



Journal of Nursing

Revista de Enfermagem

UFPE On Line

ISSN: 1981-8963

ORIGINAL ARTICLE

CARDIOVASCULAR RISK FACTORS IN PATIENTS SUBMITTED TO CORONARY BYPASS GRAFT SURGERY

FATORES DE RISCO CARDIOVASCULAR EM PACIENTES SUBMETIDOS À CIRURGIA DE REVASCULARIZAÇÃO MIOCÁRDICA

FACTORES DE RIESGO CARDIOVASCULAR EM PACIENTES SOMETIDOS A CIRUGÍA DE REVASCULARIZACIÓN DEL MIOCARDIO

Patricia Veiga Nascimento¹, Ana Paula Santos de Jesus³, Emanuelle Nunes da Cunha², Neuma Carla Santos do Rosário⁴, Armênio Costa Guimarães Guimarães⁵

ABSTRACT

Objective: describing the prevalence of cardiovascular risk factors in patients in preoperative care for coronary bypass graft surgery (CABG). **Method:** cross-sectional descriptive study, with collection and assessment of data for 165 patients in a reference hospital of the SUS network (public health system), in Salvador-Bahia/Brazil. **Results:** the majority of the population of elderly, 103(62,4%), male, 102(61,8%), self-declared race black or mulatto, 129(78,2%), with primary education, 105(63,6%) and social class E, 141(85,5%). Most prevalent cardiovascular risk factors: hypertension 136(82,4%), waist circumference >84cm in 57(90,4%) women and >88cm in 87(85,2%) men, sedentarism 135(81,8%), smoking 88(53,3%), high LDL-c 105(69,5%), low HDL-c 84(53,8%), high triglycerides, 81(51,6%), overweight 77 (46,7%), obesity 42(25,5%) and DM2, 80(48,8%). **Conclusion:** patients in preoperative care for CABG in a public hospital of the SUS network are, in their majority, elderly, black and mulattos, low social class and with high prevalence of cardiovascular risk factors. **Descriptors:** Ischemic Heart Disease; Risk Factors; Coronary Bypass Graft.

RESUMO

Objetivo: descrever a prevalência de fatores de risco cardiovascular em pacientes no pré-operatório de cirurgia de revascularização do miocárdio (CRM). **Método:** estudo transversal, descritivo, com avaliação e coleta de dados de 165 pacientes em um hospital de referência da rede SUS, em Salvador-Bahia/Brasil. **Resultados:** a maioria da população de idosos, 103(62,4 %), homens, 102(61,8%), raça autodeclarada negra/parda, 129(78,2%), com ensino fundamental, 105(63,6%) e da classe social E, 141(85,5%). Fatores de risco cardiovascular mais prevalentes: hipertensão 136(82,4%), circunferência da cintura >84cm em 57(90,4%) mulheres e >88cm em 87(85,2%) homens, sedentarismo 135(81,8%), tabagismo 88(53,3%), LDL-c elevado 105(69,5%), HDL-c baixo 84(53,8%), triglicérides elevado, 81(51,6%), sobrepeso 77 (46,7%), obesidade 42(25,5%) e DM2, 80(48,8%). **Conclusão:** pacientes no pré-operatório de CRM em hospital público da rede SUS são, em sua maioria, idosos, negros e pardos, estrato social baixo e com elevada prevalência de fatores de risco cardiovascular. **Descritores:** Cardiopatia Isquêmica; Fatores de Risco; Revascularização Miocárdica.

RESUMEN

Objetivo: describir la prevalencia de factores de riesgo cardiovascular en pacientes en lo preoperatorio de cirugía de revascularización del miocardio (CRM). **Método:** estudio transversal, descriptivo, con evaluación y recolección de datos de 165 pacientes en un hospital de referencia de la red SUS, en Salvador-Bahia/Brasil. **Resultados:** la mayoría de la población de ancianos, 103(62,4 %), hombres, 102(61,8%), raza auto declarada negra/parda, 129(78,2%), con enseñanza fundamental, 105(63,6%) y de la clase social E, 141(85,5%). Factores de riesgo cardiovascular más prevalentes: hipertensión 136(82,4%), circunferencia de la cintura >84cm en 57(90,4%) mujeres y >88cm en 87(85,2%) hombres, sedentarismo 135(81,8%), tabaquismo 88(53,3%), LDL-c alto 105(69,5%), HDL-c bajo 84(53,8%), triglicéridos elevados, 81(51,6%), sobrepeso 77 (46,7%), obesidad 42(25,5%) y DM2, 80(48,8%). **Conclusión:** pacientes en lo preoperatorio de CRM en hospital público de la red SUS son, en su mayoría, ancianos, negros y pardos, estrato social bajo y con elevada prevalencia de factores de riesgo cardiovascular. **Descriptores:** Cardiopatía Isquémica; Factores de Riesgo; Revascularización Miocárdica.

¹Nurse, Master Professor, Doctoral Candidate, Federal University of Recôncavo of Bahia. Santo Antônio de Jesus (BA), Brazil. E-mail: pativeiga1@hotmail.com; ³Nurse, Master, Professor, Federal University of Recôncavo of Bahia. Santo Antônio de Jesus (BA), Brazil. E-mail: polipaula10@hotmail.com; ²Nurse, Post-Graduate in Occupational Nursing. Feira de Santana (BA), Brazil. E-mail: emanuellecunha@gmail.com; ⁴Nurse, Physiotherapist Post Graduated in Manual and Postural Therapy. Salvador (BA), Brazil. E-mail: neumacarla17@gmail.com; ⁵Physician, Doctor and Professor, Medical School, Federal University of Bahia/Bahia School of Medicine and Public Health. Salvador (BA), Brazil. E-mail: armenioguimaraes17@gmail.com

INTRODUCTION

Ischemic heart disease is the single major universal cause of cardiovascular death, responsible for 36% of deaths in individuals between 50 and 64 years old and in 42% over 65 years old.¹ The current treatment of coronary insufficiency includes, in addition to the clinical methods, percutaneous invasive and surgical methods, complementary to the limitation of those. Thus, the surgical coronary bypass graft is a complementary alternative for the recovery of the coronary artery circulation, when there is a risk of an acute coronary syndrome, or in chronic conditions, allowing for the myocardial functional preservation, while the simultaneous control of the risk factors acts on the evolution of the disease, ensuring the surgical result and favoring the patient prognosis, also improving his/her quality of life.¹⁻²

As well documented in INTERHEART³, an epidemiologic study performed in 52 countries in the five continents, including Brazil, there is an intercontinental agreement in the high prevalence of modifiable risk factors (RF), as responsible for over 90% of the risk attributable to coronary artery disease (CAD), among them: type 2 diabetes mellitus, dyslipidemia, high blood pressure, psychological stress, overweight/obesity and smoking. As regards these CVRF, it is worth emphasizing the epidemiological relevance of central obesity associated to overweight/obesity, marked by the increase in waist circumference.

This risk factor is associated to the development of insulin resistance, and generates three primary risk factors: atherogenic dyslipidemia, type 2 diabetes mellitus and high blood pressure. Although there are no current international and local data on the prevalence of central obesity, it can be inferred from the prevalence of overweight/obesity obtained with the measurement of Body Mass Index (BMI), to which it is associated, in most cases. Thus, in the Brazilian adult population, according to the Surveillance of Risk and Protective Factors for Chronic Diseases through Telephone Inquiry (VIGITEL),⁴ the prevalence of excess weight is 50,8%, predominantly male (54,7% vs 47,4%), and 7,3% for obesity, with no difference between the genders.

Sedentarism is another cardiovascular risk factor (CVRF) of great current importance, showing high prevalence in the study population. Researches describe the Strong relation between sedentary behaviors and the increase in the risk of chronic diseases, such as: obesity, type 2 diabetes, cardiovascular diseases and metabolic syndrome.⁵⁻⁹

In the context of CAD prevention and treatment in populations similar to the study population, the low social condition should be emphasized as an important obstacle that hinders the prevention at all levels, and also putting at risk the beneficial effects of the Coronary Bypass Graft Surgery (CABG). In the context of social condition is the unsatisfactory model of outpatient follow-up for these underserved patients and a full care structure to be managed by a multidisciplinary team.

The purpose of this article is to provide information on the prevalence of cardiovascular risk factors in a population treated with CABG in a SUS reference hospital and to enable multiprofessional strategies to maintain the good prognosis for these individuals. It is particularly important to notice the importance of the nursing personnel in coordinating and executing health education programs, stimulating and helping the individuals to reflect and value the modification of risk behaviors.¹⁰

OBJECTIVE

- Describe the prevalence of cardiovascular risk factors in patients in preoperative care for coronary bypass graft surgery.

MÉTHOD

Cross-sectional descriptive study, with collection and assessment of data for 165 patients, in preoperative care for CABG surgery, in-hospital stage, in a reference hospital of the SUS network (public health system), in Salvador-Bahia/Brazil. A convenience sample was studied, with male and female patients, 18 years old or older and satisfactory communication abilities, from February/2012 to March/2013. This sample corresponded to 66,5% of the total 248 CABGs performed in this period. The representativeness of this sample in terms of its social, demographic and anthropometric characteristics was verified by the Sample Program, "Stata software". Therefore, considering a 95% IC, in which 66,5% of the population of 248 surgeries performed during the data collection period were studies, and 0,05 accuracy in the variation of its

characteristics, a study of only 145 patients would be necessary, which, added of a 10% correction to compensate for eventual losses, would total 159 patients, still less than the study sample of 165 patients.

The variables of interest were: 1 - sociodemographic: age, sex, race/color, education and social class; 2 - clinical: waist circumference (WC), BMI: overweight, obesity, Systemic Arterial Hypertension (SAH), previous diagnosis of type 2 diabetes (DM2), smoking and sedentarism; 3 - laboratorial: Lipid Profile (CT, LDL-C, HDL-C and Triglyceride) e fasting glycaemia.

From the patients information and records in charts, we obtained information on the previous diagnosis of SAH and DM2, and laboratory results: fasting glycaemia $\geq 100\text{mg/dL}$, triglycerides $>150\text{mg/dL}$, LDL-C $\geq 70\text{mg/dL}$ and HDL-C $< 40\text{mg/dL}$ for men and $< 50\text{mg/dL}$ for women, as established by the V Guideline of Dyslipidemia and Atherosclerosis Prevention.¹¹

To measure the anthropometric variables, weight (Kg), height (m) and waist circumference were measured. Weight was measured by a Welmycom scale, 150kg capacity, 100g accuracy, and the patients were weighed with light clothing and no shoes. Height was measured with a stadiometer coupled to the scale, 0,1 cm accuracy and two meters long. The body mass index (BMI) was calculated through the Quetelet formula: $\text{BMI} = \text{weight} / \text{height}^2$ (Kg/m^2), classifying overweight (25 to 29,9 kg/m^2) and obesity ($\geq 30\text{kg/m}^2$).¹²

To determine the waist circumference (WC), the patient was required to stand, breathe normally, arms alongside the body and feet together, upright. The measuring spot was marked mid-point between the lower costal margin and the iliac crest. The examiner ran the measuring tape at the waist, in the marked spot. This was done with the participant breathing normally and with the abdomen relaxed, reading at normal exhalation. Data were annotated with no rounding. Waist circumference (WC) was measured with a 150 cm inextensible measuring tape, with one millimeter accuracy.¹³⁻⁴

The cut point used for the diagnosis of central obesity was $>84\text{ cm}$ for women and $>88\text{ cm}$ for men, obtained from a population sample representative of Salvador, studied by Barbosa and collaborators.¹⁵

The sedentarism or physical inactivity variable was classified according to Vigitel⁴ and refer to all individuals that have nor practiced any physical activity in their free

time in the last three months and that do not make intense physical effort in their work, do not walk or ride a bicycle to work or school for at least 10 minutes per route or 20 minutes round-trip and were not responsible for the heavy cleaning in their home. As regards smoking, the individual was considered a smoker when he/she gave a positive answer to the question “do you smoke?”, regardless of the number of cigarettes, frequency and duration of the smoking habit.⁴ Those who reported living in the same home and/or working at the same place as smokers were also considered smokers, according to the Sistema de Surveillance of Risk and Protective Factors for Chronic Diseases through Telephone Inquiry.⁴

The continuous variables were expressed as absolute frequency, percentage, average and standard deviation and the categorical in absolute frequency and percentage. The comparison among the averages was performed by using the t-test for independent samples. The calculations were performed in the Statistical Package for the Social Sciences (SPSS), version 15. The comparison between two proportions was performed by the Primer of Biostatistics, version 3.02.

This study is part of the doctoral thesis called “Evolution in the first clinic in the postoperative period of patients undergoing coronary artery bypass grafting in public hospital” (“Clinical Assessment in the first post-operative year of patients undergone coronary artery bypass graft surgery in public hospital”), approved by the Research Ethics Committee of the Bahia School of Medicine and Public Health, under the number 147/2011, on August 17, 2011, and all the subjects signed the free and informed consent form (ICF).

RESULTS

Table 1 shows the main sociodemographic variables for patients in CABG preoperative care in the SUS network.

The age averages $62,69 \pm 9,26$ vs $62,16 \pm 8,52$ between men and women, with prevalence of men, 102 (61,8%) vs 63 (38,2%) $p=0,005$. When assessing elderly and non-elderly 103(62,4%) vs 62(37,6%), evidencing $p=0,002$; with statistical significance. Although the percentage of elderly individuals was higher in both males and females, there was no significant difference between ≥ 60 and < 60 : 65(39,4%) vs 37(22,4%), $p=0,124$ for males and 38(23,0%) vs 25(15,2%) for females, $p=0,648$.

As regards self-declared race/color, there was a high percentage of black individuals

(black and mulattos) when compared to white race/color 129(79,2%) vs 34(20,6%), respectively, p=0,000. For education, the majority of the population had finished primary school, 105(63,6%), and the minority proceeded to high school, 24(14,5%), and only 7(4,2%) had higher education, totaling 105(63,6%) vs 31(18,7%), respectively, p= 0,000;

In the economical aspect, 141(85,5%) of the

population was considered part of class E vs 24(14,5%) class D, p=0,000, with family income of up to one minimum wage (MW) and above 1 MW up to 3 MW, respectively. For this variable, we considered the MW established in Brazil, which ranged between R\$ 622,00 and R\$ 678,00. The salary variation was justified by the entry period of the subjects, which was 2012-2013.

Table 1. Sociodemographic characterization of the patients submitted to coronary bypass graft, in the SUS network. Salvador-Bahia, 2012-2013 (n=165).

Variable	Category	n	%	P value*
Descriptive measures	Average age and standard deviation	62,48± 8,9		
Sex	Male	102	61.8	0,005**
	Female	63	38.2	
Race/color	Black/mulatto	129	78.2	0,000***
	White	34	20.6	
	Not informed	02	1.2	
Education	No education	29	17.6	0,000****
	Primary school	105	63.6	
	High school	24	14.5	
	Higher education	07	4.2	
Classe social	D (01 to 03 MW)	24	14.5	0,000*****
	E (up to 01 MW)	141	85.5	
Total		165	100	

*comparison between two proportions
** male x female sex
*** black x white race
**** Primary education X high school and higher education
***** D and E social classes

Table 2 shows the prevalence of CVRF in patients in CABG preoperative care, according to the sex. Considering percentage values, it is shown that the female sex is more exposed to CVRF, when compared to the male sex, except for the obesity 15(23,8%) vs 27(26,4%) and smoking 23(36,3%) vs 65(63,7%) variables, both with statistical significance, p=0,854 and p= 0,044, respectively. The number of individuals with high blood pressure was high, shown at 136 (82,4%) vs 29(17,6%) p= 0,000. High frequency of individuals with increased abdominal circumference 144 (87,3%) vs

21(12,7%) p= 0,000. When assessing the sedentarism shown 135(81.8%) for the total population with 83(81.4%) of males and 52(82,5%) females p=0,946. Dyslipidemia shown for the majority of the study population. When assessing the LDL-C variables, women had 45 (71,4%) vs 60 (58,8%) when compared to men, Triglycerides 31(49,2%) vs 50(49,0%) and, for HDL-C, women were responsible for 41(65,0%) vs 43(42,1%). Less than half of the population had diabetes 80(48,5%) with 38(60,3%) females and 42(41,1%) males.

Table 2. Risk factors for cardiovascular diseases in patients in CABG preoperative care, in the SUS network, according to the sex variable. Salvador-Bahia, 2012-2013 (n=165).

Variable n(%) 165	Total 165	(YES)	(NO)	P value	Male 102	Female 63	P value
Sedentarism	165	135(81.8)	30(18.2)	0.000*	83(81.4)	52(82.5)	0.946
Smoking	165	88(53.3)	77(46.7)	0.490	65(63.7)	23(36.3)	0.044
# Hypertension	165	136(82.4)	29(17.6)	0.000*	78(76.4)	58(92.0)	0.030
Type 2 DM	164**	80 (48.8)	84(51.2)	0.880	42(41.1)	38(60.3)	0.136
High fasting glycemia (≥100mg/dL)	158**	99(62.7)	59(37.3)	0.003*	58(58.6)	41(65.0)	0.664
###High LDL-C (≥70mg/dL)	151**	105(69.5)	46(30.5)	0.000*	60(58.8)	45(71.4)	0.260
##High Triglycerides (≥150mg/dL)	157**	81(51.6)	76(48.4)	0.810	50(49.0)	31(49.2)	0.833
HDL-C baixo <40mg/dL para homens e<50mg/dL para mulheres)	156**	84(53,8)	72(46,2)	0.432	43(42,1)	41(65,0)	0.060
Increased waist circumference >84cm in females >88cm in males)	165	144 (87.3)	21(12.7)	0.000*	87(85.2)	57(90.4)	0.509
BMI Overweight (≥ 25 and <30)	165	77 (46.7) *	88(53.3)	0.490	44(43.1)	33(52.3)	0.569
BMI Obesity (≥ 30)	165	42(25.5) *	123(74.5)	0.000*	27(26.4)	15(23.8)	0.854

*P≤0.005 comparison of two proportions: Increased waist circumference vs Not increased waist circumference; Hypertension vs no hypertension; sedentary vs not sedentary; high LDL vs not high LDL; overweight vs obesity;
**sample n lower than 165
Variable informed and recorded in medical sheet ## Variable recorded in medical sheet

DISCUSSION

The population has the majority of the identification criteria for patients with high risk of coronary events, such as: atherosclerotic coronary artery disease, cerebrovascular or peripheral occlusive, with clinical manifestations (CV events), subclinical atherosclerosis, significant, documented by diagnostic methodology, arterial revascularization procedure and type 1 and 2 diabetes.¹¹

Prevalence of individuals with low levels of education; 63,6% with primary school and 17,7% illiterate, only able to write their own name. A research conducted in Salvador-Ba, showed a high percentage of individuals with reduced education, with 53,0% until primary school and 34,0% illiterate.¹⁶ Such data reflect that the low level of education of the great majority of the patients in CABG preoperative care may be associated to the lack of knowledge and information on cardiovascular risk control and prevention in postoperative care.¹⁷

High percentages of non-modifiable cardiovascular risk fator were shown, such as age ≥ 60 and black race. Age is a strong predictor for the development of CADs, and the risk doubles after the age of 55,¹⁸ with morbidity twice as high in males, ages 35-44, with progressive fall of this difference, reducing to 1:1 after the age of 75.¹⁹ It is also considered that the population ageing brings

more vulnerability to non-communicable chronic diseases (NCCD).²⁰

Due to the increase in the prevalence of CAD with age, it is accepted that a growing number of elderly patients will become candidates to a CABG surgery in the following years,^{17,21} in addition to the fact that the elderly population is susceptible to a series of comorbidities.²¹ The increase in life expectancy in developing countries, such as Brazil, also helps increase the CABG indications.

A study conducted in a cardiology center reference of high complexity procedures showed that, in elderly patients, aged ≥ 70, are in greater risk of hospital mortality and postoperative complications of several types, as compared to younger patients, after CABG.²¹

The black race (black and mulattos) was predominant in this study, with 129(78,2%). Black individuals were positively associated to non-communicable heart disease (NCHD).²⁰ This could be a result of the black individuals propensity to develop high blood pressure. However, the impact of the miscegenation on SAH in Brazil is not exactly known.²²

Black race seems to have a hereditary differential in the cellular capture of sodium and calcium, attributed to the presence of a sodium-saving gene that leads to the cellular inflow of sodium and to the cellular flow of calcium, thus facilitating the occurrence of SAH.¹⁰

The frequency of modifiable risk factors, such as increased waist circumference (WC), overweight and obesity was high in a research conducted in Campos-RJ;²³ The criteria used to assess the WC in this research were (CA >102cm for men and >88cm for women). A percentage of 35,1% of the individuals interviewed had no control of this variable; 32,8% were overweight, and 17,8% were obese. Obesity was more frequent among women 20,2% than among men.²³ In the current research, the waist circumference values were obtained based on the study population representative of Salvador⁵⁹ with cut-offs (>84cm in females >88cm in males). A study conducted in a cardiovascular healthcare program with servants of the Federal University of Viçosa concluded that the frequency of cardiovascular risk factors grew with the BMI and WC increase.²⁴ It is known that WC is an excellent visceral obesity index and that this type of obesity is the most frequently associated with metabolic disorders.¹⁵

Considering the high blood pressure variable, 136(82,4%) of the population declared to be diagnosed with it, in addition to having the record in their medical files. SAH has high prevalence, low control rates and is considered one of the main modifiable risk factors and one of the most important public health issues. The cardiovascular disease mortality increases progressively with the increase of BP linearly, continuously and independently, from 115/75 mmHg.²²

An important predictor for cardiovascular and cerebrovascular diseases, Diabetes mellitus was present in this study, in 48,5% of the patients. It should be noted that more than half of the patients in CABG preoperative care had high glycaemia ($\geq 100\text{mg/dL}$) 99(62,7%). These data lead us to reflect on the possible etiologies that can contribute with the increase of glycemic levels in patients in CABG preoperative care with no diagnosis of DM, once the diagnosis of diabetes was defined through record in medical files, information from the patients, use of hypoglycemic drugs and laboratory results.

The new Brazilian Society of Diabetes Directive emphasizes that the diabetes mellitus frequency is assuming epidemic proportions in most countries.²⁵

A population-based study conducted with 1180 subjects to analyze the simultaneity of cardiovascular risk factors among adults aged ≥ 40 identified that the average number of risk factors was significantly higher between

the elderly and those with hypertension and diabetes.²⁶

In another study²⁶ among subjects with only SAH, it was verified that 50,6% accumulated four or more risk factors, in addition to hypertension. In those with only DM, 81,5% had four or more risk factors, in addition to DM. Thus, the CVRF simultaneity among individuals with SAH and/or DM reveals that individuals with the greatest risk accumulated more factors, increasing the probability of occurrence of cardiovascular events.²⁶

Dyslipidemias are modifications in the metabolism of lipids that trigger changes in the concentrations of plasmatic lipoproteins, favoring the development of chronic diseases.²⁷ The lipid changes most frequent in this study were the increase in the concentrations of low density lipoprotein (LDL) in 69,5%, reduction in high density lipoproteins (HDL) in 53,8%, and hypertriglyceridemia in 51,6% of the study subjects.

The cholesterol and triglycerides serum levels increase due to the increased consumption of food with cholesterol, carbohydrates, saturated fat acids, trans fat acids and an excessive amount of calories. This is why the proper selection of these items can efficiently contribute in the control of dyslipidemias. It is critical that food preferences are respected, that the food has the proper composition and that the flavor is pleasant. The individual must be instructed on how to select food, the quantity to be consumed and how to prepare the food, as well as on the possible substitutions.¹¹

The professional nutritionist is responsible for instructing on eating habits, reaffirming the need for a multidisciplinary approach in primary and secondary care. Thus, the multidisciplinary work becomes mandatory for the CVRF control and to improve the prognosis of the patients submitted to coronary bypass graft.

It was shown that more than half of the patients, 135(81,8%) did not practice any physical activity, predominantly the male individuals. It should be noted that the individuals who did not practice any exercises or sports, made no physical effort to go to work and return, did not perform heavy activities at home and did not ride a bicycle to go to work and return for at least 10 continuous minutes during the week were considered sedentary.³⁰

In the study conducted²⁸ it was verified that a significant number of elderly individuals resists to participate in any physical activity

for not knowing the physical, biological and emotional benefits that the activity offers in the living-ageing process. However, after facing hospitalization, the elderly individuals show concern and try to be stricter in their health care.²⁸

As regards the tobacco use, it was identified that 53,3% of the population were tobacco users, with higher frequency among men. The results of this research corroborate the findings of smokers prevalence found in other studies.^{20,29}

A population-based research conducted in Maringá-PR²⁰ found a positive association with smoking, previous smoking and the risk of developing NCHD of approximately 2,0 ($p<0,02$) and 1,68 ($p<0,03$) higher than non-smokers.²⁰

A study²⁹ was conducted to understand the elderly individuals perception on CVRF identified that quitting the smoking habit is extremely difficult for the elderly, because, very often, the habit was installed in the first decade of life. Some individuals showed knowledge of the harms caused by the tobacco, however, they do not attempt or are not able to quit.²⁹

Therefore, the primary prevention of the risk factors, early detection, professional follow-up and specific guidance are critical to face such situations. These are the most efficient manners to prevent diseases and should be the priority goals for every healthcare worker.^{22,28-9}

CONCLUSION

Patients submitted to CABG in a SUS reference hospital are characterized by the low social class and accumulate a high prevalence of modifiable and non-modifiable risk factors, which characterizes them as at high risk for coronary events.

There was a prevalence of two or more non-modifiable cardiovascular risk factors, such as age group, sex and black race, in addition to dyslipidemia, low education levels and social class.

It is mandatory to implement multidisciplinary strategies, such as health guidance programs that include drug compliance, blood pressure control, performance of routine laboratory exams, strategies to discourage the tobacco use, compliance with physical activity and weight loss. Also, following up, preventing and treating possible complications in coronary bypass graft preoperative, intraoperative and postoperative care.

REFERENCES

1. Pego-Fernandes PM, Galloto FA, Guimarães-Fernandes F. Estado atual da cirurgia de revascularização do miocárdio. Rev Med [Internet]. 2008 [cited 2015 Mar 10];87(2):92-8. Available from: <http://www.revistas.usp.br/revistadc/article/download/59066/62052>
2. Goldman L, Ausiello D. Cecil- Tratado de medicina interna. 2 Volumes - 23º ou 24ª edição - Editora Elsevier, Rio de Janeiro, 2010.
3. Rosengren A, Hawken S, Ounpuu S, Sliwa K, Zubaid M, Almahmeed WA, et al. Association of psychosocial risk factors with risks of acute myocardial infarction in 11119 cases and 13648 controls from 52 countries (the INTER-HEART study):case-control study. Lancet [Internet]. 2004 [cited 2015 Mar 03];364(9438):953-62. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/15364186>
4. Brasil. Ministério da Saúde. Secretaria de Vigilância em Saúde. Vigitel Brasil 2013: vigilância de fatores de risco e proteção para doenças crônicas por inquérito telefônico. - Brasília: Ministério da Saúde. 2014, p112.
5. Hu FB, Li TY, Colditz GA, Willett WC, Manson JE. Television watching and other sedentary behaviors in relation to risk of obesity and type 2 diabetes mellitus in women. JAMA [Internet]. 2003 [cited 2015 June 03];289(14):1785-91. Available from: <http://jama.jamanetwork.com/article.aspx?articleid=196345&resultclick=1>
6. Dunstan DW, Salmon J, Owen N, Armstrong T, Zimmet PZ, Welborn TA, et al. Associations of TV viewing and physical activity with the metabolic syndrome in Australian adults. Diabetologia [Internet]. 2005 [cited 2015 Jun 03];48(11):2254-61. Available from: <http://link.springer.com/article/10.1007/s00125-005-1963-4>
7. Dunstan DW, Barr ELM, Healy GN, Samon J, Shaw JE, Balkau B, et al. Television viewing time and mortality. The Australian Diabetes, Obesity and Lifestyle Study (AusDiab). Circulation [Internet]. 2010 [cited 2015 June 05];121:384-91. Available from: <http://circ.ahajournals.org/content/121/3/384.short>
8. Wijndaele K, Brage S, Besson H, Khaw K-T, Sharp S, Luben R, Wareham NJ, Ekelund U. Television viewing time independently predicts all-cause and cardiovascular mortality: the EPIC Norfolk Study. Int J Epidemiol [Internet]. 2010 [cited 2015 June

- 04];40(1):150-9. Available from: <http://ije.oxfordjournals.org/content/40/1/150.short>
9. Inoue S, Sugiyama T, Takamiya T, Oka K, Owen N, Shimomitsu T. Television viewing time is associated with overweight/obesity among older adults, independent of meeting physical activity and health guidelines. *J Epidemiol* [Internet]. 2012 [cited 2015 June 04];22(1):50-6. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/22156288>
10. Brasil. Ministério da Saúde. Diretrizes e recomendações para o cuidado integral de doenças crônicas não transmissíveis: promoção da saúde, vigilância, prevenção e assistência. Série Pactos pela Saúde. 2006, p08.
11. Xavier HT, Izar MC, Faria Neto JR, Assad MH, Rocha VZ, Sposito AC, et al. V Diretriz Brasileira de Dislipidemias e Prevenção da Aterosclerose. *Arq Bras Cardiol* [Internet]. 2013 [cited 2015 Mar 05];101(4):9-16. Available from: http://publicacoes.cardiol.br/consenso/2013/V_Diretriz_Brasileira_de_Dislipidemias.pdf
12. World Health Organization. Obesity: preventing and managing the global epidemic. Report of a World Health Organization Consultation. Geneva: World Health Organization [Internet]. 2000 [cited 2015 Mar 02];284:244-6. WHO Obesity Technical Report Series. Available from: <http://apps.who.int/iris/handle/10665/42330>
13. Associação Brasileira para o Estudo da Obesidade e da Síndrome Metabólica. Diretrizes brasileiras de obesidade 2009/2010. 3 ed. Itapevi, SP:AC Farmacêutica [Internet]. 2009; [cited 2015 Mar 03];13-5. Available from: http://www.abeso.org.br/pdf/diretrizes_brasileiras_obesidade_2009_2010_1.pdf
14. Janssen IF, Katzmarzyk PT, Ross R. Body mass index, waist circumference, and health risk: evidence in support of current National Institutes of Health guidelines. *Arch Intern Med* [Internet]. 2002 [cited 2015 Mar 10];162(18):2074-9. Available from: <http://archinte.jamanetwork.com/article.aspx?articleid=213542>
15. Barbosa PJB, Lessa I, Almeida Filho N, Magalhães LBNC, Araújo J. Critério de obesidade central em população brasileira: impacto sobre a síndrome metabólica. *Arq Bras Cardiol* [Internet]. 2006 [cited 2015 Mar 10];87:407-14. Available from: http://www.scielo.br/readcube/epdf.php?doi=10.1590/S0066-782X2006001700003&pid=S0066-782X2006001700003&pdf_path=abc/v87n4/03.pdf
16. Gama GGG, Mussi FC, Mendes AS, Guimaraes AC. (Des) controle de parâmetros clínicos e antropométricos em indivíduos com doença arterial coronária. *Rev esc enferm USP* [Internet]. 2011 [cited 2015 Mar 05];45(3):624-31. Available from: <http://www.scielo.br/pdf/reeusp/v45n3/v45n3a11>
17. Nascimento PV, Jesus APS, Cunha EN, Rosário NCS, Guimarães AC. Sociodemographic characteristics of patient sunder going coronary artery by pass grafting. *Brazilian Journal of Medicine and Human Health* [Internet]. 2015 [cited 2015 May 10];3(1):5-11. Available from: <http://www5.bahiana.edu.br/index.php/medicines/article/view/502>
18. Gama GGG, Mussi FM, Guimarães AC. Revisando os fatores de risco cardiovascular. *Rev enferm* [Internet]. 2010 [cited 2015 May 10];18(4):650-5. Available from: <http://www.facenf.uerj.br/v18n4/v18n4a25.pdf>
19. Pimenta L. Doença cardiovascular na mulher: fatos e mitos. *Rev SOCERJ* [Internet]. 2001 [cited 2015 May 13];14(4):287-92. Available from: <http://www.rbconline.org.br/artigo/doenca-cardiovascular-na-mulher-fatos-e-mitos>
20. Rocha-Brischiliari SC, Agnolo CMD, Gravena AAF, Lopes TCR, Carvalho MDB, Pelloso SM. Doenças Crônicas não Transmissíveis e Associação com Fatores de Risco. *Rev Bras Cardiol* [Internet]. 2014 [cited 2015 May 12];27(1):35-42. Available from: <http://www.rbconline.org.br/artigo/doencas-cronicas-nao-transmissiveis-e-associacao-com-fatores-de-risco/>
21. Rocha ASC, Pittella FJM, Lorenzo AR, Barzan V, Colafranceschi AS, Brito JOR, et al. A idade influencia os desfechos em pacientes com idade igual ou superior a 70 anos submetidos à cirurgia de revascularização miocárdica isolada. *Rev Bras Cir Cardiovasc* [Internet]. 2012 [cited 2015 May 12];27(1):45-51. Available from: <http://www.rbccv.org.br/pdfRBCCV/v27n1a08.pdf>
22. Sociedade Brasileira de Cardiologia. Sociedade Brasileira de Hipertensão. VI Diretrizes Brasileiras de Hipertensão. *Arq Bras Cardiol* [Internet]. 2010 [cited 2015 May 12];95(1):1-51. Available from: http://publicacoes.cardiol.br/consenso/2010/Diretriz_hipertensao_associados.pdf
23. Souza LJ, Gicovate Neto C, Chalita FEB, Reis AFF, Bastos DA, Souto Filho JTD, et al.

Prevalência de Obesidade e Fatores de Risco Cardiovascular em Campos, Rio de Janeiro. Arq Bras Endocrinol Metab [Internet]. 2003 [cited 2015 May 16];47(6):669-76. Available from:

<http://www.scielo.br/pdf/abem/v47n6/a08v47n6.pdf>

24. Rezende FAC, Rosado LEFPL, Ribeiro RCL, Vidigal FC, Vasques ACJ, Bonard IS, et al. Índice de massa corporal e circunferência abdominal: associação com fatores de risco cardiovascular. Arq Bras Cardiol [Internet]. 2006 [cited 2015 May 16];87(6):728-34. Available from:

http://www.scielo.br/scielo.php?pid=S0066-782X2006001900008&script=sci_arttext

25. Sociedade Brasileira de Diabetes. Diretrizes da Sociedade Brasileira de Diabetes: 2014-2015. [organização José Egidio Paulo de Oliveira, Sérgio Vencio]. - São Paulo: AC Farmacêutica, 2015.

26. D'Amico MM, Souza RKT. Simultaneidade de Fatores de Risco Cardiovascular Controláveis: Estudo de Base Populacional. Rev Bras Cardiol [Internet]. 2014 [cited 2015 May 16];27(5):318-326. Available from:

<http://www.rbconline.org.br/artigo/simultaneidade-de-fatores-de-risco-cardiovascular-controlaveis-estudo-de-base-populacional/>

27. Nascimento JS, Gomes B, Sardinha AHL. Fatores de risco modificáveis para as doenças cardiovasculares em mulheres com hipertensão arterial. Rev Rene [Internet]. 2011 [cited 2015 May 16];12(4):709-15. Available from:

<http://www.revistarene.ufc.br/revista/index.php/revista/article/view/288>

28. Gomes EB, Moreira TMM, Pereira HCV, Sales IB, Lima FET, Freitas CHA, et. al. Fatores de risco cardiovascular em adultos jovens de um município do Nordeste brasileiro. Rev Bras Enferm [Internet]. 2012 [cited 2015 May 19];65(4):594-600. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-71672012000400007

29. Richter CM, Bettinelli LA, Pasqualotti A, Viecili PRN, Erdmann AL, Higashi GDC. Percepção de idosos sobre fatores de risco cardiovasculares. Rev Rene [Internet]. 2013 [cited 2015 May 16];14(4):996-1004. Available from:

<http://www.revistarene.ufc.br/revista/index.php/revista/article/viewFile/1354/pdf>

Submission: 2015/11/03

Accepted: 2016/11/06

Publishing: 2016/03/01

Corresponding Address

Patrícia Veiga Nascimento
Rua Urbano Antonio de Souza, 2011
Condomínio Parque da Lagoa Edf. Flor de Lotus / Ap. 502
Bairro Stiep
CEP 41770-045 – Salvador (BA), Brazil