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ORIGINAL ARTICLE

PRESENTATION OF PREDICTING SYMPTOMS OF ACUTE CORONARY SYNDROME IN MEN AND WOMEN

APRESENTAÇÃO DOS SINTOMAS PREDITORES DE SÍNDROME CORONARIANA AGUDA EM HOMENS E MULHERES

LA PRESENTACIÓN DE LOS SÍNTOMAS PREDICTORES DE SÍNDROME CORONARIO AGUDO EN HOMBRES Y MUJERES

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ABSTRACT

Objective: to evaluate the differences in presentation of predicting symptoms of acute coronary syndrome (SCA) and correlate them with outcomes in men and women. **Method:** this was a descriptive study with a quantitative approach and a case series type including 80 patients diagnosed with SCA. Data collection was performed with a questionnaire and analysis of medical records. The project was approved by the Research Ethics Committee, CAAE 17477213.0.0000.5197. **Results:** most patients who reported specific symptoms were males (61%) and young (51.6%). The nonspecific symptoms were reported by the elderly (75%) and individuals with low educational level (47.4%). **Conclusion:** young male patients presented better responses in the interpretation of symptoms related to SCA when compared women, the elderly, and individuals with low educational level. **Descriptors:** Acute Coronary Syndrome; Cardiology; Symptoms; Nursing.

RESUMO

Objetivo: avaliar as diferenças na apresentação dos sintomas preditores de síndrome coronariana aguda (SCA) correlacionando-os com os desfechos em homens e mulheres. **Método:** estudo descritivo com abordagem quantitativa do tipo série de casos, com 80 pacientes com diagnóstico de SCA. A coleta de dados foi realizada com um questionário e análise de prontuários. O projeto foi aprovado pelo Comitê de Ética em Pesquisa, CAAE 17477213.0.0000.5197. **Resultados:** a maioria dos pacientes que referiu sintomas específicos era do sexo masculino (61%) e jovem (51,6%). Os sintomas inespecíficos foram relatados por idosos (75%) e indivíduos com baixo grau de escolaridade (47,4%). **Conclusão:** pacientes jovens, do sexo masculino, apresentaram melhor resposta na interpretação dos sintomas relacionados à SCA, quando comparado às mulheres, idosos e indivíduos com baixo nível de escolaridade. **Descritores:** Síndrome Coronariana Aguda; Cardiologia; Sintomas; Enfermagem.

RESUMEN

Objetivo: evaluar las diferencias en la presentación de los síntomas predictores de síndrome coronario agudo (SCA) correlacionándolos con los resultados en hombres y mujeres. **Método:** estudio descriptivo con enfoque cuantitativo del tipo serie de casos, con 80 pacientes con diagnóstico de SCA. La recolección de datos fue realizada con un cuestionario y un análisis de archivos. El proyecto fue aprobado por el Comité de Ética en Investigación, CAAE 17477213.0.0000.5197. **Resultados:** la mayoría de los pacientes que mostró síntomas específicos era del sexo masculino (61%) y jóvenes (51,6%). Los síntomas inespecíficos fueron relatados por ancianos (75%) e individuos con bajo grado de escolaridad (47,4%). **Conclusión:** pacientes jóvenes, del sexo masculino presentaron mejor respuesta en la interpretación de los síntomas relacionados a SCA, cuando comparado a las mujeres, ancianos e individuos con bajo nivel de escolaridad. **Descriptores:** Síndrome Coronario Agudo; Cardiología; Síntomas; Enfermería.

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INTRODUCTION

The Acute Coronary Syndrome (SCA) is characterized by acute myocardial ischemia generated by the occlusion of coronary arteries. Acute Myocardial Infarction (IAM), with and without ST-segment elevation, and Unstable Angina (AI) make up the SCA clinical frame. This is a cardiac emergency resulting in high morbidity and mortality rates, representing a significant public health problem.¹

The SCA symptoms presentation ranges from classic to nonspecific, which may interfere with the choice of appropriate conduct for treatment.² The correct identification of symptoms results in decreased arrival time at emergency services and early initiation of reperfusion therapy.³ However, the lack of autonomy and progressive disability caused by the onset and progression of symptoms can collaborate for the individual to become increasingly passive in the face of the situation, reducing the chances of survival.^{2,4}

Some socio-cultural characteristics such as religion, education level, the number of people per household, and gender may influence the choice of conducts.^{5,6} In a qualitative study including both genders, it was observed that women with IAM may present less frequent chest pain and sweating and more frequent dyspnea than men.⁷ It is possible that conditioning factors related to the male and female genders can influence the confrontation, resistance, and frequency in which SCA symptoms occur as well as mortality rates; these factors can interfere with the search for health services.⁸

OBJECTIVE

- To evaluate the differences in presentation of SCA predicting symptoms and correlate them with outcomes in men and women assisted in a cardiac emergency service.

METHOD

This was a descriptive study with a quantitative approach and case series type conducted between February and May 2014 in the Agamenon Magalhães (HAM) Emergency Cardiac Hospital.

The sample consisted of 80 subjects with confirmed SCA diagnosis. Subjects who were not able to provide information due to mental disorders or the use of drugs that interfered with cognition, or at unfavorable conditions such as cardiogenic shock, acute pulmonary edema, respiratory failure, and mechanical ventilation among others, were excluded.

The presentation of symptoms reported by the patients was classified as specific symptoms (chest and thoracic pain usually longer than 20 minutes and radiating to upper limbs, and neck alongside the presence of nausea and vomiting, and hypotension) and unspecific (pain radiating to the abdomen or legs and of the "knife" sharp type).

A questionnaire about socioeconomic conditions, presentation of SCA symptoms reported by men and women, past morbid history, and cardiovascular risk factors was used for data collection. Outcomes were collected through medical records. In an attempt to reduce recall bias, the maximum time for the application of the questionnaire was 48 hours after admission to the cardiac emergency service.

The comparative analysis of quantitative variables was performed using the Student t test or Mann-Whitney test. The comparative analysis between qualitative variables was conducted using the chi-square test or Fisher's exact test when necessary. All conclusions were based on a significance level of 5%. The software used were Excel 2000 and R v2.10.0. The research project was approved by the Research Ethics Committee (CEP) of HAM under number CAAE 17477213.0.0000.5197.

RESULTS

The sample consisted of 80 patients. Most (51.2%) respondents were married or in a stable relationship, residents of the metropolitan area in the city of Recife (RMR) (71.2%), and with a monthly income higher than one minimum wage (SM) (63.7%) (Table 1).

Table 1. Distribution of patients according to socioeconomic characteristics.

Variables	n	%
Gender		
Male	44	55.0
Female	36	45.0
Age		
< 60	35	43.8
≥ 60	45	56.2
Education		
Illiterate	23	29.1
Elementary and Middle School level	42	53.2
High School	12	15.2
College	2	2.5
Income	29	36.2
Up to 1 Minimum wage		
>1 Minimum wage	51	63.7

The proportion of comorbidities and risk factors was higher among individuals who presented a history of previous IAM, obesity, and hypertension (HAS). There was no significant statistical association between the data (Table 2).

Table 2. Distribution of patients according to comorbidities and risk factors.

	Yes		No	
	n	%	n	%
Comorbidities				
Previous IAM	26	32.5	54	67.5
AVC	15	18.8	65	81.2
DAC	25	31.2	55	68.8
Kidney Disease	24	30.0	56	70.0
Arrhythmias	4	5.0	76	95.0
ICC	5	6.2	75	93.8
Rheumatic fever	3	3.8	77	96.2
Thyroid disease				
Obesity	2	2.5	78	97.5
Risk Factors	26	32.5	54	67.5
HAS	65	81.2	15	18.8
Family History of SCA	49	61.3	31	38.8
Dyslipidemia	32	40.0	48	60.0
Sedentary lifestyle	59	73.8	21	26.2
Diabetes mellitus	26	32.5	54	67.5
Smoking	41	51.2	39	48.8
Alcoholism	43	53.8	37	46.2

Most patients reported specific symptoms for SCA (38.8%), were accompanied by a family member during the episode (57.5%) and did not arrive at the emergency service in a timely manner (51.2%). Regarding the outcomes, 27.5% received hospital discharge, 31.2% underwent angioplasty (ATC), 23.8% underwent coronary artery bypass grafting surgery (CRVM), and 17.5% presented recrudescent angina or IAM. The average travel time to emergency services in the study population was 31.5 hours.

The proportion of patients who reported specific symptoms was higher among males (61.3%), aged < 60 years (51.6%), residents of RMR (80.6%), and income > 1 MW (71%). The proportion of respondents who reported nonspecific symptoms for SCA was higher

among married or in stable relationships individuals (55%), aged ≥ 60 years (75%), low level of education (elementary school = 47.4%) and monthly income > 1 MW.

Although no statistically significant association was observed, the majority of respondents who reported nonspecific symptoms presented recrudescent Angina/IAM, were accompanied by family members during the episode, and came to the emergency service after 12 hours of symptom’s onset. The proportion of patients reporting specific symptoms for SCA was higher among those who underwent ATC (Table 3).

Table 3. Distribution of patients according to specific and nonspecific symptoms, and according to outcomes, witnesses, and travel time to emergency services.

	Specific		Nonspecific		p-value
	n	%	n	%	
Outcome					
Discharge	11	35.5	4	20.0	0.4058
CRM	5	16.1	5	25.0	
ATC	12	38.7	5	25.0	
Recrudescent Angina /IAM	3	9.7	6	30.0	
Witnesses					
Family members	16	51.6	12	60.0	0.9365
Others	6	19.4	3	15.0	
Absence	9	29.0	5	25.0	
Travel time to the emergency service					
Up to 12 hours	16	51.6	9	45.0	0.8972
> 12 hours	15	48.4	11	55.0	

As noted in Table 4, the highest proportion of patients who reported SCA specific symptoms were those with a family history of SCA and hypertension. Moreover, nonspecific symptoms were reported by sedentary

patients without a previous diagnosis of IAM, cerebrovascular accident (CVA), and coronary artery disease (CAD). However, there was no statistical difference between these variables.

Table 4. Distribution of clinical variables according to symptoms' specificity, comorbidities, and risk factors.

Clinical Variables	Specific		Nonspecific		Both		p-value
	n	%	n	%	n	%	
Previous IAM							
Yes	7	22.6	7	35.0	12	41.4	0.2880
No	24	77.4	13	65.0	17	58.6	
AVC							
Yes	4	12.9	4	20.0	7	24.1	0.5843
No	27	87.1	16	80.0	22	75.9	
DAC							
Yes	5	16.1	8	40.0	12	41.4	0.0673
No	26	83.9	12	60.0	17	58.6	
Kidney Disease							
Yes	5	16.1	9	45.0	10	34.5	0.0721
No	26	83.9	11	55.0	19	65.5	
Arrhythmias							
Yes	2	6.5	1	5.0	1	3.4	1.0000
No	29	93.5	19	95.0	28	96.6	
ICC							
Yes	3	9.7	1	5.0	1	3.4	0.8430
No	28	90.3	19	95.0	28	96.6	
HAS							
Yes	22	71.0	18	90.0	25	86.2	0.2067
No	9	29.0	2	10.0	4	13.8	
Rheumatic Fever							
Yes	3	9.7	0	0.0	0	0.0	0.1131
No	28	90.3	20	100.0	29	100.0	
Thyroid Disease							
Yes	1	3.2	0	0.0	1	3.4	1.0000
No	30	96.8	20	100.0	28	96.6	
Obesity							
Yes	10	32.3	4	20.0	12	41.4	0.2912
No	21	67.7	16	80.0	17	58.6	
Family History of SCA							
Yes	20	64.5	9	45.0	20	69.0	0.2131
No	11	35.5	11	55.0	9	31.0	
Dyslipidemia							
Yes	9	29.0	10	50.0	13	44.8	0.2633
No	22	71.0	10	50.0	16	55.2	
Sedentary lifestyle							
Yes	24	77.4	15	75.0	20	69.0	0.7503
No	7	22.6	5	25.0	9	31.0	
Diabetes Mellitus							
Yes	10	32.3	9	45.0	7	24.1	0.3089
No	21	67.7	11	55.0	22	75.9	

ICC: Congestive heart failure

As for the socio-economic characteristics associated with the average travel time to emergency services, the highest proportion of patients who presented a reduction in the average travel time to emergency services corresponded to males (30.1 hours), aged < 60 years (28.3 hours), RMR residents (30.72 hours), and with higher level of education (14 hours). Alongside these results, the highest proportion of patients who presented the highest average time from the onset of symptoms to admission at emergency services corresponded to those at the lowest level of education (elementary/middle school = 37.2 hours, and illiterate = 28.7 hours).

The distribution of patients according to outcomes and socioeconomic variables showed that the proportion of individuals presenting better outcomes was significantly higher among those who referred to themselves as single in the marital status variable, with a p-value of 0.0280.

The proportion of respondents who presented the hospital discharge outcome was higher among individuals aged < 60 years, living in RMR, with income higher than one minimum wage, and self-declared with white skin color (Table 5).

Table 5. Distribution of patients according to associations between outcomes and socio-economic variables.

	Discharge		CRM		ATC		Recrudecent Angina /IAM		p-value
	n	%	n	%	n	%	n	%	
Gender									
Male	11	50.0	11	57.9	17	68.0	5	35.7	0.2511
Female	11	50.0	8	42.1	8	32.0	9	64.3	
Age									
< 60	11	77.3	8	84.2	13	68.0	3	50.0	0.2729
≥ 60	11	22.7	11	15.8	12	32.0	11	50.0	
Place of Residence									
RMR	17	77.3	16	84.2	17	68.0	7	50.0	0.1765
Outside RMR	5	22.7	3	15.8	8	32.0	7	50.0	
Marital Status									
Single	9	40.9	7	36.8	4	16.0	0	0.0	0.0280
Married or in a stable relationship	9	40.9	11	57.9	14	56.0	7	50.0	
Widower	3	13.6	1	5.3	6	24.0	6	42.9	
Divorced	1	4.5	0	0.0	1	4.0	1	7.1	
Education									
Illiterate	5	23.8	7	36.8	6	24.0	5	35.7	0.7196
Elementary/Middle School	13	61.9	10	52.6	11	44.0	8	57.1	
High School	3	14.3	2	10.5	6	24.0	1	7.1	
College	0	0.0	0	0.0	2	8.0	0	0.0	
Income									
Up to 1 S.M.	7	31.8	6	31.6	12	48.0	4	28.6	0.5286
> 1 S.M.	15	68.2	13	68.4	13	52.0	10	71.4	
Skin Color									
White	12	54.5	9	47.4	12	48.0	7	50.0	0.9648
Non-white	10	45.5	10	52.6	13	52.0	7	50.0	

It is possible that the small sample size in this study may have influenced the lack of a statistically significant association between some variables.

DISCUSSION

The differences between men and women with regard to interpretations of the SCA predicting symptoms may be affected by socio-demographic and clinical factors such as age, education level, income, and SCA risk factors among others, which may increase the average time seeking health services and the initiation of thrombolysis, reducing the prognosis and survival of individuals.⁹

As the findings of the present study, male individuals with low education and in the age group equal or older than 60 years old are more exposed to cardiovascular diseases, especially SCA. These data can be confirmed by hormonal differences between genders

when high levels of estrogens promote more protection in premenopausal women in cardiovascular events against coronary artery disease (CAD) compared to men.^{9,10} Alongside, low level of education is a limiting factor for access to health education influencing the interpretation of SCA symptoms, which, therefore, is in agreement with previously published studies reporting that education and family income have an inverse relationship with this disease, indicating an association between low level of education and risk to develop SCA.¹¹

Most patients who reported specific symptoms were male, young, residents of RMR, and with better financial conditions. Conversely, the majority of respondents who

reported nonspecific SCA symptoms were elderly and with low educational level. These findings are similar to those reported in studies indicating that younger men present less difficulty in interpreting SCA symptoms and arrive faster to emergency services compared to women and the elderly who presented more nonspecific symptoms.¹²⁻¹³ Other studies evaluating differences in the perception of symptoms among people with different financial conditions observed that individuals with better financial conditions had more access to health education, less difficulty in interpreting the predicting symptoms of SCA, and arrived in a timely manner at emergency services.¹⁴⁻¹⁵

Even with no statistically significant association, the majority of respondents who reported nonspecific symptoms showed recrudescence Angina/IAM, were accompanied by family members during the episode and came to emergency services after 12 hours of symptom's onset. On the other hand, authors who studied the influence of symptoms' interpretation at the time of transportation to a hospital, observed that families most often suggest attitudes that prolong the time of arrival at emergency services compared to people with no family relationship with the victim.¹⁶ These data may partly justify the delay to institute thrombolysis in these groups of individuals collaborating with worsening outcomes for patients who failed to interpret correctly the predicting SCA symptoms.¹⁷ According to Franco et al., the factors that may be related to the delay in seeking medical attention may or may not be related to the recognition of a cardiac event by patients.¹⁸ In contrast, this study shows that the proportion of patients reporting specific SCA symptoms was higher among those who underwent ATC. It is possible that individuals, who interpreted the symptoms as specific to SCA, arrived at emergency services in time and could benefit from the thrombolytic therapy.¹⁷

Although with no statistically significant association, the greater proportion of patients who reported nonspecific SCA symptoms corresponded to sedentary patients and those who did not present previous IAM, AVs, and DAC diagnosis before the SCA event. In contrast, the proportion of respondents who reported specific symptoms for SCA was higher among individuals with a previous diagnosis of HAS, family history of SCA, and those who were not carriers of diabetes Mellitus (DM). This data can be justified by the results of two quantitative studies conducted in the United States where the

specific interpretation of SCA symptoms and time of arrival at emergency services are considered to be influenced by the type of SCA, comorbidities, and previously identified risk factors (HAS, DM, smoking, and dyslipidemia).^{13,19}

Most patients who presented a reduction in the average travel time to emergency services and the best outcomes corresponded to males, aged < 60 years, residents of RMR, with a higher level of education, and white skin color. Conversely, the highest proportion of patients who presented the highest average time from the onset of symptoms to admission to emergency services corresponded to those with low education level and low income. These results show consistency with other studies that present increased age, negative experience with previous hospital treatment, deficient autonomy to take care of health, socio-cultural factors/popular beliefs, difficulties in access education and health services due to unfavorable geographical location and/or financial constraints, and low level of education as risk factors for delayed arrival at emergency services.^{17,20} It is possible that those who arrived in a timely manner at emergency services and had interpreted SCA symptoms as specific contributed to the best-presented outcomes. Moreover, in the present study, the proportion of single individuals who presented better outcomes was statistically significant. Other authors who studied the influence of the interpretation of symptoms on the time of transportation to the hospital report that family members most often suggest attitudes that prolong the time of arrival at emergency services compared to people who are unrelated to the victim.^{16,18} Conversely, the fact that individuals with unfavorable social conditions take longer to access emergency services can be justified by the limited access to health education, which may have contributed to the poor recognition of SCA symptoms, thus, delaying the time to the start of thrombolysis.²¹

Studies such as that by Candiota contribute to corroborate the importance of a systematic care, individualized and holistic, to the individual affected by SCA. In addition, nursing care protocols must be formulated based on the degree of patient complexity in order to contribute to the best care offered.²²⁻³

Popular education is a key aspect of health promotion. Knowledge about the symptoms of a disease can interfere with the interpretation, and therefore, in the conduct adopted by the patient who, in most cases, will be consistent with the interpretation that

he attaches to those symptoms.²⁴ It is necessary to guide the public through educational campaigns and in a rational manner based on scientific evidence for the disclosure of SCA symptoms, particularly among the elderly, women, and low-income individuals because these groups present more difficult interpreting symptoms and extending the time to begin searching for health care than other groups. The factors that interfere in the search or not for specialized services are primarily linked to education in the Brazilian society allowing the recognition of these symptoms as a cardiac event and supporting the decision to look for emergency services.

To carry out health education activities, professionals need to adopt strategies that encourage and respect the notion that the patient is responsible for his own health, capable of initiating the process that leads him to well-being, recognizing the need for change in attitudes towards the disease's predicting symptoms.²⁰ In this perspective, health education activities can contribute to the promotion of patient autonomy enhancing the ability of self-care and reducing the SCA morbidity and mortality.¹⁸

CONCLUSION

Younger male patients with risk factors and previous diagnosis of SCA comorbidities correctly interpreted symptoms and arrived early at emergency services. In contrast, women, the elderly, and individuals with low educational level interpreted symptoms for SCA as nonspecific took a longer time to arrive at emergency services, and presented the worst outcomes.

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