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Lifestyle after seven years of post ischemic coronary event: cross-sectional study

Estilo de vida após sete anos do evento coronariano isquêmico: estudo transversal

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RESUMO | FUNDAMENTOS: O envelhecimento acelerado da população e a não aderência de hábitos de vida saudável implica no aparecimento de comorbidades, levando assim à perda da capacidade funcional, limitando o indivíduo nas atividades laborais e sociais. A magnitude do problema leva a refletir sobre a importância dos programas multidisciplinares, despertando para a mudança de hábitos de vida, principalmente em indivíduos que sofreram um evento isquêmico a longo prazo. **OBJETIVO:** Comparar o estilo de vida de indivíduos após sete anos do evento coronariano isquêmico. **MÉTODO:** Trata-se de um estudo de coorte retrospectivo, composto por indivíduos portadores de Síndrome Coronariana Isquêmica. Critérios de inclusão: participantes de um estudo prévio, no período compreendido entre abril de 2006 a janeiro de 2007. Após o consentimento, foi realizada uma breve entrevista por contato telefônico, com as seguintes questões: dados sociodemográficos; comorbidades; estilo de vida; número de internações por problemas cardíacos; presença de dor torácica. As variáveis categóricas apresentadas em termos de frequência absoluta, enquanto os dados numéricos, em termos de média e desvio-padrão (XD ± DP). O teste de McNemar para comparação das variáveis categóricas pareadas e teste qui-quadrado para comparação das variáveis categóricas, p≤ 0,0 5. CAAE: 05874112.9.0000.5544. **RESULTADOS:** Destacam-se as comorbidades mais prevalentes a Hipertensão Arterial Sistêmica 24 (80%), Dislipidemia 21 (70%), Diabete Mellitus 14 (46,6%). Após sete anos do evento, houve um aumento de hipertensos (p=0,01) em contrapartida redução de tabagistas (p=0,02). **CONCLUSÃO:** Apesar dos indivíduos terem modificado dois estilos de vida relevantes e significantes como a hipertensão e o tabagismo, a população estudada mantém elevadas taxas de fatores de risco cardiovasculares, necessitando de uma intervenção da equipe multidisciplinar.

PALAVRAS-CHAVE: Estilo de vida. Cardiopatia isquêmica. Morbidade.

ABSTRACT | BACKGROUND: The population's accelerated aging process and unhealthy lifestyle imply in the appearance of comorbidities, thus leading to the loss of functional capacity, limiting the individual in labor, recreational and social activities. The magnitude of the problem reflects on the importance of multidisciplinary programs, awakening the need to change lifestyle, especially in individuals who have suffered a long-term ischemic event. **OBJECTIVE:** To compare the lifestyle of individuals after seven years of ischemic coronary event. **METHOD:** This is a retrospective cohort composed of individuals with Ischemic Coronary Syndrome (ICS). Inclusion criteria: participants from a previous study, in the period from April 2006 to January 2007. After the consent, a brief interview was performed by telephone contact, with the following questions: sociodemographic data; comorbidities; Lifestyle; number of hospitalizations due to cardiac problems; presence of chest pain. The categorical variables presented in terms of absolute frequency, while the numerical data, in terms of mean and standard deviation (XD ± SD). The McNemar test for comparison of the categorical variables paired and chi-square test for comparison of the categorical variables, p ≤ 0.05. CAAE: 05874112.9.0000.5544. **RESULTS:** We highlight the most prevalent comorbidities, Hypertension 24 (80%), Dyslipidemia 21 (70%), Diabetes 14 (46.6%). After seven years event, there was an increase in hypertensive patients (p = 0.01) in contrast smokers reduction (p = 0.02). **CONCLUSION:** Although the individuals have modified two significant lifestyles such as the relevant, hypertension and smoking, the studied population maintains high rates of cardiovascular risk factors, necessitating an intervention by the multidisciplinary team.

KEYWORDS: Lifestyle. Ischemic heart disease. Morbidity. Cardiovascular risk factors.

Introduction

The ischemic heart disease is due to an inadequate balance between offer and the consumption of oxygen through the myocardial[1]. This manifestation is a common cause of emergency treatments and hospital internment, as well as a major cause of morbidity and mortality in the world[2,3]. The cardiovascular diseases (CVD) are responsible for over 50% of male-gender deaths by coronary artery disease[4].

Although studies identify a decline in the mortality by ischemic disease, the population's accelerated aging process and the rejection to a healthy lifestyle imply in the appearance of comorbidities such as dyslipidemias, hypertension and diabetes mellitus[5-8], generating a loss of the functional capacity, limiting the individual in social and labor activities[9-10].

This impact leads to the reflection on the need to change lifestyles and the importance of including multidisciplinary programs to contribute with new therapeutic strategies, once a suitable lifestyle may exclude or control the intensity of the risk factors, avoiding recurrences and improvement in the prognosis of individuals that suffered Acute Myocardial Infarction (AMI)[5-9]. Within this perspective, the present study's objective was to compare the lifestyle of individuals after seven years of the post ischemic coronary event.

Methodology

This refers to an observational study of retrospective cohort composed of individuals with Ischemic Coronary Syndrome admitted to a private hospital in the city of Salvador, during April 2006 and January 2007[11]. They were excluded those who refused to participate in the study, interrupted the interview, deaths and whose family member or caregiver reported cognitive impairment.

The participants were invited to contribute in the study by telephone where it was clarified the study's objectives and that the interview could be interrupted at any given point in case it lead to unwanted memories. In the event of approval, the patients signed an informed consent, was sent through e-mail. After the formal consent, a previously trained researcher conducted a brief interview through telephone, consisting the following questions: sociodemographic data; current comorbidities; lifestyle; number of hospitalizations due to heart problem; the existence and characteristics of chest pain.

A descriptive and analytical analysis of the data was analyzed through the software Statistical Package for Social Sciences (SPSS), version 14.0 for Windows. The normality of variables was assessed in the statistical analysis with the test of Shapiro-Wilk and descriptive statistical evaluation. The characteristics of the participants were described by mean/standard deviation (SD), median/interquartile range, and categorical variables presented in terms of absolute frequency. The McNemar test for comparison of the categorical variables paired and chi-square test for comparison of the categorical variables, $p \leq 0.05$.

The study was approved by the Ethics and Research Committee of the Bahiana School of Medicine and Public Health (EBMSP), through the CAAE: 05874112.9.0000.5544.

Results

Of the 46 individuals selected, two (4.4%) were excluded by cognitive impairment, five (8.9%) by refusal and nine (20%) by deaths. The final sample consisted of 30 participants, characterizing as an elderly population with mean age of 66.9±11.1 years (45 to 101 years) predominantly male 17 (56.7%) and economically inactive 20 (66.7%), Table 1.

Table 1. Demographic data of individuals seven years post Ischemic Coronary Event. Salvador – Bahia. 2014

Variable Analyzed	Average	±DP
Age (years)	66.9	11.1
Gender	**n**	**(%)**
Male	17	56.7
Female	13	43.3
Professional activity		
Inactive	20	66.7
Active	10	33.3

n (%)- number of individual; DP- standard deviation

Regarding the lifestyle, 100% of individuals referred to the regular use of medication, 22 (73.3%) follow a characteristic healthy eating, 19 (63.3%) are sedentary and seven (23.3 %) declared to making use of alcoholic beverages. As for the clinical characteristics, 25 (83.3%) did not present episodes of chest pain, 15 (50%) were not hospitalized due to cardiac issues and 22 (70%) were not submitted to revascularization of the myocardium and angioplasty during the previous seven years. Among the comorbidities, Hypertension 24 (80%), Dyslipidemia 21 (70%) and Overweight/obesity 19 (63.3%) stands out, Table 2.

Table 2. Lifestyle and clinical characteristics seven years post Ischemic Coronary Event. Salvador – Bahia. 2014

Lifestyle	n	(%)
Regular medication	30	100
Healthy eating	22	73.3
Sedentary	19	63.3
Alcoholic beverage	07	23.3
Smoker	04	13.4
Comorbidities		
Hypertension	24	80.0
Dyslipidemia	21	70.0
Overweight/obesity	19	63.3
Diabetes	14	46.6
Kidney disease	04	13.3
Brain Vascular Disease	03	10.0
Cardiac Surgery		
Yes	08	30.0
Number of hospitalization		
None	15	50.0
One or two	10	33.3
Three or four	03	10.0
> Five	02	6.7
Symptomatology		
Chest pain	05	16.7

n(%)- individuals

The age group with higher prevalence of overweight/obesity was the ages between 55 and 64 years (100%), (p= 0.01), Figure 1.
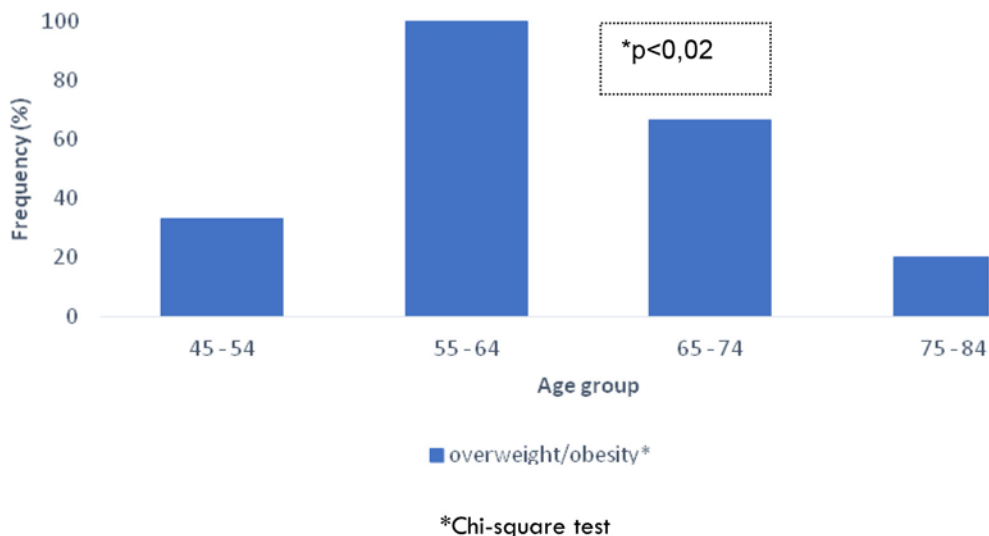
The analysis of the lifestyle and the comorbidities observed after seven years showed that smoking reduced significantly from 14 (46.7%) to four (13.3%), (p=0.02) and there was an increase of hypertensions with 16 (53.3%) in the beginning and 24 (80%) at the end of the study (p<0.001), Figure 2.
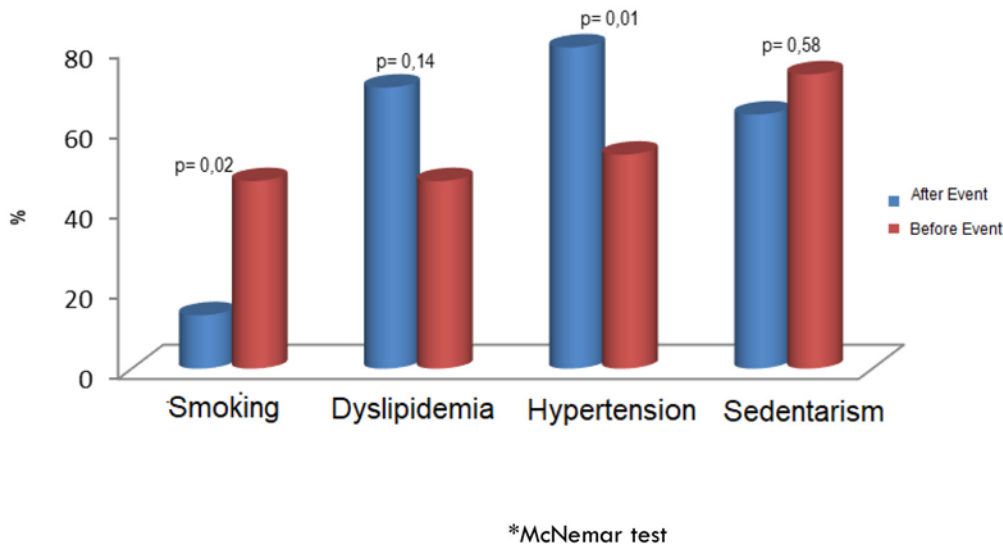
Discussion

This study shows one of the main problems for the control of morbidity and mortality of chronic ischemic heart diseases, is the aging and non-adherence of this population to a healthy lifestyle. This study shows one of the main problems for the control of morbidity and mortality of chronic ischemic heart diseases, is the aging and non-adherence of this population to a healthy lifestyle. During the study period, there was a significant reduction in smoking, in contrast to the increase in hypertensive patients. Studies show long term potential risk of new ischemic events in the population of cardiac patients post acute coronary event due to the aging, comorbidities acquired and the refusal to adhere to a healthy lifestyle[5,10].

The ischemic heart disease is determined by the interaction between genetic and environmental factors, among which many are dependent on the behavioral factors of the individuals. In this context, a modification of the lifestyle after is an important step in the prevention of cardiovascular morbidities and the decrease of mortality[6,12]. In the last years, literature has related a decrease in the mortality rate on short and long term in patients of post ischemic event, due to the security and efficiency of new available treatments, such as early reperfusion by mechanic or pharmacologic means and antithrombotic treatment, however associated clinical factors, age and comorbidities may decrease survival in these individuals[14], In the seven-year period there was a 20% overall mortality rate. The morbidity is a risk factor associated with the loss of functional capacity due to the limitations that exert in the individual, possibly aggravating or precipitating new morbidities, leading to an overload in the health care system as well as in your family[10].

The most prevalent comorbidities for Hypertension, Dyslipidemia and Diabetes corroborating with other studies had the greatest[13], these risk factors revealed a greater impact on the research. The increase of hypertension and dyslipidemic post-coronary event on long term suggests that the population is older (mean age of 66.9 years). With the aging the individuals have a tendency of presenting endothelial changes, increased rigidity of blood vessels enhancing a hypertension even with the use of medication[8,15-17].

The outpatient monitoring of these patients on the private network allows for regular care, with terms dictated by the patient's clinical condition. The data suggest that the failure of secondary prevention in these cases is associated with the structure of assistance, which has multidisciplinary characteristics, but there is no interdisciplinary training required for efficient control in these cases. Other data indicating the inadequacy of the outpatient control are suggested by the percentage of surgeries (30%) and hospitalizations occurred during follow-ups (50%). Besides, 26.7% of the population studied has no control over their eating habits, probably one of the factors for the increase of dyslipidemics and hypertensive individuals.

Systemic arterial hypertension, diabetes mellitus and excess weight are important components of metabolic syndrome (MS) represented by a set of risk factors related to central fat deposition and insulin resistance. This syndrome is associated with the cardiovascular disease, increasing the general mortality over 1,5 times and cardiovascular over 2.5 times[18].

In this study, 63.3% of the population presented overweight/obesity, characterizing a group with more than three associated risk factors. The literature proves that obese individuals present, in relation to other anthropometric variations, a greater association with other cardiovascular risk factors involved in MS. The consequences of this situation are already felt in health systems around the world, which today discuss how to finance the increasing demands imposed by chronic diseases and their complications[19].

A study observed in the general population that the body mass index (BMI) increases about twice beginning at 30 years of age and 2.34 times at 39 years[20]. When compared with our study, it was not possible to prove this finding due to the participants' age group being outside the specified ages in the aforementioned studies, justifying an absence of the linear growth in the prevalence of overweight. In another study, it was detected a stabilization of the BMI at 70 years old and the decrease at 80 years old[21], which is similar to the studied population.

The literature highlights the importance of a healthy lifestyle in elderly individuals with cardiovascular diseases for this measure may reduce exposure, or even eliminate the risk of involvement by the disease and its evolution, even when established[7]. The decrease of the smoking frequency in the population studied represents a gain in the prevention of new ischemic coronary events and the reduction of pulmonary complications in this population[22], once smoking is considered a risk factor difficult to be modified[7,23]. According to a multicenter study, smoking cessation after ACS was associated with a substantially lower risk of recurrent cardiovascular events, with these results the authors suggest that it should be given priority for behavioral modification similar to the use of preventive medications immediately after ischemic event[22].

Physical inactivity is one of the most important modifiable risk factors associated with morbidity and mortality of ischemic coronary artery disease[7], considered a universal issue. Regular physical activity is an important resource to improve health[24,25]. Studies show that people who practice physical activity has positive response in the control of blood pressure and lipid levels[23]. This data was not found in this study, because although individuals are more physically active, there was an increase of hypertensive and dyslipidemic individuals seven years after the event. As a probable explanation there is the unsupervised physical activity with low load, being insufficient to achieve an expected response.

In these seven years, hypertension, dyslipidemia and diabetes act as primary risk factors for the progress of atherosclerotic disease associated with high mortality, while overweight/obesity acts as a risk factor that feeds back these factors. In this series of patients, the concentration of excess weight in the age group of 55-64 years certainly increases the morbidity of this factor.

This study presents as limitation the absence of a control group composed of a healthy population, with similar sociodemographic characteristics, to compare the change of lifestyle.

Conclusion

Although individuals have informed the modification of two relevant lifestyle habits, smoking and hypertension, the population studied reports high rates of cardiovascular risk factors, indicating the inadequacy of secondary prevention, which should complement the treatment of acute illness and be exerted by multidisciplinary team with interdisciplinary training.

Author contributions

Iana Santana Albuquerque; Amanda Queiroz Lemos; Cristina Aires Brasil participated in the study conception and design, data collection, data analysis, writing of the manuscript. Francisco Tiago Oliveira de Oliveira; Luciana Bilitário participated in the conception of the study and approved the final version. Cristiane Maria Carvalho Costa Dias participated in the conception of the study, supervised the collection and analysis of the data, participated in the writing of the manuscript and approved the final version.

Competing interests

No financial, legal or political competing interests with third parties (government, commercial, private foundation, etc.) were disclosed for any aspect of the submitted work (including but not limited to grants, data monitoring board, study design, manuscript preparation, statistical analysis, etc.).

Referências

1. Braunwald E. Myocardial oxygen consumption: the quest for its determinants and some clinical fallout. Journal American College Cardiology. 2000;35(5):45B-48B. doi: 10.1016/S0735-1097(00)80050-9

2. Go AS, Mozaffarian D, Roger VL, Benjamin EJ, Berry JD, Blaha MJ et al. Executive summary: heart disease and stroke statistics--2014 update: a report from the American Heart Association. Circulation. 2014;129(3):399-410. doi: 10.1161/01.cir.0000442015.53336.12

3. Niska R, Bhuiya F, Xu J. National hospital ambulatory medical care survey: 2007 emergency department summary. Natl Health Stat Report. 2010;(26):1-31.

4. Avezum A, Piegas LS, Pereira JCR. Risk factors associated with acute myocardial infarction in the São Paulo metropolitan region: a developed region in a developing country. Arq Bras Cardiol. 2005;84(3):206-213. doi: 10.1590/S0066-782X2005000300003

5. North BJ, Sinclair DA. The intersection between aging and cardiovascular disease. Circ Res. 2012;110(8):1097-108. doi: 10.1161/CIRCRESAHA.111.246876

6. Yamaoka K, Tango T. Effects of lifestyle modification on metabolic syndrome: a systematic review and meta-analysis. BMC Med. 2012;10:138. doi: 10.1186/1741-7015-10-138

7. Ahmed HM, Blaha MJ, Nasir K, Jones SR, Rivera JJ, Agatston A et al. Low-Risk Lifestyle, Coronary Calcium, Cardiovascular Events, and Mortality: Results From MESA. Am J Epidemiol. 2013;178(1):12-21. doi: 10.1093/aje/kws453

8. Lakatta EG, Levy D. Arterial and cardiac aging: major shareholders in cardiovascular disease enterprises, part I: aging arteries: a "set up" for vascular disease. Circulation. 2003;107:139-146.

9. Ishizaki T, Kai I, Kobayashi Y, Matsuyama Y, Imanaka Y. The effect of aging on functional decline among older Japanese living in a community: a 5-year longitudinal data analysis. Aging Clin Exp Res. 2004;16(3):233-9. doi: 10.1007/BF03327389

10. Tavares DMS, Dias FA. Functional capactiy, morbidities and quality of life of the elderly. Texto Contexto Enferm. 2012;21(1):112-120. doi: 10.1590/S0104-07072012000100013

11. Dias CMCC, Maiato ACCA, Baqueiro KMM, Fiqueredo AMF, Rosa FW, Pitanga JO et al. Circulatory response to a 50-m walk in the coronary care unit in acute coronary syndrome. Arq Bras Cardiol. 2009;92(2):135-142. doi: 10.1590/S0066-782X2009000200010

12. Dias CMCC, Macedo LB, Gomes LT, Oliveira PL, Albuquerque IVS, Lemos AQ et al. Quality of life of patients after an acute coronary event: hospital discharge. J Clin Med Res. 2014; 6: 362-368, 2014.

13. Santos IS, Goulart AC, Brandão RM, Santos RCO, Bittencourt MS, Sitnik D et al. Mortalidade em um Ano após Evento Coronário Agudo e seus Preditores Clínicos: O estudo ERICO. Arq Bras Cardiol. 2014. doi: 10.5935/abc.20150044

14. Jernberg T, Johanson P, Held C, Svennblad B, Lindbäck J, Wallentin L. Association Between Adoption of Evidence-Based Treatment and Survival for Patients With ST-Elevation Myocardial Infarction. JAMA. 2011;305(16):1677-1684. doi: 10.1001/jama.2011.522

15. Marques EB, Barros RB, Rocha NN, Scaramello CBV. Envelhecimento e Alterações Cardíacas, Bioquímicas, Moleculares e Funcionais: Estudo Experimental. Int J Cardiovasc Sci. 2015;28(1):42-50.

16. Dai DF, Chen T, Johnson SC, Szeto H, Rabinovitch PS. Cardiac aging: from molecular mechanisms to significance in human health and disease. Antioxid Redox Signal. 2012;16(12):1492-526. doi: 10.1089/ars.2011.4179

17. 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. 2013;101(4):1-20.

18. I Brazilian guidelines on diagnosis and treatment of metabolic syndrome. Arq Bras Cardiol. 2005;84(suppl 1):1-28.

19. Lau DC, Dhillon B, Yan H, Szmitko PE, Verma S. Adipokines: molecular links between obesity and atherosclerosis. Am J Heart Circ Physiol. 2005;288(5):2031-41. doi: 10.1152/ajpheart.01058.2004

20. Melton LJ, Khosla S, Crowson CS, O'Connor MK, Fallon MO, Riggs BL. Epidemiology of sarcopenia. J Am Geriatr Soc. 2000;48:625-630.

21. Ockene IS, Miller NH. Cigarette smoking, cardiovascular disease, and stroke: a statement for healthcare professionals from the American Heart Association. American Heart Association Task Force on Risk Reduction. Circulation. 1997;96(9):3243-7.

22. Chow CK, Jolly S, Rao-Melacini P, Fox KAA, Anand SS, Yusuf S. Association of Diet, Exercise, and Smoking Modification With Risk of Early Cardiovascular Events After Acute Coronary Syndromes. Circulation. 2010;121:750-758. doi: 10.1161/CIRCULATIONAHA.109.891523

23. Wijndaele K, Orrow G, Ekelund U, Sharp SJ, Brage S, Griffin SJ et al. Increasing objectively measured sedentary time increases clustered cardiometabolic risk: a six year analysis of the ProActive study. Diabetologia. 2014;57(2):305-312. doi: 10.1007/s00125-013-3102-y

24. Petersen CB, Bauman A, Grønbæk M, Helge JW, Thygesen LC, Tolstrup JS. Total sitting time and risk of myocardial infarction, coronary heart disease and all-cause mortality in a prospective cohort of Danish adults. Int J Behav Nutr Phys Act. 2014;11:13. doi: 10.1186/1479-5868-11-13

25. Wijndaele K, Duvigneaud N, Matton L, Duquet W, Thomis M, Beunen G et al. Muscular strength, aerobic fitness, and metabolic syndrome risk in Flemish adults. Med Sci Sports Exerc. 2007;39(2):233-40. doi: 10.1249/01.mss.0000247003.32589.a6