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Is cognitive behaviour therapy for chronic fatigue syndrome also effective for pain symptoms?

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Abstract

Patients with chronic fatigue syndrome (CFS) frequently report chronic pain symptoms. Cognitive behavioural therapy (CBT) for CFS results in a reduction of fatigue, but is not aimed at pain symptoms. In this study, we tested the hypothesis that a successful treatment of CFS can also lead to a reduction of pain. The second objective was to explore possible mechanisms of changes in pain. The third objective was to assess the predictive value of pain for treatment outcome. Data from two previous CBT studies were used, one of adult CFS patients ($n = 96$) and one of adolescent CFS patients ($n = 32$). Pain severity was assessed with a daily self-observation list at baseline and post-treatment. The location of pain in adults was assessed with the McGill Pain Questionnaire (MPQ). Patients were divided into recovered and non-recovered groups. Recovery was defined as reaching a post-treatment level of fatigue within normal range. Recovered adult and adolescent CFS patients reported a significant reduction of pain severity compared to non-recovered patients. Recovered adult patients also had fewer pain locations following treatment. The decrease in fatigue predicted the change in pain severity. In adult patients, a higher pain severity at baseline was associated with a negative treatment outcome.

Keywords: Chronic fatigue syndrome; Cognitive behavioural therapy; Pain symptoms; Outcome

Introduction

Chronic fatigue syndrome (CFS) is characterised by severe fatigue lasting longer than 6 months and leading to functional impairment. CFS is neither the result of an organic disease or ongoing exertion nor alleviated by rest. According to the Centre for Disease Control (CDC) definition of CFS, the patient should have four out of eight additional symptom criteria (Fukuda et al., 1994). Four of these are pain symptoms, i.e. muscle pain, multi-joint pain, headaches and a sore throat. The other four are post-exertional malaise, unrefreshing sleep, concentration and/or memory impairments and sensitive lymph nodes. The frequency of pain symptoms in CFS differs between

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studies (King & Jason, 2005; Meeus, Nijs, & De Meirleir, 2007; Vercoulen et al., 1994) but is usually high. In the study of Vercoulen et al. (1994), the frequency of spontaneously reported pain symptoms ranged from 13% (sore throat) to 71% (muscle pain). King and Jason (2005) systematically assessed complaints and found much higher frequencies ranging from 60% for a sore throat to 93% for headaches and muscle pain. The chronic pain symptoms in CFS are disabling and compromise physical and social functioning (Meeus et al., 2007).

The aetiology of CFS is unknown, but cognitions and behaviour can perpetuate CFS (Prins, van der Meer, & Bleijenberg, 2006; Suraway, Hackmann, Hawton, & Sharpe, 1995). A statistically tested model of perpetuating factors in CFS showed that a low sense of control of symptoms and a focus on bodily symptoms had a direct causal effect on fatigue (Vercoulen et al., 1998). Furthermore, attributing the symptoms of CFS to a somatic cause produced low levels of physical activity which in turn had a negative causal effect on fatigue. More recently, it was found that a perceived lack of social support can also perpetuate the fatigue (Prins et al., 2004).

Several controlled trials have found that cognitive behaviour therapy (CBT) aimed at the perpetuating factors of CFS leads to a reduction of fatigue and disabilities (Whiting et al., 2001). A recent systematic review showed that of the eight CBT trials for CFS that have been performed, six reported a positive outcome (Chambers, Bagnall, Hempel, & Forbes, 2006). Most studies used fatigue as an outcome measure.

There are no interventions in the different treatment protocols for CFS that focus on pain symptoms, but it is implicitly assumed that an effective treatment of fatigue will also lead to a reduction of pain. Recently, it was shown that adolescents indeed report a decrease of muscle pain and headache following CBT for CFS (Stulemeijer, de Jong, Fiselier, Hoogveld, & Bleijenberg, 2005). However, the measure used was a four-point Likert scale in which the prevalence of pain had to be evaluated retrospectively over a period of 6 months. This type of pain assessment is easily influenced by situational circumstances and memory biases which can be prevented with the use of a pain diary (Smith & Safer, 1993). To our knowledge, there are no published data pertaining to the effect of CBT for CFS on pain in adult patients.

The first objective of this study was to determine whether an effective treatment of CFS with CBT also leads to a significant reduction of pain symptoms when these symptoms are evaluated with an appropriate assessment method. CBT is considered effective if a patient is recovered, that is reporting a level of fatigue within the range of healthy individuals (Prins, Bleijenberg, & van der Meer, 2002). In assessing pain symptoms we looked at pain severity and the location of the pain symptoms.

The second objective was to investigate the mechanisms of possible changes in pain severity following CBT. A central feature of CBT for CFS is the gradual increase of physical activity. It is possible that the increased activity levels also lead to a decrease of pain. CBT for CFS also aims to modify those cognitions and cognitive processes that perpetuate fatigue. The persistent focus on bodily symptoms or body consciousness is one of these cognitive processes (Vercoulen et al., 1998). If this focus is lessened as a consequence of therapy, it is likely that this generalises to other symptoms than fatigue, e.g. pain. Finally, CBT for CFS leads to a reduced negative affectivity, which could lead to a diminished report of physical symptoms (i.e. pain).

The third objective was to assess the predictive value of pain severity at baseline on the outcome of the treatment. Although physical activity has a positive effect on chronic pain in the long term (Busch, Schachter, Peloso, & Bombardier, 2002), increase in activity can have a negative influence on pain symptoms in the short term. Whiteside, Hansen, and Chauduri (2005) found that CFS patients reported a lower pain threshold following physical activity. In their study, the pain threshold of patients was repeatedly determined after graded exercise. Since graded activity is an important feature of CBT, this could mean that CBT leads to a lower pain threshold. This lower pain threshold might hamper the increase in activity level during therapy and could lead to a less favourable outcome of CBT. We suspected that this was especially true for those patients who already had a high pain severity at the start of the therapy. In determining the predictive value of pain for treatment outcome, we controlled for the relationship between pain and physical activity.

Methods

Subjects

To answer our research questions, data from two previous CBT studies with patients with CFS were used. In the first study, the outcome of CBT for CFS in adults was evaluated (Knoop, Bleijenberg, Gielissen, van der