2015

A Cochrane Systematic Review of physiotherapy for pain and disability in adults with Complex Regional Pain Syndrome (CRPS)

Keith M. Smart

Benedict Wand
University of Notre Dame Australia, benedict.wand@nd.edu.au

Neil E. O'Connell

Follow this and additional works at: https://researchonline.nd.edu.au/physiotherapy_conference

Part of the Physical Therapy Commons, and the Physiotherapy Commons

This paper was originally published as:

This paper is posted on ResearchOnline@ND at
https://researchonline.nd.edu.au/physiotherapy_conference/29. For more information, please contact researchonline@nd.edu.au.
A COCHRANE SYSTEMATIC REVIEW OF PHYSIOTHERAPY FOR PAIN AND DISABILITY IN ADULTS WITH COMPLEX REGIONAL PAIN SYNDROME (CRPS)

Introduction

Complex regional pain syndrome (CRPS) is a painful and disabling condition that usually manifests in response to trauma or surgery and when it occurs is associated with significant pain and disability. It is thought to arise and persist as a consequence of a maladaptive pro-inflammatory response and disturbances in sympathetically mediated vasomotor control, together with maladaptive peripheral and central neuronal plasticity. Two subcategories of CRPS have been described in which a nerve lesion is thought to be absent (CRPS type I) or present (CRPS type II). Guidelines recommend the inclusion of physiotherapy as part of the multimodal treatment of CRPS although the optimal therapeutic approach is not known (Smart et al. 2013).

Objective

• To determine the effectiveness of physiotherapy interventions for treating the pain and disability associated with CRPS types I and II.

Methods

We searched CENTRAL (The Cochrane Library), MEDLINE, EMBASE, CINAHL, PsycINFO, LILACS, PEDro, Web of Science, DARE and Health Technology Assessments from inception to February 2015, unrestricted by language, for randomised controlled trials (RCTs) of physiotherapy interventions for the treatment of pain and disability of CRPS.

Inclusion criteria:

• RCTs of physiotherapy interventions;
• adult patient populations with CRPS I and II; and
• patient-centred outcomes (e.g. pain intensity and functional disability).

Two review authors independently evaluated studies, undertook risk of bias assessments and extracted all relevant data from included studies. The quality of the body of evidence for the main outcomes was rated using our GRADE approach.

Results

• The search identified 990 papers of which 744 remained after the removal of duplicates.
• 702 records were discarded on the basis that they did not meet inclusion criteria.
• Forty-two records were retrieved for full-text screening.
• Twenty-one trial reports from 18 original trials were deemed eligible for inclusion (see Figure 1).

Overall, we found a paucity of high quality evidence concerning physiotherapy treatment for pain and disability in CRPS. ‘Risk of bias’ assessments were high (13 trials) or unclear (three trials) (see Figure 2) and our GRADE ratings of the quality of evidence was very low or low for all comparisons.

Multi-modal physiotherapy

We found very low quality evidence from one trial (Koerteman 1999) (RCT evidence: high, downgraded once for methodological limitations, once for imprecision and once for inconsistency) that multi-modal physiotherapy plus medical treatment may be more effective at reducing pain at short- (three months) but not long-term follow-up (12 months) compared to a control intervention of ‘social work’ and that physiotherapy plus medical treatment may be more effective at reducing impairment compared to ‘social work’ at long-term follow-up.

Manual lymphatic drainage (MLD)

There is low quality evidence (RCT evidence: high, downgraded once for methodological limitations and once for imprecision) that the addition of MLD to rehabilitation does not improve pain in CRPS I.

Electrotherapy-based modalities

There is low quality evidence (RCT evidence: high, downgraded once for imprecision and once for inconsistency) that ultrasound to the stellate ganglion is inferior to TENS for the treatment of pain in CRPS I in the very short-term.

There is low quality evidence (RCT evidence: high, downgraded once for imprecision and once for inconsistency) that pulsed electromagnetic field therapy is not superior to placebo for the treatment of pain or range of motion in CRPS I.

There is very low quality evidence (RCT evidence: high, downgraded once for methodological limitations, once for imprecision and once for inconsistency) that low level laser therapy does not result in a clinically important reduction in pain when compared to interferential therapy when added to exercise therapy.

Tactile discrimination training

There was very low quality evidence (RCT evidence: high, downgraded once for methodological limitations, once for imprecision and once for inconsistency) that tactile discrimination training does not reduce the pain associated with CRPS I at very short-term follow-up.

Discussion

Our findings suggest that GMI may provide clinically meaningful medium- and long-term improvements in both pain and disability in CRPS I, although the results from these trials were not consistent.

We found very low quality evidence from two trials that mirror therapy provides long-term clinically meaningful improvements in pain and function in CRPS I following stroke. The effectiveness of mirror therapy in broader patient populations with CRPS I (e.g. post-trauma) is not known.

On the whole, the use of electrotherapy modalities is not supported. No clinical trials involving participants with CRPS II were found.

Overall, our review has identified an absence of any high or moderate quality evidence with which to inform or guide rehabilitation practice in adults with CRPS types I or II. From the existing body of evidence it is currently not possible to draw any accurate or firm conclusions regarding the effectiveness or safety of any of the specific physiotherapy-based interventions identified in our review.

References