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Journal of Psychosomatic Research 58 (2005) 417–424

Journal of Psychosomatic Research

Psychological effects of a short behavior modification program in patients with acute myocardial infarction or coronary artery bypass grafting. A randomized controlled trial

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Received 1 July 2002; accepted 3 February 2004

Abstract

Objective: The effects of a short intervention on behavioral risk factor modification in patients with coronary artery disease (CAD) on Type A behavior, vital exhaustion, and depression were studied in a randomized controlled trial. **Methods:** Acute myocardial infarction patients or patients who underwent coronary artery bypass grafting (CABG) were randomly assigned to an 8-week multiple risk modification group program ($n=94$) or to a control group ($n=90$) that received usual care with standard physical exercise training. Patients were assessed before intervention, directly after intervention, and at 9-month follow-up. **Results:** The intervention was effective in reducing hostility and total Type A behavior at postintervention ($P=.01$) and at 9-month follow-up ($P=.03$). The intervention had no overall impact on vital exhaustion and depression, measured by the Beck Depression Inventory (BDI), whereas we unexpectedly found that the percentage of patients with major depression was reduced in the control group but not in the intervention group. **Conclusion:** The results indicate that a short behavioral intervention for coronary patients can result in relatively large and persistent reductions in cognitive aspects of Type A behavior and hostility, in particular. In view of the unwanted findings on the diagnosis of depression, however, we do not unequivocally advise the intervention to the general population of AMI and CABG patients.

Keywords: Psychological outcome; Intervention; Coronary artery disease; Behavior modification; Type A behavior; Vital exhaustion; Depression

Introduction

Coronary artery disease (CAD) is the leading cause of death in most industrialized Western countries. Many psychological factors have been linked to CAD, as they may be detrimental consequences of the disease, or because they may exert an additional risk for the CAD patient. The significance of intervening in psychological risk factors is elucidated by several recent studies that have stressed the influence of psychosocial risk factors on stabilizing underlying cardiovascular pathophysiology [1,2]. The prognosis of patients with CAD may be adversely affected by vital exhaustion and depression [3,4], whereas the Type A behavior pattern is another psychological factor that has been linked to CAD [5–8]. Several studies reported epidemiological uncertainties regarding Type A behavior as being an independent risk factor for recurrent AMI [9,10]. Nevertheless, the attention paid to this behavior pattern in rehabilitation programs seems legitimate because several clinical trials have demonstrated that an intervention on Type A behavior after AMI reduces the risk of a new coronary event [11–13]. Moreover, reducing Type A behavior may lead to a decrease in psychological distress factors related to CAD, particularly vital exhaustion. In previous reports, it was postulated that vital exhaustion might reflect a breakdown in adaptive mechanisms to prolonged and uncontrollable psychological stress [14–16].

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0022-3999/04/$ – see front matter © 2005 Published by Elsevier Inc.
doi:10.1016/j.jpsychores.2004.02.021

Type A behavior, a style of behavior characterized by a continuously harassing sense of time urgency and easily aroused hostility, has been suggested to increase the risk of becoming exhausted.

Cardiac rehabilitation trials that showed clear positive results in reducing Type A behavior and psychological distress, and in reducing cardiovascular morbidity, are comprehensive and lengthy [12,13]. Such intensive, time-consuming programs are not easily applicable in general health care settings. Therefore, we intended to develop a relatively short intervention program of 8 weeks, accessible for a large group of AMI and coronary artery bypass grafting (CABG) patients. Although many studies that demonstrated favorable effects of psychosocial interventions were aimed at the modification of one risk factor in particular [17], our intervention explicitly addressed multiple modifiable risk factors. It was directed at the reduction of psychological stress/distress (Type A behavior in particular), the reduction of excessive consumption of dietary fat, elevated serum cholesterol, lack of physical exercise, and—although less explicitly—smoking and insufficient social support through the involvement of the patients' partners in the intervention [18].[1] The present paper presents the psychological effects of this intervention program.

Methods

Study objectives

The following hypothesis was tested: Patients in the intervention group profit no more from the intervention than do patients in the control group concerning the primary outcome measures Type A behavior, vital exhaustion, and depression.[2]

Participants

All patients admitted to the University Hospital Maastricht, in Maastricht, the Netherlands, during the period of February 1996 until November 1997 were identified as eligible for the study by a team of physiotherapists working at the hospital's physiotherapy department. These patients were referred to them by cardiologists for physical training following AMI or CABG. Patients included were less than 70 years of age, who were admitted to the University Hospital Maastricht with a confirmed diagnosis of AMI, CABG, or both, and who were able to participate in the regular physiotherapy exercise-program starting early after discharge at the hospital. Two hundred patients were to be included in the study, a number that was based on feasibility within the time limits of the study. Patients were excluded if they were non-Dutch speaking, illiterate, or if they were currently suffering from any psychiatric disorder that would severely disturb participation in the intervention.

Procedure

After informed consent was given, patients were randomly assigned to either the intervention ($n=106$) or a control group ($n=98$). To allocate men and women to the intervention or control group, a stratified randomization procedure was developed by a person not further involved in the study. The outcome of the randomization was put in a sealed envelope, and patients received this envelope after the baseline interview. Both groups (intervention and control) received usual medical care. For patients that were assigned to the intervention, the intervention started within 3–8 weeks after discharge.

Psychological assessments for the intervention group were performed (1) at baseline before the beginning of the intervention, (2) 8 weeks later immediately after the intervention, and (3) 9 months after the termination of the intervention, which was approximately 1 year after admission to the hospital. Measures for control patients were collected at comparable moments in time. Psychological measures consisted of interviews and self-report questionnaires. The interviewers (four in total) remained unaware of patient group assignment. All interviews were recorded on videotape. Interviewers received an intensive training in conducting and scoring the interviews.

Usual care

Both the control and the intervention groups received the same usual medical care, consisting of regular check-ups by a cardiologist who was blinded to group allocation, and they all had postdischarge exercise training sessions. In the Netherlands, exercise training is part of the usual care for patients with AMI or CABG. Patients received standardized exercise training three times a week during 6 weeks.

During the regular medical check-ups, standard usual care was offered, comparable with the care that patients received who did not participate in the study. This meant that the cardiologist systematically checked the clinical history, performed physical examination, a 12-lead ECG recording was done, and if appropriate, blood tests were performed. Titration of drugs was performed until clinical results were satisfactory. The cardiologist provided concise information on risk modification; for example, patients were advised to eat a low-fat diet. For each AMI patient, exercise tests were performed according to the Bruce Protocol during hospitalization, and 1 year after discharge. The CABG patients only had an exercise test 1 year after discharge.

[1] Effects of the intervention on improving dietary habits and cholesterol are published elsewhere [19].

[2] Secondary outcome measures were anxiety and quality of life, which will not be presented in this paper.