ELSEVIER

Journal of Psychosomatic Research 70 (2011) 117–123

Journal of Psychosomatic Research

Original articles

Short-term cognitive behavioral therapy for non-cardiac chest pain and benign palpitations: A randomized controlled trial☆

Egil Jonsbu[a,b,*], Toril Dammen[c,d], Gunnar Morken[b,e], Torbjørn Moum[c], Egil W. Martinsen[d,f]

[a]Department of Psychiatry, Molde Hospital, Molde, Norway
[b]Department of Neuroscience, Norwegian University of Science and Technology, Trondheim, Norway
[c]Faculty of Medicine, Department of Behavioural Sciences in Medicine, Institute of Basic Medical Sciences, University of Oslo, Oslo, Norway
[d]Division of Mental Health and Addiction, Oslo University Hospital, Oslo, Norway
[e]Østmarka Department of Psychiatry, St Olavs University Hospital, Trondheim Norway
[f]Faculty of Medicine, Institute of Psychiatry, University of Oslo, Oslo, Norway

Received 7 May 2010; received in revised form 28 September 2010; accepted 28 September 2010

Abstract

Objectives: Many patients with noncardiac chest pain or benign palpitations have poor prognosis in terms of symptom persistence, limitations in everyday activities, and reduced health-related quality of life (HRQOL). The aim of the study was to compare a three-session manualized cognitive behavioral therapy (CBT) intervention with normal care for patients with noncardiac chest pain or benign palpitations in a randomized controlled trial. **Methods:** Patients with persistent complaints six months after a negative evaluation at a cardiological outpatient clinic were invited to participate. Of the 94 eligible patients, 40 agreed to participate and were randomly assigned to either an intervention or control group. Patients in the intervention group received three manualized sessions with CBT, including one physical activity exposure session. The control group received usual care from their general practitioner. **Results:** There were significantly larger improvements in the treatment group regarding fear of bodily sensations, avoidance of physical activity, depression and some domains of HRQOL at the end of treatment, and at three- and 12-month follow-up. A substantial proportion (about three-quarters) of the intervention effects on depression and avoidance of physical activity could be attributed to (was mediated by) the large reduction in catastrophic interpretations of bodily sensations. **Conclusion:** A three-session program of manualized CBT, including exposure to physical activity, was effective treatment for patients with noncardiac chest pain and benign palpitations up to the 12-month follow-up.

Keywords: Benign palpitations; Cognitive behavioral therapy; Mediator of change; Non-cardiac chest pain; Randomized controlled trial; Short-term treatment

Introduction

More than 50% of the patients referred to cardiac outpatient clinics for examination of chest pain or palpitations do not have heart disease [1–3]. Despite excellent medical prognosis, patients with noncardiac chest pain or benign palpitations have reduced health-related quality of life (HRQOL), [4,5], persistent symptoms, emotional distress, and limitations in everyday activities [6,7]. A recent Cochrane review, which evaluated the effectiveness of psychological interventions for noncardiac chest pain based on randomized controlled trials (RCT) [8], reported that cognitive behavioral therapy (CBT) was probably effective in the short term, but there were few studies with long-term follow-up. This is consistent with the only study which has evaluated CBT for patients with benign palpitations [9].

☆ The study was carried out at Department of Psychiatry, Molde Hospital, 6407 Molde, Norway.

* Corresponding author. Department of Psychiatry, Molde Hospital, 6407 Molde, Norway. Tel.: +47 71122900; fax: +47 71122902.
E-mail address: egil.jonsbu@helsenr.no (E. Jonsbu).

0022-3999/10/$ – see front matter © 2011 Elsevier Inc. All rights reserved.
doi:10.1016/j.jpsychores.2010.09.013

Two studies which have compared patients with non-cardiac chest pain and patients with benign palpitations, reported similar psychological characteristics [10,11], and treatment aiming to reduce fear of bodily sensations is supposed to be appropriate for both groups [11]. Exposure to physical activity might be a proper way to challenge the fear of bodily sensations by reinforcing the symptoms and/or experience the fitness of the heart [12].

The Cochrane review [8] calls for new trials with follow-up periods of at least 12 months and interventions that are explicitly described and manualized.

The present study aimed to evaluate the effect of a standardized three-session CBT intervention, including exposure to physical activity, for patients with non-cardiac chest pain and benign palpitations, with adequate follow-up. In addition, we wanted to investigate whether fear of bodily sensations is mediating change of depressive symptoms and avoidance of physical activity.

Methods

Participants

Consecutive patients aged between 18 and 65 years, who were referred to the cardiac outpatient unit at Molde Hospital, Norway, for evaluation of chest pain or palpitations between May 2006 and May 2007, were studied. Before the cardiac evaluation, demographic and psychiatric data were collected by the first author (E.J.). All patients underwent a psychiatric diagnostic interview (Structured Clinical Interview for *DSM-IV* Axis I disorders). Six months after the cardiac evaluation the patients received questionnaires about their health status by mail (baseline). Patients with persistent symptoms or limitations in activity were invited to take part in the treatment study.

Eligible patients had no cardiac disease in need of treatment confirmed at cardiac evaluation six months earlier and had clinically significant complaints at the time of inclusion. Clinically significant complaints were defined as (1) at least weekly symptoms of chest pain or palpitations (score 1 or 2 on the questionnaire about frequency of symptoms); (2) at least "some impact" on family life, social life, or work from the symptoms (score 1–3 on the questionnaire about impact of the symptoms); or (3) at least "rare but sometimes" avoidance of physical activity because of worry about the heart (score 1–3 on the questionnaire about avoidance of physical activity).

Therapists

The first author (E.J.), who is a psychiatrist and has formal training in CBT as a therapist and supervisor performed all treatments, except for two. The remaining two patients were treated by a physician with training in CBT, under the supervision of the first author.

Design

Participants were randomly assigned to intervention or control groups by a web module, which offers block randomization. The procedure was performed by the Unit for Applied Clinical Research, Norwegian University of Science and Technology (NTNU), Norway, which is separate from the intervention location. Patients assigned to the control group received normal care from their general practitioner, and were free to use the health care system when needed. There was no blinding regarding the group assignment. As a reward for each set of questionnaires being returned by mail, the patients received lottery tickets worth about 10 euros.

The treatment

The treatment took place at the Psychiatric Outpatient Clinic at Molde Hospital, where the patients previously had their cardiac evaluation. A treatment manual for three 60–90-min CBT sessions was developed. The first session focused on the physical symptoms and how these were interpreted by the patients. The results of the previous cardiac evaluation were reviewed in detail, and information about heart diseases, such as coronary heart disease and arrhythmias, was provided. For those who had panic disorder (n=4), the cognitive model of panic was explained (the panic circle). From the start of the treatment, it was emphasized that the therapists considered the patients' complaints to be real and bothersome but that this did not necessarily prove that they were caused by a serious somatic illness.

In the second session, the patients were exposed to physical activity (up to about 75% of maximal heart rate) on a treadmill for 12 min, and the heart rate was recorded by pulse monitor. During the activity, the patients were asked every second minute to rate their perceived exertion on the 6–20 Borg scale [13] and discomfort and worry on a 0–10 scale, and to verbalize all frightening thoughts that emerged. The aim of the session was to give the patients the opportunity to experience that physical activity did not harm their hearts.

In the third session, attention was paid to avoidance behaviors and patients' interpretations of their symptoms. Patients who were still anxious about physical activity were given the opportunity to use the treadmill for repeated exposure to physical activity.

All patients were encouraged to engage in physical activity between the sessions.

Hypothesis

Our hypothesis was that the treatment would significantly reduce fear of the bodily sensations. Secondarily, the change in fear of bodily sensations would decrease avoidance of physical activity and increase general well being, Furthermore, we hypothesized that these changes would last for at least 12 months.