EVALUATION OF THE LEVEL OF KNOWLEDGE OF PATIENTS WITH REGARDS TO THE TREATMENT OF ACUTE CORONARY SYNDROME USING THE MAUGERL CARDIAC PREVENTION-QUESTIONNAIRE

AVALIAÇÃO DO NÍVEL DE CONHECIMENTO DOS PACIENTES SOBRE O TRATAMENTO DE SÍNDROME CORONARIANA AGUDA BASEADO NO MAUGERL CARDIAC PREVENTION-QUESTIONNAIRE

EVALUACIÓN DEL NIVEL DE CONOCIMIENTO DE LOS PACIENTES SOBRE EL TRATAMIENTO DEL SÍNDROME CORONARIO AGUDO EN BASE AL MAUGERL CARDIAC PREVENTION-QUESTIONNAIRE

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ABSTRACT

Objectives: describing the level of knowledge of patients undergoing treatment for Acute Coronary Syndrome (SCA). Method: cross-sectional study applying the Maugerl Cardiac Prevention-Questionnaire to SCA patients who underwent cardiac catheterization (CATE) after being discharged from the coronary intensive care unit. Results: the sample was made up of 50 patients, 76% of whom were males, with a mean age of 58 years old (±10.2). The main risk factor for most of them was the systemic arterial hypertension. Patients presented, in general, a good performance in the questionnaire, despite their low educational level. The mean score in the questionnaire was proportional to family income (p=0.002) and to educational level (p=0.007). Conclusion: using the MICRO-Q instrument allowed this work to observe that educational level and socioeconomic level influence the understanding of the patient with regards to their own disease. The instrument was a useful tool to evaluate the level of knowledge of the patient affected by the SCA, since the adequate characterization of the profile of the patients cared for in each institution becomes a tool that makes it easier to plan assistance and health surveillance programs.
Keywords: Acute Coronary Syndrome; Coronary Disease; Health Education.

RESUMO

Objetivos: descrever o nível de conhecimento do paciente em tratamento de síndrome coronariana aguda (SCA). Método: estudo transversal com aplicação do Maugerl Cardiac Prevention-Questionnaire aos pacientes com SCA submetidos ao cateterismo cardíaco (CATE) após alta da unidade coronariana de cuidados intensivos. Resultados: amostra composta de 50 pacientes, 76% do sexo masculino, com média de idade de 58 anos (±10.2), sendo que 72% apresentaram como principal fator de risco a hipertensão arterial sistêmica. Os pacientes apresentaram, de modo geral, bom índice de desempenho no questionário, apesar do baixo nível de escolaridade. A pontuação média no questionário foi proporcional à renda familiar (p=0,002) e ao nível de escolaridade (p=0,007). Conclusão: a utilização do instrumento O Micro-Q permitiu constatar que a escolaridade e o nível socioeconômico influenciam no entendimento do paciente sobre a própria doença. O instrumento foi uma ferramenta útil para a avaliação do nível de conhecimento do paciente acometido pela SCA, pois a adequada caracterização do perfil dos pacientes atendidos em cada instituição torna-se uma ferramenta facilitadora para planejamentos assistenciais e programas de vigilância em saúde.
Palavras-chave: Síndrome Coronariana Aguda; Doença das Coronárias; Educação em Saúde.

RESUMEN

Objetivo: describir el nivel de conocimiento del paciente en tratamiento del síndrome coronario agudo (SCA). Método: estudio transversal con la aplicación del Cuestionario de Prevención Cardíaca Maugerl a pacientes con SCA sometidos a cateterismo

*cardíaco (CATE) después del alta de la unidad de cuidados intensivos coronarios. **Resultados:** muestra compuesta de 50 pacientes, 76% varones, edad media de 58 años (±10.2), 72% de ellos con hipertensión arterial como principal factor de riesgo. En general, los pacientes lograron un buen desempaño en el cuestionario, a pesar del bajo nivel de educación. El puntaje promedio en el cuestionario fue proporcional al ingreso familiar (p=0,002) y al nivel de educación (p=0,007). **Conclusión:** el uso del instrumento Micro-Q mostró que la educación y el nivel socioeconómico influyen en la comprensión del paciente de la enfermedad en sí. El instrumento fue una herramienta útil para evaluar el nivel de conocimiento de los pacientes afectados por SCA ya que la caracterización adecuada del perfil de los pacientes tratados en cada institución se convierte en una herramienta facilitadora para la planificación de la atención y los programas de vigilancia de ln salud. **Palabras clave:** Síndrome Coronario Agudo; Enfermedad Coronaria; Educación en Salud.*

INTRODUCTION

Cardiovascular diseases (DCV) are one of the five most common non-transmissible chronic diseases and cause more than 17 million deaths worldwide every year, and may also lead to the cumulative loss of productivity.[1] According to information from Datasus, the CDs were considered the main cause of death in 2010, and 7% of these deaths were caused by angina and acute myocardium infarctions (IAM), generating expenses that are near 0.77% of the total budget of SUS.[2,3]

The acute manifestation of the coronary disease (DAC) is called acute coronary syndrome (SCA). Considering the impact this has on the budget of SUS, there is an urgent need to allocate the resources better, not only considering hospital treatments, but also the investment in the rehabilitation of patients, many of whom are still in a productive age.[4] Taking measures to surveil cardiovascular risk factors, as well as offering multiprofessional care to SCA allows for the development more cost-effective actions.[5]

In this context, health education is understood as an important work instrument that starts in the establishment of the profile of the target-population, and considers the peculiarities, limitations, and possibilities of action by the professionals involved. The proposition of primary interventions, based on programs elaborated by a team, that can take actions regarding the risk factors, allied to scheduled multiprofessional discharges, is a way to establish a bond between those involved in the disease process and prioritizing the clarification of doubts about the disease, as well as the treatment, the adherence to it, and the self-management by the patients in their homes after discharge, all of which may result in a lower number of re-hospitalizations, diminish the progression of the disease, and lower mortality and the high health costs.[6]

Considering the impact of the coronary disease, the objective of this work was describing the level of knowledge of the patient with SCA with regards to the disease and to secondary prevention.

METHOD

This is a cross-sectional study carried out in the hospitalization sector (outpatient) after the patient with SCA was released from the coronary intensive care unit (UCO) of the *Hospital das Clínicas da Universidade Federal de Minas Gerais*, which includes the field of action of a multiprofessional residence program. It is a university institution offering public general healthcare of medium and high complexity, integrated to the SUS, as well as a reference in the municipal and state systems of health.

The study took place after approval from the Committee for Ethics in Researches with Human Beings from the *Escola de Enfermagem da Universidade Federal de Minas Gerais*. The project was submitted and evaluated by the CEP/CONEP and approved under the number 36064614.0.00005149.

Patients older than 18 y/o were included, whose clinical and cognitive capacity was minimally preserved, which was evaluated using the Glasgow coma scale and the Minimental State Examination (MMEE), which guided evaluation and who would participate in the application of the questionnaire for data collection. The inclusion criteria included those who had DAC and were hospitalized due to SCA, who were in the hospitalization unit immediately after being discharged from the UCO. This moment was chosen to minimize the interference of the multiprofessional team with regards to educational guidance, which is part of the routine in outpatient clinics. Patients who had been submitted to cardiac catheterization (CATE) were also included, since this is a diagnostic and/or therapeutic procedure that is carried out through angioplasty, oftentimes as an attempt to delay a surgical intervention for myocardium revascularization (CRVM).

The exclusion criteria, however, included patients who underwent CRVM, whose verbal or written communication was prejudiced, with changes in their level of consciousness, unstable clinical framework, or with MMEE results below the minimum values that indicate their cognition is preserved. The participants received the adequate clarification regarding the objectives of the research and signed the Free and Informed Consent Form.

A questionnaire adapted from the elaboration of other authors[7] was used for general data collection, to characterize the profile of the participants of the study and describe the percutaneous procedures carried out. The Maugerl Cardiac Prevention-Questionnaire (MICRO-Q) was the instrument

used to characterize the level of knowledge of the patients involved. It is translated and validated for application in Brazil[8] and made up of 25 self-applicable questions; it was also the instrument used to evaluate the knowledge of aspects related to secondary DAC prevention.

The information collected was analyzed in the software SPSS 18.0 - Statistical Package for the Social Sciences. The categorical variables were analyzed through frequency distribution, while the continuous variables were analyzed using central tendency measures (mean and median) and variability (standard deviation). The results obtained using the MICRO-Q were analyzed using the frequency of correct, uncertain, and incorrect responses to each question, and using domains such as factors: related to lifestyle and heart-disease risks; related to diet; related to the management of the heart disease; and related to the state previous to the hospital admission.

Aiming to evaluate the MICRO-Q results and the relation they have with the study variables (age, sex, medical diagnostic, percutaneous intervention procedures, comorbidities, previous percutaneous cardiac interventions, educational level, and family income) the general score obtained in the test was used. The ANOVA statistical test and the Bonferroni correction[9] were applied to evaluate multiple comparisons, and the T-test was used for two-by-two comparisons. The distribution of data was evaluated using the Kolmogorov-Smirnov test, and a normal distribution was found with regards to continuous variables. The significance level adopted was 5%.

RESULTS

Table 1 describes the general characteristics of patients included in the study. The evaluated sample had a mean age of 58 years (±10.2), with a minimum age of 34 and a maximum age of 83.

Regarding the medical diagnostic at hospitalization, 37 patients (74%) presented with IAM with ST segment elevation (IAM w/ SSST) and 13 (26%) presented with IAM with no ST segment elevation (IAM w/o SSST). Considering the sample studied, 33 patients (66%) were submitted to coronary percutaneous interventions (ICP) during the CATE.

The knowledge level of the patient with regards to the disease and its treatment was measured using the analysis of the performance of participants in the MICRO-Q test per question, according to the descriptions below.

Table 2 describes the analysis of the MICRO-Q questionnaire with regards to the frequency of responses in different scales, classifying the responses as correct, uncertain, or incorrect.

Table 1 - Characteristics of coronary patients who participated in the research (n=50). *Belo Horizonte*, MG, Brazil, 2014

Variable	Category	N*	% total
Age	30 - 39 years old	1	2.00
	40 - 49 years old	11	22.00
	50 - 59 years old	19	38.00
	60 - 69 years old	13	26.00
	70 - 79 years old	5	10.00
	>= 80 years old	1	2.00
Gender	Female	12	24.00
	Male	38	76.00
Comorbidities	Diabetes *Mellitus* Type II	12	24.00
	Systemic Arterial Hypertension	36	72.00
	Peripheral Vascular Disease	2	4.00
	Chronic Kidney Disease	3	6.00
	Cardiac Insufficiency	2	4.00
	Hyperthyroidism/ Hypothyroidism	6	12.00
	Cerebrovascular Disease	2	4.00
	Alcoholism	5	10.00
	Smoking	20	40.00
Previous percutaneous coronary interventions	Percutaneous coronary interventions	13	26.00
	MP/CDI†	2	4.00
	Not incident	35	70.00
Educational level (years of formal education)	0 a 3 years	6	12.00
	4 a 8 years	26	52.00
	Illiterate	7	14.00
	More than 8 years	11	22.00
Family income	1 to 2 minimum wages	24	48.00
	2 to 3 minimum wages	12	24.00
	More than 3 minimum wages	14	28.00

*Number of people interviewed; †Pacemaker/Implanted Cardiac defibrillator.

Table 3 presents an analysis of the MICRO-Q questionnaire considering the evaluation of the domains in the three scales.

The MICRO-Q results were also analyzed using general scores and scores per domain. Table 4 presents the mean of correct, uncertain, and incorrect questions, both in general and per domain. It should be highlighted that the number of questions in each domain is different, and therefore, the maximum number of right answers varies per domain.

The comparison between MICRO-Q results and the other variables of the research is shown in Table 5.

Table 5 shows that the general score of the participants was different regarding educational levels and family income.

Table 2 - Frequency of each question for each of the three scales (n=50). *Belo Horizonte*, MG, Brazil, 2014

Questions	Frequency N(%)		
	Correct	Uncertain	Incorrect
Q1 - The risk of infarctions diminishes if cholesterol high pressure, and high glycemia are treated, and also when one stops smoking and practices regular physical activities	50(100)	0	0
Q2- The risk factors are the cause of infarction and angina	48(96)	0	2(4)
Q3- A risk factor is a condition that must be maintained under control and be treated to diminish the chances of the progression of the arteriosclerotic disease	46(92)	0	4(8)
Q4- The infarction does not necessarily imply in physical or sexual activity limitations after the recovery/convalescence stage	25(50)	4(8)	21(42)
Q5- The surgery of pacemaker implantation is an intervention that definitely solves the problem of ischemic heart disease	23(46)	19(38)	8(16)
Q6- Angioplasty is used to dilate the narrowing of an artery, and thus, bring blood and nutrients once again to parts of the heart that are in need	45(90)	4(8)	1(2)
Q7- A person with a heart disease can say that this disease is caused by destiny	46(92)	0	4(8)
Q8- If one is a smoker and has good health, one may continue smoking	46(92)	0	4(8)
Q9- A person with high cholesterol, diabetes, or overweight, can learn to modify the ways in which to cook food	48(96)	0	2(4)
Q10 - A person with high cholesterol, diabetes, or overweight, should learn to choose the adequate food	48(96)	0	2(4)
Q11- A person who feels stressed can learn to fight stress	42(84)	0	8(16)
Q12 - A person who feels stress cannot do anything to change this situation	41(82)	0	9(18)
Q13- The diet of a patient with a heart problem should moderate salt consumption	50(100)	0	0
Q14- The diet of a patient with heart problems should be rich in fibers (fruits and vegetables)	50(100)	0	0
Q15- One should consume vegetables from 2 to 3 days a week, since they are low fat and are rich in fibers	15(30)	1(2)	34(68)
Q16- Olive oil is a good way to season food when non-heated, so that its natural state is not altered	27(54)	12(24)	11(22)
Q17- Physical activities one learns in cardiac rehabilitation, after discharge, should still be carried out in the long-term and frequently	46(92)	2(4)	2(4)
Q18- Fish must be consumed at least 3 times a week	49(98)	0(0)	1(2)
Q19- When one has free time, it is good to go on long walks, take care of the garden, and ride a bicycle	46(92)	1(2)	3(6)
Q20- If you feel chest pain again, you must take nitrate (sustrate or isordil) below the tongue (sublingual)	38(76)	10(20)	2(4)
Q21- If the chest pain does not subside after using nitrate (sustrate or isordil) below the tongue (sublingual), you should use your own phone to call the family's physician	25(50)	7(14)	18(36)
Q22 If the chest pain does not subside after using nitrate (sustrate or isordil) below the tongue (sublingual), you should call an emergency service	41(82)	7(14)	2(4)
Q23- If the chest pain does not subside after using nitrate (sustrate or isordil) below the tongue (sublingual), you should drive to the emergency unit	37(74)	4(8)	9(18)
Q24- The stress (ergometric) test is used to define the type and intensity of physical activity that can be performed by a person who went through an infarction	26(52)	20(40)	4(8)
Q25- Coronary catheterization is a useful diagnostic exam that can be used to make artery narrowing visible	43(86)	4(8)	3(6)

With regards to educational level, the T-test showed a statistically relevant difference, with a mean score higher for participants with educational levels higher than eight years, when compared to those whose educational level was below eight years of formal education (p=0.007; confidence interval (IC), lower limit = -3.99; and IC superior limit = 0.620).

Table 3 - Frequency of MICRO-Q items according to each domain in the three scales (n=50). *Belo Horizonte*, MG, Brazil, 2014

Factors	Frequency N(%)		
	Correct	Uncertain	Incorrect
Factors related to lifestyle and health-disease risks			
Q1	50(100)	0(0)	0(0)
Q2	48(96)	0(0)	2(4)
Q3	46(92)	0(0)	4(8)
Q7	46(92)	0(0)	4(8)
Q8	46(92)	0(0)	4(8)
Q11	42(84)	0(0)	8(16)
Q12	41(82)	0(0)	9(18)
Q17	46(92)	2(4)	2(4)
Q19	46(92)	1(2)	3(6)
Factors related to diet			
Q9	48(96)	0(0)	2(4)
Q10	48(96)	0(0)	2(4)
Q13	50(100)	0(0)	0(0)
Q14	50(100)	0(0)	0(0)
Q15	15(30)	1(2)	34(68)
Q16	27(54)	12(24)	11(22)
Q18	49(98)	0(0)	1(2)
Factors related to the management of cardiac disease			
Q4	25(50)	4(8)	21(42)
Q5	23(46)	19(38)	8(16)
Q6	45(90)	4(8)	1(2)
Q24	26(52)	20(40)	4(8)
Q25	43(86)	4(8)	3(6)
Factors related to the state previous to the hospital admission			
Q20	38(76)	10(20)	2(4)
Q21	25(50)	7(14)	18(36)
Q22	41(82)	7(14)	2(4)
Q23	37(74)	4(8)	9(18)

Regarding family income, a statistically relevant difference was found when the groups were compared. Participants who earn from one to two minimum wages perform better in the test when compared to those who receive from two to three minimum wages (p=0.023; IC lower limit = -4.33; and IC superior limit = 0.25); the same was true in the comparison between participants who earn from one to two minimum and those who earn more than three minimum wages (p=0.003; IC lower limit = -4.66; and IC superior limit = 0.78).

DISCUSSION

In the sample studied, the most prevalent diagnostic after admission was IAM w/ SSST, in male patients from 40 to 69 years of age (± 7.8) and a mean age of 56. The presence of risk factors was high. The individuals were already being treated for comorbidities that are widely known to be connected to the emergence and progression of DAC, such as systemic arterial hypertension, smoking, and diabetes *mellitus* type II. In general, among the cases surveyed, there was a good level of knowledge about the DAC, although the sample had 78% of participants with an educational level of less than eight years formal education, and 42% with mean family income from one to two minimum wages per month.

The high prevalence of different risk factors influence in the prognostic and in the outcome of the response to the clinical treatment implemented, which is directly related to complications such as mortality due to DAC.[10] The World Health Organization presented, in 2013, the publication "A global brief on hypertension", which emphasized that systemic arterial hypertension is responsible for at least 45% of deaths from heart diseases, and for 51% of deaths due to cerebrovascular diseases.[1] Another worrying risk factor in the sample studied is the high number of smokers, which reiterates the remarkable presence of factors that can be removed in the development of DAC. The proposal of surveilling the consumption of cigarettes becomes highly effective when individualized interventions are proposed, taking into account sociocultural aspects involved in population groups.[11]

According to the *Ministério da Saúde*, risk factors such as the high consumption of fatty foods are more prevalent in Brazilian populations with low educational levels. Brazilians with 12 years or more formal study consume at least five portions of fruits and vegetables, according to the recommendations of the World Health Organization (WHO).[12] An inquiry carried out by Vigitel was in accordance to this study with regards to the exposition to modifiable risks, which are directly connected to lifestyle. With this, the WHO highlights the importance of acting in these risks that can be modified in the population, focusing on the improvement of habits to diminish health problems.[13]

5

Table 4 - General and per-domain scores obtained in the three scales of MICRO-Q

Scales / Domains (Min-Max)*	Correct			Uncertain			Incorrect		
	Min-Max	Median	Mean (SD)†	Min-Max	Median	Mean (SD)	Min-Max	Median	Mean (SD)
Lifestyle and heart-disease risks (0-9)	5-9	9.00	8.22 (1.04)	0-1	0.00	0.06 (0.24)	0-4	0.00	0.72 (0.94)
Diet (0-7)	3-7	6.00	5.76 (0.85)	0-2	0.00	0.24 (0.48)	0-3	1.00	1.00 (0.80)
Management of the cardiac disease (0-5)	1-5	3.00	3.22 (1.18)	0-4	1.00	1.00 (1.11)	0-2	1.00	0.78 (0.71)
Factors related to the state previous to the hospital admission (0-4)	0-4	3.00	2.82 (1.22)	0-4	0.00	0.56 (1.23)	0-4	0.00	0.62 (0.78)
Total (0-25)	13-25	20.00	20.02 (2.61)	0-4	1.00	1.30 (1.3)	0-8	2.00	2.50 (1.69)

*Min. = minimum score; Max. = maximum score; †SD= Standard Deviation.

Table 5 - Comparison between MICRO-Q results and the other variables of the research. *Belo Horizonte*, MG, Brazil, 2014

Variable	Category	N	Mean of correct answers (SD)	P-value*
Sex	Female	12	21.0(2.04)	0.093
	Male	38	19.7(2.72)	
Age	<65 years	36	20.0(2.64)	0.932
	>65 years	14	20.07(2.65)	
Educational level	<8 years	39	19.51(2.47)	0.007
	>8 years	11	21.82(2.401)	
Family income (Minimum wages)†	1 to 2 minimum wages	24	18.71(2.52)	0.002
	2 to 3 minimum wages	12	21.00(2.48)	
	More than 3 minimum wages	14	21.43(1.74)	
Diabetes *Mellitus* Type II	Not incident	38	20.37(2.56)	0.094
	Incident	12	18.91(2.53)	
Systemic Arterial Hypertension	Not incident	14	20.15(2.71)	0.838
	Incident	36	19.97(2.61)	
Peripheral Vascular Disease	Not incident	48	19.91(2.61)	0.173
	Incident	2	22.5(0.70)	
Chronic Kidney Disease	Not incident	47	19.95(2.66)	0.509
	Incident	3	21.00(1.73)	
Cardiac Insufficiency	Not incident	48	20.10(2.6)	0.269
	Incident	2	18.00(0)	
Hyperthyroidism/Hypothyroidism	Not incident	44	19.84(2.71)	0.193
	Incident	6	21.33(1.21)	
Cerebrovascular Disease	Not incident	48	20(2.66)	0.794
	Incident	2	20.5(0.70)	
Alcoholism	Not incident	45	20.13(2.62)	0.363
	Incident	5	19.00(2.55)	
Smoking	Not incident	30	20.2(2.07)	0.556
	Incident	20	19.75(3.30)	

...continued

Table 5 - Comparison between MICRO-Q results and the other variables of the research. *Belo Horizonte*, MG, Brazil, 2014

Variable	Category	N	Mean of correct answers (SD)	P-value*
Medical diagnostic	‡IAM w/SSST	37	20.13(2.82)	0.604
	§IAM w/o SSST	13	19.69(1.97)	
Percutaneous coronary intervention	‖Cate	17(34)	20.29(2.22)	0.600
	Cate + Angioplasty	33(66)	19.87(2.81)	
Previous percutaneous cardiac interventions	Cardiac/percutaneous interventions	13(26)	21.15(1.67)	0.143
	MP/CDI	2(4)	21.00(1.41)	
	Not incident	35(70)	19.54(2.83)	

* Probability of significance, p<0,05; † Minimum wage: R$ 788,00. Brazil 01/01/2015;
‡ Acute myocardium infarction with ST segment elevation; § Acute myocardium infarction with ST segment elevation; ‖ Cardiac Catheterization.

A study about the medium-term evaluation of risk factors of patients who underwent ICP has shown that the treatment has a higher chance of success (survival rate increase, complication reduction, and general health improvements) when there is an adherence to healthcare plans, especially considering changes in lifestyle. Patients who underwent percutaneous treatment were shown to be more likely to adhere to secondary preventive measures when compared to those who underwent surgical treatments.[14]

The results in the MICRO-Q questionnaire were proportional to family income, that is, the higher the income, the higher the score. Those with an income higher than three minimum wages and more than eight years formal education had better results.

The patients presented good results in the scores of the test concerning the level of knowledge about the DAC, reiterating the similarity between this study and other researches that showed that individuals usually have little knowledge about the pathophysiology and progression of their disease, but know what the disease is, as well as the main risk factors and complications involved. However, difficulties in self-management for prevention is often one of the biggest problems found in this public.[15] The investment in education and social mobilization may qualify and give strength to self-care and aid in the construction of healthy habits in these patients.[13]

It is important to mention some limitations of this investigation, such as the fact that it was carried out using a convenience sample, which means that results cannot be generalized for a different population than the one which was studied. The limited size of the sample may also increase the chance of random mistakes in the analysis carried out. However, similarities were found with data previously published in literature.

CONCLUSION

The MICRO-Q questionnaire was found to be a useful tool that involves important issues regarding DAC self-knowledge and the ways in which secondary prevention takes place. The use of the instrument allowed to verify that the educational and socioeconomic levels influence the understanding patients have about their own disease. It is worth highlighting the need for new studies targeted at multiprofessional teams, since they can be facilitators in education. The characterization of the profile of the patients becomes a tool that can be used to plan the assistance and for health surveillance.

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