COCHRANE CORNER

Exercise therapy for chronic fatigue syndrome†

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See commentary on pp. 145–148, this issue.

Background

Chronic fatigue syndrome (CFS) is characterised by persistent, medically unexplained fatigue, as well as symptoms such as musculoskeletal pain, sleep disturbance, headaches and impaired concentration and short-term memory. CFS presents as a common, debilitating and serious health problem. Treatment may include physical interventions, such as exercise therapy, which was last reviewed in 2004.

Objectives

The objective was to determine the effects of exercise therapy (ET) for CFS as compared with any other intervention or control: ET *v.* 'passive control' (e.g. treatment as usual (TAU), waiting-list control, relaxation, flexibility); ET *v.* other active treatment (e.g. cognitive–behavioural therapy (CBT), cognitive treatment, supportive therapy, pacing, pharmacological therapy such as antidepressants); ET in combination with other specified treatment strategies *v.* other specified treatment strategies (e.g. exercise combined with pharmacological therapy *v.* pharmacological therapy alone).

Search methods

We searched The Cochrane Collaboration Depression, Anxiety and Neurosis Controlled Trials Register (CCDANCTR), the Cochrane Central Register of Controlled Trials (CENTRAL) and SPORTDiscus up to May 2014 using a comprehensive list of free-text terms for CFS and exercise. We located unpublished or ongoing trials through the World Health Organization International Clinical Trials Registry Platform (to May 2014). We screened reference lists of retrieved articles and contacted experts in the field for additional studies.

Selection criteria

Randomised controlled trials involving adults with a primary diagnosis of CFS who were able to participate in exercise therapy; studies had to compare exercise therapy with passive control, psychological therapies, adaptive pacing therapy or pharmacological therapy.

Data collection and analysis

Two of us independently performed study selection, risk of bias assessments and data extraction. We combined continuous measures of outcomes using mean differences (MDs) and standardised mean differences (SMDs). We combined serious adverse reactions and drop-outs using risk ratios (RRs). We calculated an overall effect size with 95% confidence intervals (CIs) for each outcome.

Main results

We have included 8 randomised controlled studies and have reported data from 1518 participants in this review. Three studies diagnosed individuals with CFS using the 1994 criteria of the Centers for Disease Control and Prevention (CDC); 5 used the Oxford criteria. Exercise therapy lasted from 12 to 26 weeks. Seven studies used variations of aerobic exercise therapy such as walking, swimming, cycling or dancing provided at mixed levels of exercise intensity, from very low to quite rigorous; 1 study used anaerobic exercise. Control groups consisted of passive control (8 studies; e.g. TAU, relaxation, flexibility) or CBT (2 studies), cognitive therapy (1 study), supportive listening (1 study), pacing (1 study), pharmacological treatment (1 study) and combination treatment (1 study). Risk of bias varied across studies, but within each study, little variation was found in the risk of bias across our primary and secondary outcome measures. Investigators compared exercise therapy with 'passive' control in 8 trials (971 participants). Seven studies consistently showed a reduction in fatigue following exercise therapy at end of treatment, even though the fatigue scales used different scoring systems: an 11-item scale with a scoring system of 0 to 11 points (MD –6.06, 95% CI –6.95 to –5.17; 1 study, 148 participants; low-quality evidence); the same 11-item scale with a scoring system of 0 to 33 points (MD –2.82, 95% CI –4.07 to –1.57; 3 studies, 540 participants; moderate-quality evidence); and a 14-item scale with a scoring system of 0 to 42 points (MD –6.80, 95% CI –10.31 to –3.28; 3 studies, 152 participants; moderate-quality evidence). Serious adverse reactions were rare in both groups (RR 0.99, 95% CI 0.14 to 6.97; 1 study, 319 participants; moderate-quality evidence), but sparse data made it impossible for us to draw conclusions. Study authors reported a positive effect of exercise therapy at end of treatment with respect to sleep (MD –1.49, 95% CI –2.95 to –0.02; 2 studies, 323 participants), physical functioning (MD 13.10, 95% CI 1.98 to 24.22; 5 studies, 725 participants) and self-perceived changes in overall health (RR 1.83, 95% CI 1.39 to 2.40; 4 studies, 489 participants). We were not able to draw conclusions regarding the remaining outcomes. Investigators compared exercise therapy with CBT in 2 trials (351 participants). One trial (298 participants) reported little or no difference in fatigue at end of treatment between the two groups using an 11-item scale with a scoring system of 0 to 33 points (MD 0.20, 95% CI –1.49 to 1.89). Both studies measured differences in fatigue at follow-up, but neither found differences between the two groups using an 11-item fatigue scale with a scoring system of 0 to 33 points (MD 0.30, 95% CI –1.45 to 2.05) and a 9-item Fatigue Severity Scale with a scoring system of 1 to 7 points (MD 0.40, 95% CI –0.34 to 1.14). Serious adverse reactions were rare in both groups (RR 0.67, 95% CI 0.11–3.96). We observed little or no difference in physical functioning, depression, anxiety and sleep, and we were not able to draw any conclusions with regard to pain, self-perceived changes in overall health, use of health service resources and drop-out rate. With regard to other comparisons, 1 study (320 participants) suggested a general benefit of exercise over adaptive pacing, and another study (183 participants) a benefit of exercise over supportive listening. The available evidence was too sparse to draw conclusions about the effect of pharmaceutical interventions.

Authors' conclusions

Patients with CFS may generally benefit and feel less fatigued following exercise therapy, and no evidence suggests that exercise therapy may worsen outcomes. A positive effect with respect to sleep, physical function and self-perceived general health has been observed, but no conclusions for the outcomes of pain, quality of life, anxiety, depression, drop-out rate and health service resources were possible. The effectiveness of exercise therapy seems greater than that of pacing but similar to that of CBT. Randomised trials with low risk of bias are needed to investigate the type, duration and intensity of the most beneficial exercise intervention.

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