but the mortality rate was 13.2%.
Medeiros et al/ 2018	Mortality from acute myocardial infarction	Quantitative, descriptive, exploratory, ecological time series study, with the population aged 30 to 59 years in the regions of Brazil, in the period from 2008 to 2016, according to data in the Department of Informatics of the Unified Health System	Describe mortality from acute myocardial infarction.	There were high mortality rates due to acute myocardial infarction in men and women between 30 and 59 years of age. The Southeast region with the highest percentage of deaths (47.9%), the Northeast followed (20.2%), the South region with 14.8%, the Center-West 9.1% and the North with 8%.
Lima et al/ 2018	Mortality profile of acute myocardial infarction by age And sex in the city of Paulo Afonso in the state of Bahia.	This is a quantitative, observational study and descriptive in a group of patients who died due to AMI, were performed calculations for death estimates based on the crude, specific and adjusted mortality rate, with data collected according to the Department of Informatics of the Brazilian Unified Health System.	The study aimed to analyze quantitatively the potential risk factors non-modifiable for mortality from acute myocardial infarction, as a range age, sex, and the relationship between sex and age group combined, in the city of Paulo Afonso in the state of Bahia.	It is concluded that the male group demonstrates higher mortality from AMI, as well as older ages and that programs health services could be developed to prevent and reduce these deaths
Passinho et al/ 2018	Signs, symptoms and complications of acute myocardial infarction	Integrative review, seeking publications between 2010 and 2014 in the LILACS, MEDLINE and CINAHL databases. The analysis process of the 122 selected articles took place through an exploratory and critical reading of the titles, abstracts and research results, where the phenomena related to AMI (signs, symptoms and complications) were sought.	To analyze scientific productions regarding the frequency of signs, symptoms and complications of acute myocardial infarction	Chest pain (N = 75), heart failure (N = 52), dyspnea (N = 24) and arrhythmia (N = 20) were the most common signs and symptoms.

The other 4 articles dealt with mortality from infarction (2), signs, symptoms and complications from AMI (1) and prevalence of risk factors (1). When the methodology used in the studies is observed, there is a prevalence of study methods with a quantitative approach (4), and a descriptive (4) and transversal aspect (4). Some studies used the retrospective, exploratory and observational methods (2). Recalling that the quantitative approach together with these other types of methodology mentioned appears in a combined way with 1 or more methods, as is the case of the descriptive quantitative study that appears 4 times combined with one more method. The Integrated Literature Review was used in only one survey of the 11 selected. Regarding the results, most studies have shown that the aspects most analyzed in research on the epidemiological profile of patients affected by AMI are related to age, gender, race, and the most prevalent risk factors in the population. Other less frequent aspects in the analyzes, but no less important, were also analyzed, such as origin of the

individuals, location of the infarction and diagnostic examination. These studies were carried out in several states of the country, such as Paraná, Pernambuco, Minas Gerais, Santa Catarina, Bahia, among other regions, bringing a general overview of the epidemiological profile of individuals affected by Infarction in the most diverse points in Brazil in the last 5 years and how the epidemiology of this pathology is distributed according to the sociodemographic characteristics of each of these places.

DISCUSSION

There are several factors that predispose to CVD, such as systemic arterial hypertension (SAH), diabetes mellitus, dyslipidemia and obesity. Behavioral factors depend on lifestyle and can be modified, such as smoking, unhealthy diet, excessive alcohol intake and physical inactivity. There are still factors of heredity, such as sex, age and family history that are not changeable and, therefore, independent of the patient. AMI is a disease that, depending on extrinsic factors, predominates in older age groups, but intrinsic factors are decisive in some cases. Therefore, this disease does not only affect the elderly, however it is increasingly reaching the age group of young adults (Medeiros *et al.*, 2018). Among the main causes of cardiovascular diseases, according to the American Heart Association, are bad habits of life and health behavior, mainly for AMI and Stroke, which include: smoking / tobacco use, obesity, sedentary lifestyle, diets high in fat and sodium, family history and genetics of heart disease, high levels of cholesterol and other blood lipids, systemic arterial hypertension, diabetes mellitus and metabolic syndrome (Passinho et al., 2018). Mertins et al., (2016) showed that in their research on the prevalence of risk factors for patients who developed AMI, the most present are: systemic arterial hypertension (SAH), overweight / obesity, alcohol intake, physical inactivity, smoking, history and stress. Male patients accounted for 81.2% of the total number of individuals, people between 50 and 60 years are the most affected (41%), and white individuals are the most susceptible (40%), in a study involving 48 patients.

Ribeiro et al., (2013) in their study on the epidemiological profile of patients with cardiovascular disorders seen in the emergency department of a university hospital, found that the second highest number of visits was given to patients diagnosed with AMI and, of these, 35,9% died, which affected more males (59.0%). According to Almeida et al., (2014) in a research on the comparison of the clinical-epidemiological profile between men and women diagnosed with acute coronary syndrome in which 927 patients were evaluated, of which 556 (60.0%) were men, it was observed that the majority were white (51.1% men and 24.3% women) and had as main risk factors and personal morbid antecedents, sedentary lifestyle, systemic arterial hypertension and dyslipidemia. Silva et al., (2018) showed that in a study in the emergency room of a university hospital in Paraná on the epidemiological and clinical profile of patients with acute coronary syndrome (ACS), including infarction, of the 367 medical records analyzed, the mean age of patients was 62.1 years. White men (201; 54.8%), white individuals (301; 82.0%), whose marital status was composed of married people (217; 59.1%), followed by widowers (56; 15, 3%) and in a stable union (39; 10.6%). Among the main comorbidities, SAH predominated in 229 (62.4%) cases, followed by dyslipidemia (87; 23.7%) and DM (51; 13.9%). Regarding

lifestyle, 114 (31.0%) reported being smokers and 117 (31.9%) alcoholics. In the study by Medeiros et al (2018), after analyzing the SUS database, DATASUS identified, in the period from 2008 to 2016, notifications of 21,398 cases of deaths from AMI in Brazil among men and women aged 30 to 59 years. In most regions, males had a higher number of reported deaths, with 13,587 deaths and 7,811 in females. Among these deaths, there was a higher incidence in the age group of 50 to 59 years, both male and female. According to Lima et al., (2018), in a research on the profile of mortality from acute myocardial infarction by age and sex in the municipality of paulo afonso in the state of Bahia, mortality / 100,000 inhabitants due to AMI for males it was higher in relation to females with an average difference of 9.7 for the gross rate in a very significant way, during ten years of follow-up. In the male sex, he observed a lower mortality in the group of30 to 39 when compared to the group of 60 to 69 years old, which presented a significant difference and in the average mortality of 210 less for the group of 30 to 39 years old for every 1 00,000 inhabitants.

Regarding age, Soriano *et al.*, (2015) in a study on the profile of AMI victims in a coronary care unit in Belo Horizonte with 158 patients between 27 and 89 years old, showed that most of them (56) are aged between 50 and 59 years old (35%) and it can also be observed that the elderly population (60 years old or more) represents less than half of the sample (43%), when compared to the population under 60 years old (57%). Another important factor observed in the literary review refers to the length of schooling. When analyzing the time of arrival of the patient with acute myocardial infarction in the emergency, a study revealed that, even with a population with few years of study, the recognition of the signs and symptoms of AMI was a determining factor for seeking specialized care in time skillful (Koerich *et al.*, 2017). Regarding the location of the infarction, Bordoni *et al* (2017) in a study on deaths resulting from the IML in Belo Horizonte, showed that in cases where this information was available, both in males and females there was a high incidence in the left ventricle . Of the infarctions that occurred in the left ventricle, 62.6% occurred in individuals aged 60 years or older. Among the individuals who had ruptured in any of the cardiac chambers, the significant majority were female. It was noticed that 21.6% (27 cases) of individuals aged 60 years or over presented rupture in some cardiac chamber, which was proportionally greater than that observed for people under 60 years (9.1% - 8 cases). For males, there was also proportionally more cardiac rupture in elderly individuals (19% - 12 cases) compared to men under 60 years of age (4.3% - 3 cases). The main ruptured chamber was the left ventricle. In a study by Marino *et al.*, (2016), 593 patients were admitted with acute coronary syndrome (ACS) to an emergency unit in Montes Claros (MG), including 51.6% with stable angina (AI), 36% with acute myocardial infarction with ST segment elevation (STEMI) and 12.3% with acute myocardial infarction without ST segment elevation (STEMI). The mean age of the patients was 63 ± 12 years and 67.6% were male.

Conclusion

Acute Myocardial Infarction is a serious health problem nationwide, with a high rate of morbidity and mortality, which, even though it is more prevalent in one than another group of individuals, is present in any gender, age, race and social class, treating therefore, a "democratic disease". The results of this

study showed that AMI predominates in the older age groups, is directly related to bad lifestyle habits (alcoholism, smoking, physical inactivity, poor diet, etc.), has as main comorbidities arterial hypertension and diabetes mellitus, is more present among men, but which also affects a good part of the female population, is predominant in the white population and has a high mortality rate. I conclude that this study achieved the proposed objective, as it managed to gather relevant and current data on a serious public health problem, and managed to identify the epidemiological profile of patients affected by this disease within the approached methodology.

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