INTEGRATIVE REVIEW ARTICLE

PRE-AND INTRA-HOSPITAL BARRIERS ON PATIENT CARE WITH ACUTE MYOCARDIAL INFARCTION: AN INTEGRATIVE REVIEW

ENTRAVES PRÉ E INTRA-HOSPITALARES NA ASSISTÊNCIA AO PACIENTE COM INFARTO AGUDO DO MIOCÁRDIO: REVISÃO INTEGRATIVA

BARRERAS PRE- Y INTRA-HOSPITALARIAS EN LA ATENCIÓN AL PACIENTE CON INFARTO AGUDO DEL MIOCARDIO: UNA REVISIÓN INTEGRADORA

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ABSTRACT

Objective: reviewing the literature about the barriers on patient care with acute myocardial infarction (AMI) in the pre-and intra-hospital stage. Method: an integrative review held in databases MEDLINE, LILACS and BDENF, from 2000 to 2014, from the question << What is the national scientific production about pre-and intra-hospital and barriers to the individual with AMI? >>. The sample consisted of 15 articles. Results: after the analysis, two categories emerged << Pre-hospital barriers >> and << Intra-hospital >> and six subcategories. Conclusion: the pre-hospital obstacles stood out as the lack of symptoms and the service location and the choice of suitable transport; the intra-hospital obstacles are related to the time spent in admission to initiation of therapy, quality and availability of human and material resources and by the absence of care protocols. Health education related to pre-and intra-hospital obstacles in AMI therapy are extremely important for a favorable prognosis. Descriptors: Nursing; Myocardial Infarction; Access to Health Services.

RESUMO


RESUMEN

Objetivo: revisar la literatura acerca de los problemas en la atención al paciente con infarto agudo de miocardio (IAM) en el pre- y intra-hospitalario. Método: revisión integradora realizada en MEDLINE, LILACS y BDENF, de 2000 a 2014, a partir de la pregunta << ¿Cuál es la producción científica nacional acerca de las barreras pre- y intra-hospitalarias y a la persona con IAM? >>. La muestra consistió en 15 artículos. Resultados: después del análisis los dos categorías surgieron << Barreras pre-hospitalarias >> y << Intra-hospitalarias >> y seis subcategorías. Conclusion: los obstáculos pre-hospitalarios se destacaron como la falta de conocimiento acerca de los síntomas y la ubicación de servicios y la elección del transporte adecuado; los obstáculos intra-hospitalarios están relacionados con el tiempo de permanencia en la admisión al inicio del tratamiento, calidad y disponibilidad de los recursos humanos y materiales y por la ausencia de protocolos de atención. La educación para la salud relacionada con los obstáculos pre-y intra-hospitalarios en la terapia de IAM es extremadamente importante para un pronóstico favorable. Descriptores: Enfermería; Infarto de Miocardio; Acceso a los Servicios de Salud.

English/Portuguese

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9264
INTRODUCTION

Cardiovascular diseases (CVDs) are responsible for about 30% of all deaths worldwide and are major public health problem. Data from the World Health Organization (WHO) estimate that 17.3 million people worldwide were victims of these diseases in 2008. It considers that in 2030 it will reach 23.3 million people, continuing as leading cause of death worldwide.¹

Among the CVDs, highlight one has for coronary artery disease (CAD), the most common being that group acute myocardial infarction (AMI) accounting for 7.3 million of these diseases in 2008 in the world.¹ The DAC is the main group of causes of death in Bahia contributing 24% of total deaths in 2009. Mortality rates in this group increased by 17% between 2000 and 2009, from 97 to 113,8 deaths for each 100.000 people.²

The origin of the CAD is related to risk factors, especially the behavior that trigger diabetes, hypertension, hypercholesterolemia and obesity are predisposing factors for cardiovascular disease, whose treatment can reduce its development.¹ The displacement of a thrombus arising from a atheroma featuring CAD involves the death of cardiac muscle cells, causing ischemia characterizing AMI.³

When affected by an AMI, it is essential that the patient be conducted more quickly to the appropriate health facility, aimed at restoration of early coronary flow through thrombolytic techniques that depend on the patient's presentation time the health team, from the onset of symptoms, which occur suddenly in about 50% of the cases.⁴ In others prodromal symptoms may appear even 7 days before the cardiovascular event.⁵

Early intervention in AMI has not been achieved due to various factors related to pre-hospital and intra-hospital delay. Among the factors related to the pre-hospital delay is the non-recognition by the patient of a cardiac event and the difficulty in transportation and access to the hospital network.⁶ There is a lack of knowledge or staff awareness of the start time of the therapeutic measures for the treatment is known as intra-hospital delay.⁴ ⁶

Taking into account factors related to pre-and intra-hospital delay that are barriers to patient AMI victim is relevant to its discussion aimed quality care for these individuals, avoiding the sequelae of the disease considered a major cause of death today, therefore, on this issue, rose the following question: Which existing national scientific production on pre-hospital and intra-hospital barriers in assisting the individual with Acute Myocardial Infarction?

Facing the range of factors that permeate the care to the patient with AMI, hindering the conduct and treatment of this disease, which puts at risk his physical integrity, we aimed to analyze the literature about the barriers on patient care with acute myocardial infarction (AMI) in pre-and intra-hospital.

METHOD

This is an integrative review, known as a resource of evidence-based practice,¹ ² covering analysis of important research to help better care of conditions in clinical practice, through an overview of knowledge about a particular subject, signaling points that need to be supplemented.⁷

The integrative review was carried out in six steps: the first step was the establishment of hypotheses and defining the research question, in the second step was to search the literature outlining the criteria for inclusion and exclusion, in the third step categorization of the studies was carried out, in the fourth step there was carried out the evaluation of the studies included in the review, the fifth step there were interpreted the results, and the sixth step presentation of the review and synthesis of knowledge.⁷

The guiding question of the study was << What is the national scientific production on pre-hospital and intra-hospital barriers in assisting the individual with acute myocardial infarction? >>

Thus, there were established the following inclusion criteria: articles that make available the text article in full with the online version freeway, national productions in Portuguese and English. The enclosed timeline were the years 2000-2014 in order to portray today's scientific production. Articles that did not contain elements to answer the guiding question of the study were excluded, repeated studies found in more than one database, theses, dissertations and monographs.
<table>
<thead>
<tr>
<th>Code</th>
<th>Author(s)</th>
<th>Title</th>
<th>Method</th>
<th>Level of Evidence</th>
<th>Year of Publication</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Bastos AS, Beccaria LM, Contin LM, Cesarino CB.</td>
<td>Time of arrival of the patient with acute myocardial infarction in emergency unit</td>
<td>Cross-sectional study performed in a teaching hospital in the Northwest of São Paulo, which provides service to different medical specialties. The data were collected in the Emergency Unit.</td>
<td>V</td>
<td>2012</td>
</tr>
<tr>
<td>A2</td>
<td>Caluza ACV, Barbosa AH, Gonçalves I, Oliveira CAL, Matos CN, Zeefriend C, et al.</td>
<td>Network of Infarction with ST Elevation: systematization in 205 cases decrease clinical events on the public network</td>
<td>Quantitative, qualitative variables were evaluated in uni and multivariate analysis.</td>
<td>VI</td>
<td>2012</td>
</tr>
<tr>
<td>A3</td>
<td>Damasceno CA, Queiroz TL, Santos CAST, Mussi FC.</td>
<td>Factors associated with the decision to demand for health service in myocardial infarction: differences between genders</td>
<td>Cross-sectional cohort study, exploratory, performed in two hospitals of Salvador-BA. For data collection, devised an instrument consisting of two parts with objective, multiple-choice questions and semi-structured.</td>
<td>V</td>
<td>2012</td>
</tr>
<tr>
<td>A4</td>
<td>Escosteguy CC, Teixeira AB, Cotrim AB, Portela MC, Guimarães AEC, Lima SML, et al.</td>
<td>Implementing clinical practice guidelines on attention to acute myocardial infarction in a public emergency</td>
<td>Study of evaluation of health services, with a list of type &quot;before and after&quot;, to assess the quality of attention to AMI. This includes the development of educational and awareness-raising material and the continuing supervision.</td>
<td>VI</td>
<td>2011</td>
</tr>
<tr>
<td>A5</td>
<td>Figueiredo AE, Siebel AL, Luce DC, Schneider I.</td>
<td>Determination of the time of presentation of patients with acute myocardial infarction</td>
<td>Descriptive cross-sectional study, patients were selected in consecutive sample after confirmation came and responded to a structured questionnaire.</td>
<td>V</td>
<td>2013</td>
</tr>
<tr>
<td>A6</td>
<td>Franco B, Rabelo ER, Golbemeyer S, Souza EN.</td>
<td>Patients with acute myocardial infarction and the factors that affect the demand for emergency services: implications for health education</td>
<td>Cross-sectional study conducted in a hospital specializing in cardiology in Rio Grande do Sul. Included, consecutively, patients with AMI with above ST.</td>
<td>V</td>
<td>2008</td>
</tr>
<tr>
<td>A7</td>
<td>Gouveia VA, Victor EG, lima SG.</td>
<td>Pre-hospital attitudes adopted by patients against the symptoms of acute myocardial infarction</td>
<td>This is descriptive study of type number of cases performed in the emergency room of Cardiology of Pernambuco/Proca. The sample consisted of individuals hospitalized with confirmed diagnosis of AMI, with ST segment elevation.</td>
<td>VI</td>
<td>2011</td>
</tr>
<tr>
<td>A8</td>
<td>Marcolino MS, Brant LCC, Araújo JG, Nascimento BR, Castro CRA, Martins P, et al.</td>
<td>Implementation of the care line acute myocardial infarction in the municipality of Belo Horizonte</td>
<td>AMI Care Line was deployed in Belo Horizonte to expand access of patients of the public health system to the treatment recommended by current guidelines. The primary outcomes of this retrospective observational study were the number of hospitalizations and hospital mortality by AMI.</td>
<td>VI</td>
<td>2013</td>
</tr>
<tr>
<td>A9</td>
<td>Makdisse M, Katz M, Correa AG, Forlenza LMA, Perin MA, Brito Junior FS, et al.</td>
<td>Effect of implementation of a care protocol for acute myocardial infarction on quality indicators</td>
<td>Selected patients admitted via units of emergency UPA, of the units Morumbi, Alphaville, Ibirapuera and Partridges. For the pre-protocol assessment, patient information was included in the database of IAM admitted in pre-protocol phase.</td>
<td>VI</td>
<td>2013</td>
</tr>
<tr>
<td>Code</td>
<td>Title</td>
<td>Author(s)</td>
<td>Methodology and Design</td>
<td>Level of Evidence</td>
<td>Year</td>
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<tr>
<td>A10</td>
<td>Factors that slow down the administration of thrombolytic in patients with acute myocardial infarction served in a general hospital.</td>
<td>Muller LA, Rabelo ER, Moraes MA, Azzolin K.</td>
<td>Cohort study, with 146 patients, with diagnosis of AMI undergoing thrombolytic therapy. The data were extracted from patient records.</td>
<td>IV</td>
<td>2008</td>
</tr>
<tr>
<td>A11</td>
<td>Barriers in access to medical care: experiences of people with acute myocardial infarction.</td>
<td>Mussi FC, Passos LCS, Menezes AA, Caramelli B.</td>
<td>This is a descriptive exploratory study that used quantitative and qualitative methods of analysis. The survey was conducted in a public hospital, school, serving primarily the clientele of the SUS, located in Salvador/BA.</td>
<td>VI</td>
<td>2007</td>
</tr>
<tr>
<td>A12</td>
<td>Experiences of women the pain in myocardial infarction.</td>
<td>Mussi FC, Fereira SC, Menezes AA.</td>
<td>This is a descriptive exploratory study. The study was conducted in University Hospital, located in Salvador, Bahia, with adult women, capable of being interviewed, who suffered pain and AMI requiring medical attention.</td>
<td>VI</td>
<td>2006</td>
</tr>
<tr>
<td>A13</td>
<td>The experience of the disease and the therapeutic itinerary experienced by a person with heart attack.</td>
<td>Nabão FRZ, Maruyama SAT.</td>
<td>It is an exploratory and a descriptive study of a qualitative character. It was chosen the case study methodology as best suited to get an understanding of the experience of illness and the therapeutic itinerary of a person who experienced the pain arising from the AMI-sentinel event of hypertension.</td>
<td>VI</td>
<td>2009</td>
</tr>
<tr>
<td>A14</td>
<td>Nursing care: avoiding the pre-hospital delay in the face of acute myocardial infarction.</td>
<td>Sampaio ES, Mussi FC.</td>
<td>The study aims to: discussing health education as an integral part of the care/nursing care and directed to the adoption of measures of survival, especially for people suffering from AMI.</td>
<td>VI</td>
<td>2009</td>
</tr>
<tr>
<td>A15</td>
<td>Time of admission to the emergency room and hospital mortality in acute coronary syndrome.</td>
<td>Takada JY, Roza LC, Ramos RB, Avakian SD, Ramires JAR.</td>
<td>There were evaluated 1,104 consecutive patients, admitted with diagnosis of SCA in the UE of a tertiary care teaching hospital.</td>
<td>VI</td>
<td>2012</td>
</tr>
</tbody>
</table>

Figure 1. Article code, author, method, level of evidence and year of publications.
The search was conducted by two reviewers, ensuring rigor in the selection process of the articles in the databases Latin American and Caribbean Health Sciences (LILACS), Database of Nursing (BDENF), National Library of Medicine (MEDLINE) in the second half of 2014, with the standardized and available descriptors in the Descriptors in Health Sciences (DeCS): “nursing care” [and] “myocardial infarct” [and] “access to health services.”

After reading the titles and abstracts, there were selected studies and analyzed with the aid of an already validated instrument, evaluating data relating to the identification of the original article, methodological characteristics of the study, assessment of the methodological rigor of interventions measured, and the results found in articles to the journal, author, and study the level of evidence. In a recent publication, the quality of evidence is classified into seven levels: level 1, systematic reviews or meta-analysis of relevant clinical trials; level 2, evidence from at least one randomized controlled clinical trial clearly delineated; level 3, well-designed clinical trials without randomization; level 4, cohort studies and well-designed case-control; level 5, systematic review of descriptive and qualitative studies; level 6, evidence derived from a single descriptive or qualitative study; level 7, evidence arising opinion of authorities or expert committees including information interpretations not based on research.

By theme or category analysis type of content analysis technique, operated the text of the break up into units (categories), according analog systematic regroupings. In this analysis, made by reading the 15 articles selected, later sought to discover the units of meaning that make up the corpus of the study, concerned with the frequency of these nuclei, in the form of targetable data and similar where they underwent further analysis and from it emerged two categories, namely: pre-hospital and intra-hospital barriers. Within the categories it was necessary to create six sub-categories for best demonstration, understanding and evaluation of results.

RESULTS

There were analyzed 15 publications from the databases LILACS, MEDLINE and BDENF. The authors, title, method, level of evidence and publication year are shown in Figure 1.

Through close reading of the 15 selected articles, it was possible to gather the results by similarity of content, being formed two categories of analysis on problems in patient care with acute myocardial infarction: pre-hospital barriers with 10 (66.66%) articles and intra-hospital with 14 (93.33%) articles. Within the categories it was necessary to create subcategories to better demonstration, understanding and evaluation of results.

Most analyzed periodic presented results of both pre- and intra-hospital barriers. In the subcategories of pre-hospital barriers there were included the failure to recognize the signs and symptoms of AMI by the patient with 9 (90%) articles, the first point of care sought with 5 (50%) articles and the type of transport used by the time of displacement with 7 (70%) articles.

Regarding the sub-category of intra-hospital barriers, there were included the quality of human and material resources with 5 (35.71%) articles, the door-to-electrocardiogram, needle holder and flask-holder with 8 (57.14%) articles and the implementation of protocols and clinical guidelines with 9 articles (64.28%).

The periodic analysis showed a total of 15 (100%) national journals as evidenced in Figure 2.
Concerning the objectives of the studies, productions stood out that identified the arrival time variation to the emergency department with six (40%) of the articles. Followed by three (20%) that deal with the implementation of AMI care protocols and their impact, reducing the impact on mortality in AMI process. Three articles (20%) analyzed the differences between gender in decision making to seek medical service, 2 (13,33%) identified the factors that delay the onset of the therapeutic intra-hospital AMI and finally 1 (6,66%) which was aimed at discussion of health education in the face of people who have suffered AMI, these data are presented in Figure 3.

Figure 2. Journals where the articles were published.

Concerning the subject of the publications, there was a preponderance of 10 (66,66%) where the study subjects were patients with chest pain and diagnosed with AMI. Followed by 03 (20%) of patients with suspected AMI and finally, 02 (13,33%) who were members of the health team through the protocol adaptation process in their work units, presented in Figure 4.

Figure 3. Item code and goal of the publications.

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Figure 4. Item code and subject of research.

Figure 5 shows the synthesis of the results of each article researched, basing on the importance of time X benefit from the start of early care to the patient with AMI, ranging from decision making to seek the service, to the administration of therapy thrombolytic.

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**Table 1. Journals where the articles were published.**

<table>
<thead>
<tr>
<th>Journals</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>Brazilian Archives of Cardiology</td>
<td>4 (26,66%)</td>
</tr>
<tr>
<td>Latin-American Nursing Magazine</td>
<td>3 (20%)</td>
</tr>
<tr>
<td>University of São Paulo Nursing Magazine</td>
<td>2 (13,33%)</td>
</tr>
<tr>
<td>Brazilian Magazine of Cardiovascular Surgery</td>
<td>1 (6,66%)</td>
</tr>
<tr>
<td>Nursing Magazine of UFSM</td>
<td>1 (6,66%)</td>
</tr>
<tr>
<td>Management and Economics in Health</td>
<td>1 (6,66%)</td>
</tr>
<tr>
<td>Magazine of the Brazilian Medical Association</td>
<td>1 (6,66%)</td>
</tr>
<tr>
<td>Electronic Nursing Magazine</td>
<td>1 (6,66%)</td>
</tr>
<tr>
<td>UERJ Nursing Magazine</td>
<td>1 (6,66%)</td>
</tr>
</tbody>
</table>

**Table 2. Code and Objective of the publications.**

<table>
<thead>
<tr>
<th>Code</th>
<th>Objective</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1-A2-A5-A6-A7-A13</td>
<td>Identifying the factors that influence on the variation of time before the arrival to the emergency care until the beginning of the AMI therapy.</td>
<td>6 (40%)</td>
</tr>
<tr>
<td>A4-A8-A9-</td>
<td>Evaluating from the implementation of protocols on quality indicators of AMI assist the impact on mortality.</td>
<td>3 (20%)</td>
</tr>
<tr>
<td>A3-A11-A12</td>
<td>Recognizing the differences between genders before the decision to seek medical care service facing the AMI.</td>
<td>3 (20%)</td>
</tr>
<tr>
<td>A10-A15</td>
<td>Analyzing factors influencing early intra-hospital therapy.</td>
<td>2 (13,33)</td>
</tr>
<tr>
<td>A14</td>
<td>Discussing the health education with members who take care to people suffering AMI.</td>
<td>1 (6,66)</td>
</tr>
</tbody>
</table>

**Table 3. Code and Research Subject.**

<table>
<thead>
<tr>
<th>Code</th>
<th>Research Subject</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1-A2-A5-A6-A7-A9-A10-A13-A14-A15</td>
<td>Patients with chest pain and diagnosis of AMI.</td>
<td>10 (66,66%)</td>
</tr>
<tr>
<td>A3-A11-A12</td>
<td>Patients with suspected AMI, with emphasized analysis by gender.</td>
<td>3 (20%)</td>
</tr>
<tr>
<td>A4-A8</td>
<td>Health team members.</td>
<td>2 (13,33%)</td>
</tr>
</tbody>
</table>

**Table 4. Summary of Results.**

<table>
<thead>
<tr>
<th>Code</th>
<th>Summary of Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Showed that recognition of the signs and symptoms of AMI patient was the determining factor for demand for specialized care and those with smaller delta T presented best prognosis.</td>
</tr>
<tr>
<td>A2</td>
<td>From the network organization of treatment, that is, teams trained in aspects of diagnosis, reperfusion, immediate transport and rear hospital resulted in immediate improvement of results, reducing clinical events of AMI on a public network.</td>
</tr>
<tr>
<td>A3</td>
<td>Decision times were elevated and suffered influence of cognitive variables, emotional</td>
</tr>
</tbody>
</table>
and gender.

A4 The program of implementation of clinical practice guidelines on attention to the AMI obtained a significant impact and their multiplication for other units that can contribute to improve the assistance to the AMI in the SUS.

A5 The time it takes until the demand for help is still long; the ignorance of the manifestations about heart attack can be a contributing factor.

A6 The recognition of the signs and symptoms of AMI patient is the determining factor for demand for specialized care.

A7 Individuals in unfavorable socio-economic conditions, which have interpreted the symptoms incorrectly, belatedly arrived to the emergency and worse outcomes presented intra-hospitals.

A8 The deployment of AMI care line has allowed increased access of the population to appropriate treatment and, consequently, reduced hospital mortality by AMI.

A9 The welfare Protocol implementation was reflected in greater adherence to quality indicators.

A10 The results of the study show that the delay in the arrival at the medical service, time door-electrocardiogram and time to diagnose the IAM were the factors involved in the administration of thrombolytic delay.

A11 Men and women have opted for means of transport and inadequate care locations and health system does not seem prepared to serve them.

A12 The study showed the risk of life that women undergo with the actions of resistance to pain. Whereas 40 to 60% of deaths from coronary artery disease occur in the first hour after the onset of symptoms.

A13 The therapeutic itinerary experienced in your experience of pain and agony is marked by social and cultural components that determined your choices.

A14 The nurse has the responsibility to organize the information, education and training to the public and to empower themselves to work with technical and scientific competence, ethics and humanistic care to persons with AMI to reduce pre-hospital delay.

A15 The prolonged hospitalization and intra-hospital death in patients with acute coronary syndrome independent of the time of admission.

DISCUSSION

The discussion will be presented by subcategories that emerged after accurate reading of the articles and descriptive analysis of the results.

♦ Non-recognition of symptoms

A total of 10 articles (66.66%) analyzed in the category pre-hospital barriers, 09 (90%) as a problem for the care to individuals with AMI, non-recognition of symptoms by individuals hence not valuing severity of the disease, causing them to adopt misconduct as expected to improve pain, using popular knowledge, self-medication, concealment, among other measures contributing to the worst-hospital outcomes.11-15

Also in referring to the recognition of symptoms of AMI by individuals of the analyzed studies, some confused them with gastrointestinal problems (malaise passenger, stomach trouble, colic, worm), musculoskeletal (bursitis), breathing problems (lung), intoxication food/drug, anger.11,4 Most studies found that cognitive and emotional variables, socioeconomic, demographic and cultural influence in the recognition of AMI symptoms.11,12,15,16,17

The association between recognition of symptoms and the decision time (TD) to seek the health service is discussed in some studies as a gender issue, and there was no statistically significant association in this regard; however, women stand up more decision time to get emergency care than men.4,6,11,12 It is known that the smaller the TD for the individual seeking the health service, better prognosis.13

Meanwhile, the guidance for the identification of symptoms and the importance of searching for adequate health and timely service, contributes to the reduction of mortality rates and a better prognosis,6 therefore, health education for the population generally at risk of suffering a myocardial infarction is extremely important, because death rates from this disease account for 50% when they happen outside the hospital, mainly related to non-recognition of symptoms.4

♦ First site of care sought

Of the 10 articles (66.66%) that composed the pre-hospital category, 05 (50%) refer to the difficulty of the infarcted individual to identify the proper location for his first visit to recognize prodromal symptoms of AMI. Research conducted in a public hospital northeastern states that 68% of participants, sought hospital as the first point of care to recognize the symptoms of AMI; however, a
third of surveyed (27.8%), went to doctors' offices, health clinics or at home were attended by a doctor.\textsuperscript{17}

Opposed to the findings mentioned above, research conducted in the emergency unit of the northwestern São Paulo, showed that 90.38\% of respondents went first to a Basic Health Unit (BHU), which is considered a problem, as this service does not have the technological resources and trained human therapy for AMI.\textsuperscript{16,17}

Studies emphasize that outpatient services or intermediaries, as the example of BHU, are unprepared for the therapeutic management of AMI, which requires the transfer of the patient, increasing the delayed start of treatment.\textsuperscript{4,13,15}

\textbf{Type of transport used and time}

Of the 10 articles (66.66\%) that address the category of pre-hospital barriers, 07 (70\%) bring the type of transport used by the AMI victims individuals are inadequate, compromising the travel time for their arrival to hospital unit to start the therapy.\textsuperscript{4,11}

The findings of the above research show that choosing the type of transport and the TD are directly related to the recognition of symptoms of AMI. Thus, individuals who are unaware of the prodromal signs or hesitate as the severity of the disease, is more TD in demand for immediate care, prolonging the time of arrival at the emergency unit, moving through improper transportation.\textsuperscript{4,11}

Research conducted with patients with previous CAD contradict with the aforementioned research, they conclude that even individuals who recognize the symptoms of AMI and seeking an early hospital care, are used as a means of inadequate transport.\textsuperscript{4,6,11,16} Research shows the arrival time (ΔT) that some individuals spend the onset of symptoms until they reach a hospital care, \( ΔT = 4h30min^6, ΔT = 254,7 (126,6)min^18, ΔT = 3h59min +_2h55min^15 \text{ e } ΔT = 9h54min +_18h9min^16 \), making DT higher than recommended, compromising the prognosis.

The III Guideline on the Treatment of AMI, recommends that the start time of symptoms to arrival at the hospital should not exceed 02 hours\textsuperscript{19}, and coronary reperfusion are time-dependent, that is, the sooner established coronary flow, the better the prognosis.\textsuperscript{6,11,18}

Studies show that the means most used by individuals symptomatic of AMI transport are cars themselves or friends and ambulance or taxi.\textsuperscript{4} Some studies are opposed in relation to the time interval of patients who have been displaced from ambulance was lower or most of which were conducted in own car or friends, for they show no statistically significant difference in travel time between different modes of transport.\textsuperscript{6,16,17}

The delay in the choice of transport to move until the emergency service is not only connected to the patient does not recognize the symptoms, but also to factors such as the availability of transport and the possibility of access. Meanwhile, studies portray the difficulty and the unavailability of ambulance services and the lack of material resources to meet the patient face to the AMI.\textsuperscript{15,17}

Health education is also emphasized, when it comes to clarifying the population regarding the appropriate use of means of transport on the verge of an AMI, it is important to draw attention to the activation of the emergency mobile care service (SAMU), favoring a better intra-hospital outcome.\textsuperscript{4}

\textbf{Quality of material and human resources}

A total of 14 articles (93.3\%) used the category of in-hospital barriers, 05 (35.71\%) emphasize the importance of quality human resources and materials that when disabled and inadequate respectively, are considered one factor that slows the intra-hospital care for patients with AMI.

Study with the objective of discussing health education as part of care for AMI victims, explains the need for educational and preventive guidelines both for the population and for health professionals, enabling them to recognize prodromal symptoms and adopt appropriate measures to reduce pre-hospital delay among the population and the delay of intra-hospital care by professionals, emphasizing the importance of competence and qualification of nurses to assist these individuals.\textsuperscript{4}

Other studies corroborate the principle of importance as human and material resources, to improve the prognosis of those who experienced an AMI\textsuperscript{17}, drawing attention to the shortage of professionals able to recognize pathological conditions of the individual infarcted\textsuperscript{11,15}, sending the cardiologist to the home, denying service\textsuperscript{17} or delaying the start of therapy and materials and inadequate equipment found in public service systems.\textsuperscript{4}

Studies with MI individuals confirmed that the care obstacles are related to the lack of material causes the transfer of patients to other hospitals\textsuperscript{19} and lack of structure in the institutions in relation to the lack of resources for diagnosis and treatment broken as the electrocardiograph and the lack of jobs and drugs.\textsuperscript{17}

\textbf{Time door-EKG, needle holder and flask holder}
Santos MC, Torres RM, Queiroz IC.

From a total of 14 articles (93.33%) 8 (57.14%) were used in this subcategory, drawing attention a study between patients in the general hospital in the Rio Grande do Sul showed that there is a delay between the first patient assessment to the performance and interpretation of the electrocardiogram (ECG), contributing to delay in preparing the thrombolytic and 59% of the time spent to initiation of therapy.18

Study for the implementation of AMI care line in a Brazilian capital reveals that the achievement of pre-hospital ECG associated with hemodynamic service significantly reduce the flask holder, whereas the implementation of a tele-ECG system has brought positive impact in reducing mortality.20

Still dealing with the time-electrocardiogram, studies show that several situations may compromise the time appointed for its achievement, interfering in diagnosis, as the fulfillment of time for its completion, the transmission problem, the lack of staff’s ability to handle the equipment and the test cannot be requested by the nurse.17,18,20

A study conducted in emergency rooms found that the fullness of time the needle was the same in different admission schedules, however, the weather-balloon was higher at night, increasing the waiting time for opening up the artery recanalization flow.21 Opposed to this study, survey generally concludes that the hospital long needle holder was lower at night, because the number of calls is reduced, providing service agility.18

Several articles analyzed in this subcategory noted that the delay of the start of intra-hospital measures, is directly related to time of arrival at the hospital, and the hospital admission time and, considering that time is dependent, it is necessary to therapeutic success a short time, about two hours from the onset of symptoms of AMI to reach emergency.4,6,11,16

Finally, by analyzing the studies that constitute this sub-category, we see the need for units with electrocardiogram equipment running along with a tele-electrocardiogram system that enables the return of the diagnosis quickly, a skilled and qualified staff to carry out administration of thrombolytic therapy in a timely manner, as well as the implementation of pre-hospital service as a strategy to reduce the flask holder and mortality.20,1

Deployment assistance protocols for the treatment of the AMI

From the total of 14 articles (93.33%) 9 (64.28%) were used in this subcategory, which were almost unanimous studies suggesting the establishment of care protocols for the treatment of AMI, since they reflect the organization care and greater adherence to health indicators, producing more effective results for assisted population, observed by reducing mortality from this disease.18,20,22,23

The protocol of AMI care line implemented in Belo Horizonte, for example, led the reorganization of care for patients suspected of the disease, through training and motivation of teams, the interaction of laboratory services, hemodynamics and sectors such ICUs through a continuous and integrated process.20,22 The implementation of this protocol led to reduction of mortality rates, compared to the main Brazilian cities, and has its results recognized by the Health Ministry in December 2011.20

Study about the effect of the implementation of a clinical protocol of AMI held a charity in São Paulo, found better results in the individual’s conduct with this disease between the years 2009-2012, when the prescription rate acetylsalicylic acid arrived 100%, time-flask reduced from 93 to 86 minutes and the mortality rate decreased from 7.6% to 5.3%.22 However, it is still great concern about the non-adherence to protocols, evidenced through therapeutic variables.2,21

Consistent with the results of the research mentioned above, study after systematization of 205 cases in the public showed a reduction of clinical events, by establishing protocols for faster interpretation of the ECG, the use of fibrinolytic and perform the angioplasty, leading with a better prognosis and reduction in mortality.24

A survey with women in a public hospital in Salvador emphasizes the importance of implementing early care and care protocols for AMI in the emergency medical services.14 Other research consistent with this result, showing that it is necessary health team interest in developing care protocols, considering that they should be viewed as an act still involving the revaluation with enhancement purpose.18,22

Finally, 5 (35.72%) of the articles used in this subcategory reaffirm the importance of training health professionals for the implementation of protocols on attention to the individual with AMI can be effective in order to improve attention to this serious disease that endangers the life of the individual.14,18,20,22,23
CONCLUSION

AMI because it is a serious health situation, it is essential that the patient be conducted more quickly the appropriate health facility, aimed at restoration of coronary flow early. Barriers in assisting the individual with the disease are present both in the environment and in pre-hospital, contributing to a worse prognosis and increased mortality rate from CVD.

In the pre-hospital phase recognition of symptoms is a determining factor for the immediate search of the emergency service, followed by the place of immediate demand and the transport of choice, plus the travel time should be quick and early. The unfavorable socio-economic situation and the individual being of low education make difficult to recognize the symptoms. The first point of care and transport of choice were factors that showed influences on service time.

In this study it becomes evident the need for research-teaching-service integration and points to the importance of educational institutions, especially public ones, maximizing their efforts for the formation of competent health professionals and critics to act at all levels of health where barriers were identified in assisting the individual with suspected AMI, which will meet the health needs of the population and reduce the rates of death from this disease.

Health education is necessary for both professionals and the community, as regards the recognition of symptoms and behaviors to be taken front of an AMI, as well as the implementation of care protocols, and key points to obtain a better prognosis of the individual victim of a heart attack.

With regard to the effectiveness of health education of the professional, this should involve the three health care levels, involving multi-professional team, by building flowcharts for primary care containing the site of reference for treatment in AMI. As for the average units and high complexity, these protocols should contain information on the institution of appropriate therapy. Building workshops for the preparation of educational materials such as differentiated pocket guide for professional class, with guidelines aimed at minimizing the damage the AMI victims related to pre- and intra-hospital barriers.

With regard to health education to the community, health professionals must conduct educational campaigns involving prevention and health promotion through healthy lifestyle guidelines advise measures to be taken against the onset of symptoms of AMI, suitable choice of health facility where you should go and what the appropriate means of transport. These guidelines should be performed dynamically, interactively, using community spaces in order to reduce AMI mortality rates.

REFERENCES


Santos MC, Torres RM, Queiroz IC.
