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CHARACTERISTICS OF THE INITIAL ASSISTANCE TO PERSONS WITH ACUTE CORONARY SYNDROME

CARACTERÍSTICAS DO ATENDIMENTO INICIAL A PESSOAS COM SÍNDROME CORONARIANA AGUDA

CARACTERÍSTICAS DE LA ATENCIÓN INICIAL A PERSONAS CON SÍNDROME CORONARIO AGUDO

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ABSTRACT

Objective: to analyze the assistance to patients with acute coronary syndrome in a public hospital. **Method:** this was a descriptive study with a quantitative approach, in which 39 electronic medical records of patients seen between January and April of 2013 were analyzed. Data submitted to descriptive statistics is presented in tables. The research project was approved by the Research Ethics Committee, CAAE 17384113.0.0000.5149. **Results:** males represented 56.4% of cases, and the median age was 58 years. The median of time spent from registration to risk classification, risk classification to medical care, and registration to the electrocardiogram were 8, 27, and 47 minutes, respectively. Only 20.5% received the antithrombotic/antiplatelet triple therapy. The average length of stay was 2.9 days, 23% were discharged, and 74.3% were transferred. **Conclusion:** training, implementation of protocols in emergency services, and infrastructure maintenance are necessary for a qualified performance of assistance to reduce injuries and complications caused by delays in assistance. **Descriptors:** Acute Coronary Syndrome; Emergency Medical Services; Screening

RESUMO

Objetivo: analisar os atendimentos a pacientes com síndrome coronariana aguda em hospital público. **Método:** estudo descritivo, com abordagem quantitativa, no qual analisou 39 prontuários eletrônicos de pacientes atendidos entre janeiro a abril de 2013. Os dados submetidos à estatística descritiva, apresentados em tabelas. O projeto de pesquisa foi aprovado pelo Comitê de Ética em Pesquisa, CAAE 17384113.0.0000.5149. **Resultados:** o sexo masculino representou 56,4% dos casos e a mediana de idade foi de 58 anos. A mediana dos tempos gastos do registro até a classificação de risco, da classificação até o atendimento médico e do registro até a realização do eletrocardiograma foram 8, 27 e 47 minutos, respectivamente. Apenas 20,5% receberam a tripla terapia antitrombótica/ antiplaquetária. A média do tempo de internação 2,9 dias, 23% receberam alta e 74,3% foram transferidos. **Conclusão:** é necessário treinamentos, implantação de protocolos nos serviços de emergência e manutenção de infraestrutura para desempenho qualificado da assistência para reduzir os agravos e complicações geradas pela demora na assistência. **Descritores:** Síndrome Coronariana Aguda; Serviços Médicos de Emergência; Triagem.

RESUMEN

Objetivo: analizar la atención a los pacientes con síndrome coronario agudo en un hospital público. **Método:** estudio descriptivo, con enfoque cuantitativo, el cual analizó 39 prontuarios electrónicos de pacientes atendidos entre enero a abril de 2013. Los datos sometidos a la estadística descriptiva, fueron presentados en cuadros de información. El proyecto de investigación fue aprobado por el Comité de Ética en Investigación, CAAE 17384113.0.0000.5149. **Resultados:** el sexo masculino representó 56,4% de los casos y la mediana de edad fue de 58 años. La mediana de los tiempos gastos del registro hasta la clasificación de riesgo, de la clasificación hasta la atención médica y del registro hasta la realización del electrocardiograma fueron 8, 27 y 47 minutos, respectivamente. Apenas 20,5% recibieron la triple terapia antitrombótica/antiplaquetaria. La media del tiempo de internación fue 2,9 días, 23% recibieron alta y 74,3% fueron transferidos. **Conclusión:** son necesarios entrenamientos, implantación de protocolos en los servicios de emergencia y mantenimiento de la infraestructura para desempeño cualificado de la asistencia para reducir los agravios y complicaciones generadas por la demora en la asistencia. **Descritores:** Síndrome Coronario Agudo; Servicios Médicos de Emergencia; Selección.

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INTRODUCTION

Cardiovascular diseases represent the category of diseases with the highest morbidity and mortality worldwide. It is estimated that in 2020, approximately 40% of death cases will be related to these diseases.¹

In Brazil, health care authorities have shown great concern because cardiovascular diseases account for 31% of deaths and Acute Coronary Syndromes (SCA) are related to a high impact on mortality rate and increased hospital admissions in the country.¹

SCAs are caused by a sequence of pathological events that can cause permanent or temporary obstruction in the coronary arteries. They are: unstable angina (AI), acute myocardial infarction without ST segment elevation (IAMSSST), and acute myocardial infarction with ST-segment elevation (IAMCSST).^{2,3}

Regardless of new knowledge and guidelines for the diagnosis and management of patients with SCA, hospital mortality rate remains around 20.6%. This finding reinforces the importance of a continuous evaluation of emergency services concerning infrastructure, work processes, and multiprofessional training.^{1,4}

In the Brazilian emergency services, a screening system has been adopted, the Risk Classification based on the Manchester Protocol to optimize the waiting time according to the clinical severity. This reduction in time enables a faster and effective care in cases of SCA.⁵

The evaluation of SCA assistance records is one way of assessing services because it allows identifying points requiring further attention. In Brazil, there are few studies showing results of assistance related to SCA from records documenting clinical practice. This fact complicates the understanding of the disease and proposals to improve care.^{4,6}

Based on this information, the guiding question in this study was: How does the initial care of patients with SCA occurs in a public hospital in the city of Belo Horizonte? Thus, the objective is to analyze the assistance to patients with acute coronary syndrome in a public hospital. This analysis will enable knowing the reality and variables that can influence the assistance provided. Access to this information is essential to update protocols, invest in education, and adequate human and material resources.

METHOD

This was a descriptive study with a quantitative approach, performed in the Emergency Service of the University Hospital in the city of Belo Horizonte/MG. This is a general hospital and a major gateway to the city for these services, and also a reference to the metropolitan region of Belo Horizonte.⁷

The elected inclusion criteria were: people with confirmed medical diagnosis of SCA as recorded in the medical record, aged 18 and older, and those who received initial care at the institution in the period from January 1 to April 30 of 2013.

Data were collected from electronic medical records stored in the electronic system of the institution and at the information center in the ALERT® program. This program provides for the classification of medical diagnosis at entry from the closed field according to the International Classification of Diseases - 10 (CID-10).⁸ To identify patients with a confirmed diagnosis of SCA the following diagnoses at admission were considered: Chest pain, unspecified; Unstable angina; Angina pectoris; Chest pain while breathing; Acute myocardial infarction unspecified; Angina pectoris, unspecified; Transmural acute low myocardial infarction; Subendocardium acute myocardial infarction; Transmural acute anterior myocardial infarction; Acute coronary syndrome; Acute myocardial infarction.

During the study period, 399 medical records showed admission diagnoses considered in the initial selection. Of these, 04 recorded age under 18, 203 showed confirmed diagnosis different from SCA, and 153 had no record of a confirmed diagnosis. Thus, the sample consisted of 39 medical records.

Data collection was performed by the researchers regarding sociodemographic characteristics, clinical profile, and service. Data were compiled into an Excel 2010® spreadsheet. The data were submitted to descriptive statistical analysis. This study was approved by the Ethics Committee of the Federal University of Minas Gerais under the number CAAE 17384113.0.0000.5149.

RESULTS

Ages ranged from 18 to 83 years with a median of 58 years. The identification of city of origin was recorded in 37 records, 23 being (62.2%) from Belo Horizonte. Other assistances corresponded to the metropolitan region, being 7 in Santa Luzia (18.9%), 3 in

Ribeirao das Neves (8.1%), 3 in Vespasian (8.1%), and 1 in Jaboticatubas (2.7%).

Regarding gender, 22 (56.41%) were men; the occupation was recorded in only 1 (2.56%) medical record as an electrician.

Comorbidities were recorded in 38 (97.4%) patients (Table 1). In 23 (60.5%) records, the registration of two or more comorbidities were present, and only 2 (5.2%) denied the presence of comorbidities. The following were

categorized as "other comorbidities": gout, chronic obstructive pulmonary disease, dilated ischemic cardiomyopathy, and abdominal aortic aneurysm.

In addition to comorbidities, records of risk factors were identified in 12 (31.5%) medical records: smoking in 6 (50.0%), family history of SCA in 5 (41.6%), obesity in 3 (25.0%), and alcohol consumption in 1 (8.3%).

Table 1. Comorbidities and risk factors in patients with Acute Coronary Syndrome

Comorbidities	n	%
Arterial hypertension	27	71
Diabetes	15	39.4
Chronic Heart Failure	1	2.6
Smoking	6	15.4
Previous Acute Myocardial Infarction	16	42.1
Stable Angina	2	5.2
AVE	1	2.6
Dyslipidemia	2	5.2
Hypothyroidism	2	5.2
Others	8	21

Note AVE - cardiovascular encephalic accident

From the onset of symptoms to the search for care, the time until assistance ranged from less than one hour to above one month: 4 (11.4%) <1 hour; 7 (20%) from 1 hour to 3 hours; 7 (20%) from 4 hours to 6 hours; 6 (17.1%) between 7 hours and 12 hours; 6 (17.1%) between 12 and 24 hours; 3 (8.5%) for 2 to 7 days; 1 (2.8%) from 1 week to 1 month; 1 (2.8%) > 1 month; and 4 (11.4%) had not been described in the patient's record.

The time between the patient registration at the hospital and classification of risks ranged from 1 to 43 minutes, with a median of 9 minutes.

The main complaints reported by patients in the classification of risks were: Chest pain/thoracic pain 11 (33.3%), Associated

chest pain (shortness of breath, dyspnea) 4 (12.1%), Radiating chest pain (upper limbs, neck, jaw and/or back) 9 (27.3%), Chest pain with other symptoms (nausea, dizziness) 5 (15.1%), other symptoms 4 (12.1%), and 6 (15.3 %) with medical records without the description of symptoms.

Data on risk classification are presented in Table 2. The medical records of 6 (15.4%) patients did not contain the fluxogram record.

Table 2. Distribution of patients according to the Risk Classification ⁽⁸⁾

Fluxogram (n=33):	n	%
Thoracic Pain	26	78.7
Adult indisposition	04	12.1
Loss of consciousness	01	3
Discriminators (n=29)		
Chest or heart pain	17	58.6
Sudden changes of consciousness	2	6.8
Abnormal pulse	6	20.6
Sudden onset	1	3.4
Moderate pain	2	6.8
Intense pain	1	3.4
Priority: color/maximum time for assistance (n=34)		
Orange (10 min)	28	82.3
Yellow (60 min)	4	11.7
Green (240 min)	1	2.9

The time between risk classification and medical assistance recorded in 31 (79.4%) medical records ranged from 05min to 3h23min, averaging 50.6 min. The time between the patient's registration in the unit and medical assistance ranged from 4min to 5h 30min, averaging 68.1min.

The following medical diagnoses, exactly as described in the charts, were: Unstable Angina 10 (25.6%), Acute myocardial infarction 4 (10.3%), IAM with supra elevation of the ST segment 6 (15.4%), IAM without supra elevation of the ST segment 10 (25.6%), and Acute Coronary Syndrome 9 (23.1%).

The prescription of the antithrombotic/antiplatelet triple therapy

(aspirin, clopidogrel, and heparin) at admission was only identified in 8 (20.5%) medical records. The exclusive prescription of analgesic and anti-inflammatory drugs was observed in 2 (5.1%) cases; drug prescription at admission was not identified in 1 (2.6%) chart. The thrombolysis time was less than 12 hours from the onset of symptoms in 6 (15.4%) patients undergoing this therapy.

The time spent between patient registration and the electrocardiogram (ECG) was recorded in 37 medical records, which varied from 2min to 25h and 39min with a median of 47 minutes. The record of time in minutes according to a specific diagnosis is presented in Table 3.

Table 3. Time spent between patient registration and the first ECG according to the diagnosis described in the medical chart.

Time ECG(in minutes)	1 st n	Average	Dp	Min.	1 st Q	2 nd Q	3 rd Q	Max
AI	10	208.9	433.3	12.0	32.3	65.0	120.0	1430.0
IAM	04	74.8	67.2	15.0	33.0	58.0	99.8	168.0
IAM c ST	05	34.2	18.6	4.0	30.0	40.0	47.0	50.0
IAM s ST	10	99.0	126.3	10.0	32.8	58.5	90.5	442.0
SCA	08	57.6	37.9	19.0	38.8	50.5	63.3	143.0
Total	37	108.4	236.5	4.0	30.0	47.0	89.0	1430.0

Note: DP - Standard Deviation; Min. - Minimum; Max. - Maximum; Q - Quartile; ECG: electrocardiogram (ECG); AI: Unstable Angina; IAM: acute myocardial infarction; IAM c ST: acute myocardial infarction with supra elevation of the ST segment; IAM s ST: acute myocardial infarction without supra elevation of the ST segment; SCA: acute coronary syndrome

The time of hospital stay ranged from 0 to 22 days, with an average of 3.4 and median of 2 days. As for the fate of patients, 1 (2.6%) with IAM diagnosis evolved to death, 9 (23.1%) were discharged, and 29 (74.3%) were transferred for follow-up treatment. Of these, the majority (69.2%) was transferred to public hospitals in the city network.

DISCUSSION

In this study, the male gender predominated. Two multicenter studies, the *Brazilian Registry on Acute Coronary Syndromes* - BRACE and the *Clinical Practice Brazilian Registry of Acute Coronary Syndrome* - RBSCA, which are national prospective studies, presented a different profile regarding gender; another study by Framingham showed an association of female gender with coronary affections in 40%. Other more recent studies, but of a lesser magnitude in Bahia with 195 patients and São Paulo with 574 patients, showed a greater number of men and no male gender association with increased mortality.⁹⁻¹¹

The average age was 58.9 years differs from studies that showed an aging population with an average age of more than 62 years.^{9,11-2}

As for comorbidities, hypertension appears as the most frequent, a fact confirmed in other studies highlighting the similar prevalence of HAS in 70% of patients with SCA.^{1,12} Among the risk factors, smoking and family history of coronary disease (DAC) is presented around 27% and 44%, respectively; other studies have shown 21% for smoking and 13% to 43% for positive family history.^{11,12}

The search for emergency service was delayed, between one hour and one month after the onset of symptoms. The IV Guidelines of the Brazilian Society of Cardiology on Treatment of IAM points out to denial of pain as heart pain; lack of knowledge about the benefits of rapid assistance, and urgent care not available to the entire population as limiting factors for quick assistance.¹³

The risk classification according to the Manchester Protocol is initially based on complaints from patients because these will drive the determination of the fluxogram by the professional.⁵ The risk classification is carried out by nurses in the studied hospital, and 71.8% of patients received an appropriate classification based on the most frequent complaint: chest pain. A prospective¹⁴ study in Portugal evaluated the specificity of the Manchester Protocol, also performed by nurses, for the proper classification of

patients with chest pain resulting in medical care and performance of the ECG within the time recommended by the International Guidelines. This specificity was 72.4%, showing similarity to the data found in this study.

The study in Portugal showed that the symptoms and characteristics of complaints of this disease direct to fluxograms and discriminators that culminate into the red priorities with immediate assistance and orange with medical care at most within ten minutes,¹⁵ however, this study found that the majority was classified as orange, no patient was classified as red, and the presence of yellow classifications with service established within 60 minutes and green with recommended response-time of a maximum of 240 minutes, which imply in the delay to start therapy. The lack of priority registration was identified in 5 records, which could be due to a failure in the ALERT® program at the registration time; internet disconnection is one of the predisposing factors.

Another worrying factor was the time from hospital admission to risk classification. The Manchester Protocol establishes that in cases in which the classification takes more than 10 minutes of waiting, another classification position must be established.⁵ This time is considered the ideal time response to the first medical evaluation. Thus, one study in Coimbra/Portugal that evaluated the effectiveness of risk classification by the Manchester Protocol for the identification of SCA and medical evaluation in less than 10 minutes showed that the classification and assistance occurred in a timely manner in 82.8% of cases.¹⁶ This data differ from those found because the average time between risk classification and medical assistance was six times longer.

Studies have shown that the Manchester Protocol alone does produce efficiency and does not improve the quality of assistance; enhanced organization and remodeling of the assistance process with different groups of patients is required.^{1,17}

By analyzing the patient who died in this study, we can detect a long delay, even considering an elderly patient, with 14 minutes from admission to classification, and 2 hours 48 minutes from admission to medical assistance and first ECG. This fact, even isolated, demonstrates the need to reduce the time taken for providing assistance to patients with SCA.

In the drug therapy, the most common medications prescribed at admission were those according to the literature: aspirin,

beta-blockers, nitrates, clopidogrel, heparins, statins, and inhibitors of angiotensin-converting enzyme inhibitors (IECA). However, the association described in the Guidelines and current literature as being more efficient, the antithrombotic/antiplatelet triple therapy to prevent atherothrombotic⁶ events, was prescribed in only 21.0% of cases. The ACCEPT - *Acute Coronary Care Evaluation of Practice Registry*⁶ study describes an adequate medical treatment when statins and beta-blockers are prescribed, however, this data is different from that found in the present study because statin was prescribed on admission in only 15 (39.4%) cases and beta-blockers in 7 (18.4%), which indicates low qualification in the process of prescribing drugs to these patients.

Even in the face of the difficulties reported in the medical records by professionals to refer patients with SCA to perform coronary angiography, most patients were indicated to and/or underwent coronary angiography, and a small number received fibrinolytic. A similar fact found in the ACCEPT records with data of less than 15% of reperfusion therapy using fibrinolytic, however, different from studies conducted in Bahia where 79% of patients received this therapy.^{6,18}

The thrombolysis time ranged from two and half hours to twelve hours, complying with the standards that recommends the time of less than 12 hours from the onset of pain. Time of less than 4 hours has shown greater benefits with a reduction in the degree of ventricular dysfunction and mortality.¹⁹

The new Guidelines and a study in São Paulo^{9,13} recommend that in addition to the ECG, an assessment of serum cardiac biomarkers of myocardial damage (CK-MB and troponin) is necessary to confirm the diagnosis. It was possible to verify the performance of enzyme tests in 35 (89.7%) medical records on admission, about a quarter of patients had alterations, and the minority of patients (15- 38.4%) underwent testing of serial enzymes and most of these (10 -25.6%) presented alterations. The importance of knowing the collection times and release of results about enzymes in order to characterize the severity of chest pain was presented in another study,⁹ which showed a maximum time of door-collection of enzymes of 60 minutes and the time between collection and release of results of up to 40 minutes, however, these times could not be established because in the studied institution the professionals do not describe the collection schedule.

Recent studies show that from 28 to 36% of patients diagnosed with SCA are submitted to

coronary angiography, which are lower figures than 56.4% found in the studied population.^{1,20} The study²⁰ demonstrated a porta-balloon time of 83 minutes, which was considerable when compared to the average time between admission and medical assistance observed in this study as 67.3 minutes.

Regarding the diagnosis, it was not possible to separate the types of SCA because some records described only as IAM or SCA. However, we can compare with the study by Piegas et. al.¹² with similar data as the most frequent diagnosis being the AI (42.4%), followed by IAMCSST (39.3%), and IAMST (19.6%). In our study AI and IAMST had the same amount patients, and followed by IAMCST.

A concern pointed out by the literature are "communication difficulties" that occur prior to the hospital discharge of patients with SCA. This is a characteristic that can affect adherence to pharmacological and non-pharmacological treatments.²¹ This fact can be characterized by the number of new ischemic events identified in 16 (41.02%) medical records.

By analyzing the length of stay, it was observed that the time found in studies²², averaging 4.9 days, was similar to the time found in this study.

Studies have demonstrated that it is necessary to develop strategic planning, collaboration, and constant staff training to achieve quality and expedient service provided to patients with SCA.²³ Some difficulties were described in some medical records such as getting test results, shortage of beds in the coronary care units, and failures in connection with the computerized system for beds.

This information is relevant to assess the working conditions and difficulties faced by professionals in their daily activities. Conducting hospital audits is suggested to evaluate and identify resources and assistance in more detail to improve the quality and speed of assistance to patients with SCA.²⁴

CONCLUSION

The profile of patients with SCA in this study was of males coming from the city and metropolitan area. The predominant risk factors were hypertension, diabetes, dyslipidemia, smoking, family history of DAC, and previous IAM.

The recognition of SCA signs and symptoms occurred belatedly and with the patient seeking the emergency service only with worsening pain. A delay in assistance in the

classification for certain cases and to perform the ECG was observed, which hindered and further extended the start of treatment. It was possible to verify the lack of uniformity in the care and appropriate follow-up protocol for SCA in the institution, which is currently under construction, especially concerning drug therapy. We infer on the need for training sessions based on continuing education in emergency services, seeking to ensure the shortest time to the necessary treatment, improve the quality of care, and reduce injuries and complications caused by delays in assistance in addition to maintaining these units with sufficient resources for the activities of these professionals.

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