INTEGRATIVE LITERATURE REVIEW ARTICLE

CARE FOR INFARCTED PATIENTS IN HEALTH INSTITUTIONS ATENDIMENTO AOS PACIENTES INFARTADOS NAS INSTITUIÇÕES DE SAÚDE CUIDADO DE PACIENTES INFARTADOS EN INSTITUCIONES DE SALUD

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ABSTRACT

Objective: to review the bibliographic production on the care of infarcted patients in health institutions. **Method:** this is a descriptive bibliographic study, integrative literature review, from 1979 to 2016, in the databases MEDLINE, LILACS, Virtual Library SciELO and Virtual Health Library/VHL. The results were followed by descriptive analysis. **Results:** it is clear that changes in mortality rates are variable and reflect changes in exposure to risk factors. It becomes the structuring of care in care, from prehospital care to intensive care, fundamental, with tobacco, diabetes mellitus, hypertension, obesity and sedentary lifestyle important factors in the development of AMI that deserve greater attention. **Conclusion:** it is concluded that there has been a significant reduction in AMI in-hospital mortality in recent decades, however, little advance in knowledge about epidemiology and treatment in the prehospital phase. **Descriptors:** Angina Unstable; Ambulatory Care; Risk Factors; Prevention & Control; Myocardial Infarction; Patients.

RESUMO

Objetivo: revisar a produção bibliográfica sobre o atendimento do paciente infartado nas instituições de saúde. **Método:** trata-se de um estudo bibliográfico, descritivo, tipo revisão integrativa da literatura, no período de 1979 a 2016, nas bases de dados MEDLINE, LILACS, Biblioteca Virtual SciELO e Biblioteca Virtual em Saúde/BVS. Empregou-se a análise descritiva. **Resultados:** percebe-se que as alterações nas taxas de mortalidade são variáveis e refletem mudanças na exposição aos fatores de risco. Torna-se a estruturação do cuidado na assistência, desde a atenção pré-hospitalar à terapia intensiva, fundamental, sendo o tabaco, o Diabetes Mellitus, a hipertensão, a obesidade e o sedentarismo fatores importantes no desenvolvimento do IAM que merecem maior atenção. **Conclusão:** conclui-se que houve significativa redução da mortalidade hospitalar do IAM nas últimas décadas, no entanto, pouco avanço no conhecimento sobre a epidemiologia e o tratamento na fase pré-hospitalar. **Descritores:** Angina Instável; Assistência Ambulatorial; Fatores de Risco; Prevenção & Controle; Infarto do Miocárdio; Pacientes.

RESUMEN

Objetivo: revisar la producción bibliográfica sobre el cuidado de pacientes infartados en instituciones de salud. **Método:** se trata de estudio bibliográfico descriptivo, tipo revisión bibliográfica integradora, de 1979 a 2016, en las bases de datos MEDLINE, LILACS, Biblioteca Virtual SciELO y Biblioteca Virtual en Salud/BVS. Los resultados fueron seguidos de un análisis descriptivo. **Resultados:** está claro que los cambios en las tasas de mortalidad son variables y reflejan cambios en la exposición a factores de riesgo. Se convierte en la estructuración de la atención, desde la atención prehospitalaria hasta la atención intensiva, fundamental, con el tabaco, la Diabetes Mellitus, la hipertensión, la obesidad y el sedentarismo, factores importantes en el desarrollo de IAM que merecen mayor atención. **Conclusión:** se concluye que ha habido una reducción significativa en la mortalidad hospitalaria por IAM en las últimas décadas, sin embargo, poco avance en el conocimiento sobre epidemiología y tratamiento en la fase prehospitalaria. **Descriptor:** Angina Inestable; Atención Ambulatoria; Factores de Riesgo; Prevención & Control; Infarto del Miocardio; Pacientes.

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INTRODUCTION

Acute myocardial infarction (AMI) or acute myocardial infarction (AMI), commonly known as a heart attack, is known to occur when the arteries that supply blood to the heart wall (the coronary arteries) usually become clogged by a small thrombus (blood clot), which leads to the death of part of the heart muscle. Technically speaking, the term myocardial infarction means the death of cardiomyocytes caused by prolonged ischemia. This ischemia is generally reported to be caused by thrombosis and/or vasospasm on an atherosclerotic plaque, and the process migrates from the subendocardium to the subepicardium.¹

The leading cause of death in the country, according to studies,² is acute myocardial infarction, which records about 100,000 deaths annually in Brazil, and stomach discomfort, chest pain and left arm pain are some of the different symptoms present in myocardial infarction.

Cardiovascular diseases, including AMI, represent an important public health problem in Brazil and worldwide, with high incidence and mortality rates. This reality can be explained both by changing the age structure of the population and by increasing the prevalence of exposure to risk factors such as obesity, hypertension and other factors.³

AMI is characterized by an ischemic lesion in cardiac muscle tissue following thrombosis or vasospasm on an atherosclerotic plaque, responsible for 12 million deaths worldwide. Research shows that the Brazilian mortality rate for this group of causes is among the highest in the world and is similar to that of countries such as China and Eastern Europe.⁴

Acute myocardial infarction occurs due to intrinsic factors such as gender, age, race and genetics, and extrinsic factors, which are risk factors known to be associated with circulatory system diseases, such as lifestyle, which includes sedentary habits, poor diet, smoking, alcohol use, changes in blood pressure such as high blood pressure, excess body fat (obesity), high cholesterol and diabetes mellitus.

It becomes the time of care of the patient with decisive AMI, because, in infarction, artery tissue death occurs due to its total obstruction; Due to lack of oxygen, due to clogging by fat plaques, the muscle stops being oxygenated by the coronary arteries (arteries that supply the heart), the blood flow to the heart is interrupted, causing pain and causing tissue failure if the process is not interrupted. In addition, with the blockage of blood to the heart muscle, depending on the degree, the heart ceases to function, often leading to death or sequelae. It is warned that not everyone has severe and acute chest pain, as is often said, as the signs and symptoms of

infarction may vary from person to person, with the most common symptoms being chest pain or chest discomfort. Other symptoms may also be present, such as: feeling of discomfort in the shoulders, arms, back (neck), neck, jaw or stomach, and pale skin, cold body sweat, restlessness, palpitations and Short breathing may also occur, and there may also be nausea, vomiting, dizziness, mental confusion and fainting.

This article seeks, through the literature review, to understand the difficulties faced by health institutions in the care of patients with AMI, risk factors before and after AMI, and what are the prospects in relation to current and future care by health care network professionals.

Acute myocardial infarction (AMI) is believed to be one of the most common diseases in Western countries and, despite the vast accumulated knowledge about it, remains an important cause of population morbidity and mortality.⁵

Studies have shown⁶ that the demand for emergency chest medical care is common, and in the US about 5.8 million out of 113 million emergency room visits are due to chest pain, however, only 10-15% of patients have acute myocardial infarction.

It is pointed out that the differentiation of chest pain from acute coronary syndromes, which are at risk of death, from chest pain for other causes,⁷ is complex, and the fact that the patient with chest pain complains to the emergency department requires, health professionals, accurate diagnosis and prompt conduct. Thus, it is important to differentiate chest pain from cardiac to noncardiac cause in order to direct the medical conduct to be followed.

Research⁸ has pointed out that AMI is most often caused by coronary occlusion, which causes necrosis of the subendocardial tissue with the possibility of progression, increasing the compromised area of the myocardium and impairing cardiac function; thus, the earlier the myocardial reperfusion, the less mortality associated with AMI.

The time taken to start AMI treatment can be divided into two main moments: the first is comprised from the onset of symptomatology to health system demand, is linked to population education and concentrates the majority of deaths; The second, however, ranges from the search for the health system to the referral for appropriate therapy and depends on the preparation of the health system to recognize AMI, from patient care to transportation to a specialized hospital.⁹

Most AMI deaths occur outside the hospital environment, as 40-65% of deaths occur in the first hours of onset and approximately 80% in the first 24 hours.¹⁰

In recent decades, the National Health Promotion Policy and the Program for the Prevention and Control of Hypertension and Diabetes have been implemented.¹¹

In other studies, it is emphasized that infarction is caused 90% of the time by coronary thrombotic occlusion, which leads to a necrotic process of subendocardial tissue that, over time, may undergo transmural progression, increasing the area of myocardial involvement and impairing the systolic function of the heart and, consequently, the patient's clinical condition.⁸

It has been shown in acute myocardial infarction by certain studies ¹² that the time from symptom onset (coronary artery occlusion) to treatment onset (chemical or mechanical reperfusion) is directly proportional to the occurrence of clinically relevant events, this time

being a fundamental factor for the benefit of both immediate and late treatment.

However, it is known that the prehospital phase (at both times described) is characterized by being slow, especially in elderly, female patients with low socioeconomic status and, for the authors, the prehospital component in delayed care for patients with chest pain is of such magnitude that, in clinical practice, only about 20% of these patients reach the emergency department within two hours of the onset of symptoms.¹³

It is pointed out in Figure 1 that some factors are related to the increase of this precious time, which is the prehospital care.¹³

- Patient's failure to value chest pain symptoms as infarction (considering that infarction is always a highly severe condition).
  - Attribution of symptoms to pre-existing chronic conditions or a common illness (flu, muscle pain etc.).
  - Lack of knowledge of the benefits that can be obtained with rapid treatment.
  - Emergency out-of-hospital care not available to all in a homogeneous way.

Figure 1. Prehospital conditions that hinder early care for acute myocardial infarction.¹⁴

The approach of patients with suspected acute coronary syndrome in an out-of-hospital setting should ideally be performed by a health professional, with a directed clinical history, investigating the characteristics of current symptoms (time of onset, time of duration, quality, intensity, relationship with exertion and rest) and the presence of established coronary disease (previous angina). It is believed that some characteristics are known to be determinant for the atypical manifestation of a coronary event and should be remembered when an individual is approached in the prehospital phase, because they mask AMI, such as: elderly, female, Diabetes Mellitus, cardiac insufficiency and pacemaker.¹⁵

OBJECTIVE

- To review the bibliographical production on the care of infarcted patients in health institutions.

METHOD

This is a bibliographic study, integrative literature review¹⁶, from 1979 to 2016. It was questioned how the care for infarcted patients in health institutions in the last 40 years has developed. The research was carried out in the MEDLINE, Latin American and Caribbean Health Sciences Literature (LILACS), the Scientific Electronic Library Online (SciELO), and the Virtual Health Library/VHL databases,

Descriptors such as infarction; acute myocardial infarction; infarcted patients;

emergency care and death due to heart attack, being associated with Booleans AND and OR. The search in the databases was performed by peers, establishing as inclusion criteria: articles available in full, in Portuguese or English, which relates the health care to the infarcted patient. While the exclusion criteria were: literature review article, articles describing care strategies, clinical assessments or other interventions to patients with heart disease, but did not describe how health care occurred for the researched group.

It is noteworthy that for this review there was no temporal delimitation for the published articles, so all articles dealing with the theme were selected in the period provided by the databases at the time of the search.

To extract the information considered relevant for this review, the authors created a data collection instrument that had as its topics: information related to the identification of the article, data about the institution hosting the study, the type of publication, methodological characteristics of the article, and synthesis of study findings.

To evaluate the methodological quality of the selected articles and the transparency of research and health research we used the EQUATOR instrument. After this quality analysis, the review was followed up. The development flow of this review is described in the following flowchart.

Figure 2. Flowchart of study selection according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyzes (PRISMA 2009). Chapecó (SC), Brazil, 2019.

RESULTS

It is reported that the articles and themes found and most relevant for this literature review were: hypertension, hospital emergency and emergency patient care. In addition, in the search

for articles specifically for infarction care, the following topics were found: acute myocardial infarction, care for infarcted patients, and deaths from infarction.

Authors	Title	Year
Braga, Santos, Flato, Guimaraes, Avezum. ¹⁵	<i>The impact of diabetes mellitus on the mortality of acute coronary syndromes</i>	2007
Caluza, Barbosa, Gonçalves, Oliveira, Mato, Zeefried, et al. ¹⁶	ST-elevation myocardial infarction network	2012
Cunningham. ¹⁷	<i>The epidemiologic basis of coronary disease prevention</i>	1992
Fang and Alderman. ¹⁸	<i>Dissociation of hospitalization and mortality trends for myocardial infarction</i>	2002
Finnegan, Meischke, Zapka, Leviton, Meshack, Benjamin-Garner, et al. ¹⁴	<i>Patient delay in seeking care for heart attack symptoms</i>	2000
Hambrecht, Niebauer, Marburger, Grunze, Kalberer, Hauer, et al. ¹⁹	<i>Various intensities of leisure time physical activity in patients with coronary artery disease</i>	1993
Jorgetto, Jorgetto, Freitas. ²⁰	Epidemiological analysis of the relationship hypertension, acute myocardial infarction and stroke.	2010
Kannel and McGee. ²¹	<i>Diabetes and cardiovascular disease. The Framingham study</i>	1979
Klein, Alliso, Heymsfield, Kelley, Leibel, Nonas, et al. ²²	<i>Waist circumference and cardiometabolic risk</i>	2007

Figure 2. Bibliographic research, with themes and their respective authors and year of publication. Chapecó (SC), Brazil (2019).

To be continued

Malta, Moura, Prado, Schimidt, Duncan. ⁴	Mortality from noncommunicable diseases in Brazil and its regions	2014
Mathew, Menown, McCarty, Gracey, Hill, Adgey. ²³	<i>Impact of prehospital care in patients with acute myocardial Infarction</i>	2003
Moran, Forouzanfar, Roth, Mensah, Ezzati, Murray, et al. ¹¹	<i>Temporal trends in ischemic heart disease mortality in 21 world regions</i>	2014
Naidoo, Stevens, Mcpherson. ²⁴	<i>Modelling the short term consequences of smoking cessation in England</i>	2000
Nallamothu, Bates, Herrin, Wang, Bradley, Krumholz. ⁹	<i>Times to Treatment in Transfer Patients Undergoing Primary Percutaneous Coronary Intervention</i>	2005
Panju, Hemmelgarn, Guyatt, Simel. ⁷	<i>The rational clinical examination</i>	1998
Piegas, Feitosa, Mattos, Nicolau, Rossi Neto, Timerman, et al. ¹⁰	Guideline of the Brazilian Society of Cardiology on treatment of acute myocardial infarction	2009
Pinto, Kirtane, Nallamothu, Murphy, Cohen, Laham, et al. ¹²	<i>Hospital delays in reperfusion for ST-elevation myocardial Infarction</i>	2006
Pinho and Pierin. ²⁵	The Control of Arterial Hypertension in Brazilian Publications	2013
Rocha and Silva. ⁵	Hospitalizations for acute myocardial infarction	2000
Santos, Meira, Camacho, Salvador, Guimarães, Pierin, et al. ³	Mortality from acute myocardial infarction in Brazil	2016
Simek, Lubanda, Aschermann, Humhal, Hork, Kovarnik, et al. ⁸	<i>How does the time to treatment affects the long-term prognosis for patients with acute myocardial infarction</i>	2004
Timerman and Feitosa. ¹³	Acute coronary syndromes	2003
White and Kuo. ⁶	<i>Chest pain in the emergency department: role of multidetector CT</i>	2007

Figure 2. Bibliographic research, with themes and their respective authors and year of publication. Chapecó (SC), Brazil (2019).

DISCUSSION

Discussions show that, despite its limitations, UHS has increased the access of the Brazilian population to medical services and medicines, especially for the control of hypertension and diabetes, in which primary care plays a very important role through the HiperDia program, which was established in 2001 to treat and monitor outpatients.²⁰

With the implementation of the Unified Health System, the access of Brazilians to health services increased due to its universal character, however, the quality of the services provided is not homogeneous in the national territory.³

Studies show that these results reflect the peculiarities of the epidemiological transition experienced in Brazil, in which the same profile of industrialized countries is not verified, as there is overlap of stages and epidemiological polarization due to the large socioeconomic inequalities observed in the Brazilian territory.³ According to other researchers,²⁵ the control of systemic arterial hypertension in Brazil is considered low.

There is a progressive increase in AMI mortality with advancing age and higher mortality rates in men compared to women in all regions of the country and in both sexes.³

Changes in the evolution of mortality rates reflect changes in exposure to risk factors (environmental and lifestyle), as well as improvements in the diagnosis, treatment, verification and certification of deaths, and such changes may occur in an uneven way, which may explain the differences in the evolution of mortality rates in different Brazilian geographic regions.

Continuation
It is important to highlight the need for the organization of the AMI care line, which consists of a structured care network from prehospital care to intensive care.¹⁶

In other studies,²³ the highest occurrence of infarction occurred in the range between 60 and 80 years, and the difference in the occurrence of this event between genders tended to decrease from the age of 70, which was also expected.

Between 1980 and 2009, the standardized average mortality rate for males in Brazil (108.14 deaths/100,000 males) was 1.75 times higher than in females (61 , 49 deaths/100,000 women) and the highest standardized rates were observed in males throughout the analyzed period, a reality that was also observed in all geographic regions of the country.³

In males, the profile of AMI mortality rates suggests a downward trend for Brazil in the South and Southeast regions, while there was a greater increase in mortality rates in the North and Northeast regions from 1995 onwards. 1999, and more discreet in the Midwest, from 1990 to 1994.³

Risk factors (RF) can be classified as modifiable and non-modifiable, the latter including age, gender, race and family history of atherosclerotic disease, and modifiable RF, ie those over which the patient and even the health team can act are dyslipidemia, hypertension, smoking, diabetes mellitus (DM), physical inactivity, stress and obesity.¹⁷

Tobacco use is the largest single cardiovascular risk factor in the world population, constituting an independent risk factor for acute myocardial infarction and, consequently, its abandonment also has the greatest potential benefits in the prevention of heart disease. Smoking cessation reduces mortality and morbidity due to cardiovascular causes by more than 35% in all populations.²⁴

There is a prevalence of arterial hypertension in infarcted patients, estimated by previous history of arterial hypertension or the finding of elevated blood pressure during hospitalization, as admittedly expressive (around 40% -50%), and arterial hypertension plays an important role in disease progression in postinfarction patients, contributing to ventricular remodeling, congestive heart failure and acceleration of atherosclerosis, and its rigorous control is therefore of interest.¹⁸

Patients with type 2 diabetes mellitus are warned to have higher morbidity and mortality due to microvascular disease (retinopathy, nephropathy and neuropathy) and macrovascular disease (stroke, peripheral arterial disease and cardiovascular disease), particularly coronary artery disease.²¹ In this study, it was also shown that individuals with type 2 diabetes mellitus have a risk of cardiovascular mortality 2-3 times higher in men and 3-4 times higher in women, when compared with non-diabetic individuals.

Recent research²⁶ found that obesity is among the highest risk factors for coronary artery disease, along with dyslipidemia, hypertension, smoking and diabetes, with increasing prevalence and incidence.

Another study shows that the relationship between overweight/obesity and cardiovascular risk depends on the accumulation of intra-abdominal fat (central obesity), which shows a high correlation with waist circumference. In addition, for the authors, the fact, however, is the correlation between the degree of excess fat and the appearance of insulin resistance, the increase in blood pressure, the decrease in HDL-C concentration and the increase in triglycerides.²² It then becomes a significant risk factor for coronary event or new events after acute myocardial infarction, directly responsible for poor physical condition, reduced oxygen consumption and decreased muscle tone, increased body weight by increasing triglyceride levels and lowering HDL-cholesterol, and compromising self-esteem.¹⁸

In the fight against physical inactivity, individual or collective programs to encourage physical activity in people's daily lives should be contemplated, such as walking to work, climbing or descending stairs, using a bicycle as a transport to school or work, getting off the bus two stops before home, doing handiwork, gardening, painting, repairs etc.

Regular exercise sessions of at least 40 minutes 5-6 times a week are recommended in gyms or replaced by flat walks, seeking to reach the 100 meter per minute mark, always on medical advice. It is always foreseen, in the prescription of more vigorous exercises, such as swimming, aerobic gymnastics or the practice of individual or

collective sports, the accomplishment of a previous exercise test.¹⁹

CONCLUSION

It was noted in this article that there has been a significant reduction in in-hospital mortality from acute myocardial infarction in recent decades, but little advance in knowledge about epidemiology and treatment in the prehospital phase. The need for changes in this scenario is noticeable, although there is little evidence generated for this purpose.

Advances in care were shown, and it is still necessary to better qualify and equip medical teams to diagnose and treat patients with infarction. It is believed that if this is done, early and appropriate treatment could reduce the complications and mortality from this disease.

Prevention is based on better control and treatment of the risk factors listed above, as well as adopting healthier lifestyle habits, including: following a balanced diet rich in fruits and vegetables, low in fat and salt; lose weight in case of obesity or overweight; stop smoking for those who smoke; practice physical activities regularly, preferably under medical advice; properly treat and/or control conditions such as high cholesterol, high blood pressure and diabetes mellitus.

Thus, it is concluded that adequate prior knowledge of patients treated with AMI is extremely necessary, since, In many cases, it is necessary to make both patients and individuals aware that smoking, physical inactivity and obesity should be avoided, which are important factors in the disease.

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