



ORIGINAL ARTICLE

Parameters influencing the physical activity of patients with a history of coronary revascularization



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Received 15 September 2016; accepted 14 December 2016

Available online 16 October 2017

KEYWORDS

Coronary artery disease;
Exercise;
Physical activity;
Prevention;
Regression;
Revascularization

Abstract

Introduction and Objective: Coronary artery disease is the leading cause of mortality worldwide. Regular physical activity is part of a comprehensive management strategy for these patients. We investigated the parameters that influence physical activity in patients with a history of coronary revascularization.

Methods: We included outpatients with a history of coronary revascularization at least six months prior to enrollment. Data on physical activity, demographics, and clinical characteristics were collected via a questionnaire.

Results: A total of 202 consecutive outpatients (age 61.3 ± 11.2 years, 73% male) were enrolled. One hundred and four (51%) patients had previous percutaneous coronary intervention, 67 (33%) had coronary bypass graft surgery, and 31 (15%) had both procedures. Only 46 patients (23%) engaged in regular physical activity. Patients were classified into two subgroups according to their physical activity. There were no significant differences between subgroups in terms of age, comorbid conditions or revascularization type. Multivariate regression analysis revealed that low education level (OR=3.26, 95% CI: 1.31-8.11, $p=0.01$), and lack of regular follow-up (OR=2.95, 95% CI: 1.01-8.61, $p=0.04$) were independent predictors of non-adherence to regular physical activity among study subjects.

Conclusions: Regular exercise rates were lower in outpatients with previous coronary revascularization. Education level and regular follow-up visits were associated with adherence to physical activity in these patients.

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PALAVRAS-CHAVE

Doença coronária;
Exercício;
Atividade física;
Prevenção;
Regressão;
Revascularização

Parâmetros que influenciam a atividade física de doentes com história de revascularização coronária**Resumo**

Introdução e objetivos: A doença coronária é a principal causa de mortalidade em todo o mundo. A atividade física regular constitui o suporte de uma estratégia de gestão abrangente para estes doentes. Investigamos os parâmetros que influenciam a atividade física nos doentes com história de revascularização coronária.

Métodos: Incluímos doentes de ambulatório com história de revascularização coronária pelo menos seis meses anterior ao registo. Foram recolhidos, através de um questionário, dados sobre os hábitos de atividade física, sobre estatística e características clínicas.

Resultados: Foi registado um total de 202 doentes consecutivos de ambulatório (idade $61,3 \pm 11,2$ anos, 73% homens). Cento e quatro (51%) doentes foram submetidos a intervenção coronária percutânea anterior, 67 (33%) doentes foram submetidos a cirurgia de revascularização do miocárdio e 31 (15%) foram submetidos a ambos procedimentos. De todos, 46 (23%) doentes praticavam atividade física regular. Os doentes foram classificados em dois subgrupos, de acordo com os seus hábitos de prática de atividade física. Não houve diferenças significativas relativamente à idade, às condições de comorbilidade ou ao tipo de revascularização entre os grupos. Na análise de regressão multivariada, concluiu-se que o baixo nível de instrução (OR=3,26, CI 95%: 1,31-8,11, $p=0,01$) e a ausência de consultas regulares de seguimento (OR=2,95, CI 95%: 1,01-8,61, $p=0,04$) foram fatores preditores independentes da não adesão à atividade física regular entre os indivíduos do estudo.

Conclusões: Os índices de atividade física regular foram inferiores nos doentes de ambulatório com revascularização coronária anterior. O nível de instrução e as consultas de seguimento regulares foram associados à adesão à atividade física nestes doentes.

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Introduction

Despite considerable progress in prevention, diagnosis and management strategies, coronary artery disease (CAD) is still the leading cause of death in developed countries.¹ Three decades ago, it was believed that physical activity (PA) was hazardous in patients with CAD.² Today, we know that it is well tolerated and safe, and that even severely symptomatic patients can benefit from exercise.³⁻⁵ It is strongly recommended that individuals with stable ischemic heart disease should engage in 30-60 min of moderate intensity aerobic activity on at least five and preferably seven days a week.⁶ Regular PA decreases neurohumoral activation, reduces sympathetic tone, increases vagal tone and improves myocardial perfusion.^{7,8} It also increases endothelial nitric oxide (NO) synthase expression and protein phosphorylation, raising nitric oxide levels. Additionally, exercise reduces the expression of inflammatory substances such as interleukin-6, interferon-gamma and toll-like receptor (TLR), as well as platelet aggregation.⁹

Clinically, PA helps to regulate blood pressure, control body weight and lipid profile, and decrease insulin resistance.^{10,11} Studies have shown that the favorable effects of exercise improve anaerobic threshold and aerobic capacity, functional status and quality of life.¹² A meta-analysis of 51 randomized controlled trials showed that exercise training reduced the primary composite outcome of all-cause mortality or all-cause hospitalization by 27%.¹³

As a result of these complementary findings, exercise training has become a standard non-pharmacological treatment modality in the management of cardiovascular diseases.¹⁴ In recent European guidelines on cardiovascular disease prevention in clinical practice, regular aerobic exercise is recommended in patients with coronary disease to improve functional capacity and symptoms.¹⁵

Despite its widely known favorable effects, regular exercise is not prevalent among patients with CAD. Although there are many studies showing the beneficial effects of PA in primary and secondary prevention of cardiovascular disease, there is little information about patients' adherence to exercise training and parameters that can improve adherence rates. In this study, we aimed to investigate factors which may influence regular PA in patients with a history of coronary revascularization.

Methods**Study design and patient selection**

This was a prospective observational cohort study. A total of 202 consecutive outpatients with a history of coronary revascularization at least six months prior to enrollment were included. Patients in unstable condition, with communication difficulties, unwilling to participate, without history of coronary revascularization or with coronary revascularization less than six months prior to enrollment were excluded. The study was approved by the local ethics

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