



Systematic review

Effectiveness of different styles of massage therapy in fibromyalgia: A systematic review and meta-analysis



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ARTICLE INFO

Article history:

Received 28 January 2014

Received in revised form

21 September 2014

Accepted 29 September 2014

Keywords:

Fibromyalgia

Massage

Physical therapy modalities

Review

Systematic

ABSTRACT

The systematic review aimed to evaluate the effectiveness of massage in fibromyalgia. An electronic search was conducted at MEDLINE, SCiELO, EMBASE, ISI, PEDro, SPORTDiscus, CINAHL, Cochrane CENTRAL and LILACS (Jan 1990–May 2013). Ten randomized and non-randomized controlled trials investigating the effects of massage alone on symptoms and health-related quality of life of adult patients with fibromyalgia were included. Two reviewers independently screened records, examined full-text reports for compliance with the eligibility criteria, and extracted data. Meta-analysis (pooled from 145 participants) shows that myofascial release had large, positive effects on pain and medium effects on anxiety and depression at the end of treatment, in contrast with placebo; effects on pain and depression were maintained in the medium and short term, respectively. Narrative analysis suggests that: myofascial release also improves fatigue, stiffness and quality of life; connective tissue massage improves depression and quality of life; manual lymphatic drainage is superior to connective tissue massage regarding stiffness, depression and quality of life; Shiatsu improves pain, pressure pain threshold, fatigue, sleep and quality of life; and Swedish massage does not improve outcomes. There is moderate evidence that myofascial release is beneficial for fibromyalgia symptoms. Limited evidence supports the application of connective tissue massage and Shiatsu. Manual lymphatic drainage may be superior to connective tissue massage, and Swedish massage may have no effects. Overall, most styles of massage therapy consistently improved the quality of life of fibromyalgia patients.

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Fibromyalgia is a chronic, widespread pain disorder commonly associated with fatigue, sleep disturbance, tenderness, stiffness and mood disturbances. It can have devastating effects on quality of life, impairing the patient's ability to work and participate in everyday activities and affecting relationships with family, friends and employers (Arnold et al., 2011). Fibromyalgia is common in the general population (0.6–4.4%), with a higher prevalence among women (Cavalcante et al., 2006; Branco et al., 2010).

While there is strong evidence for the effectiveness of pharmacological interventions in the management of fibromyalgia, there is no conclusive evidence of the effectiveness of non-pharmacological interventions, which are frequently recommended by health professionals and used by patients (Carville et al., 2008; Hauser et al., 2012).

Massage has been investigated in the management of fibromyalgia, as described in five literature reviews. Three reviews

(Baranowsky et al., 2009; Terhorst et al., 2011; Terry et al., 2012) included a wide range of interventions of which massage was just one. Baranowsky et al. (2009) performed a systematic review focused on complementary and alternative medicine. The categories identified were manual manipulation, acupuncture, balneotherapy, thermotherapy, magnetic therapy, homeopathy, mind-body medicine, diet therapy and music therapy. They found only one trial assessing massage (Brattberg, 1999), and suggested its possible effect on fibromyalgia pain and quality of life. Several records relating to massage might have been missed, possibly due to the extensive search required for the wide range of interventions. Terhorst et al. (2011) conducted another systematic review on complementary and alternative therapies for fibromyalgia, and performed a more comprehensive search. The meta-analysis suggests that massage is not effective for pain, but it should be noted that trials with high risk of bias and considerable heterogeneity were included. Additionally, other outcomes besides pain were not investigated, and the results for massage were reported and discussed briefly, considering that massage was just one topic among many others in the review.

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Kalichman (2010) issued a narrative review focused on massage therapy and concluded that most of the evidence supports the assumption that massage is beneficial for patients with fibromyalgia. The reliability of his findings is limited due to the lack of a systematic method for performing the review. The author stressed the need for further research to establish the effectiveness of massage. Kong et al. (2011) conducted a systematic review aimed for the effect of massage on fibromyalgia pain, and suggested that it might have positive effects on this outcome. They just considered pain as the outcome of interest, and included trials with high risk of bias and considerable heterogeneity in the meta-analysis. Furthermore, the review is poorly described, as only the annual scientific meeting abstract is available.

Recently, Terry et al. (2012) performed an overview of systematic reviews of complementary and alternative medicine for fibromyalgia, summarizing the evidence from multiple interventions reviews. They suggested that massage therapy may have short-term beneficial effects. However, their conclusion may be limited, because it is based on the results of a single narrative review (Kalichman, 2010).

Accordingly, there is a need for an updated, focused and rigorous systematic review to identify, appraise and synthesise all available evidence regarding the effects of massage on fibromyalgia. Recent studies might assist in settling disagreements stemming from previous conflicting reviews. With the acknowledgement of the importance of symptoms other than pain by the time of the publication of the American College of Rheumatology 2010 criteria for fibromyalgia (Mease, 2005; Wolfe et al., 2010), other relevant symptoms that were not considered outcomes of interest in previous systematic reviews (Kong et al., 2011; Terhorst et al., 2011) now need to be investigated. The aim of this review was to evaluate the effectiveness of massage alone to improve pain, pressure pain threshold (PPT), fatigue, stiffness, anxiety, depression, sleep and health-related quality of life (HRQoL) in adult fibromyalgia patients.

1. Methods

1.1. Protocol and registration

The protocol of this systematic review was registered at International Prospective Register of Systematic Reviews (PROSPERO), number CRD42012003022.

1.2. Eligibility criteria

Eligibility criteria were as follows. (1) Types of studies: randomised or non-randomised, controlled clinical trials; control treatment in non-pharmacological trials could be placebo, usual care, active treatment or waiting list (Boutron et al., 2008). (2) Type of participants: adults (≥ 18 years) with medical diagnosis of fibromyalgia. (3) Types of intervention: massage alone for at least one of the study groups; touch therapies such as Reiki, and massage with mechanical devices were excluded, per the definition of massage in Medical Subject Headings (MeSH): a group of systematic and scientific manipulations of body tissues best performed with the hands. (4) Types of outcome: pain, PPT, fatigue, stiffness, state anxiety, depression, sleep and HRQoL, assessed immediately after the end of treatment, over short- (1–3 months), medium- (3 months–1 year) or long-term (>1 year) follow-up (Haraldsson et al., 2006).

1.3. Data sources

Studies were identified by searching MEDLINE, SCiELO, EMBASE, ISI (Web of Knowledge), PEDro, SPORTDiscus, CINAHL, Cochrane

CENTRAL and LILACS (last access: 31 May 2013). Additional records were identified from reference lists of other reviews (Kalichman, 2010; Kong et al., 2011) or indicated by the review authors.

1.4. Electronic search strategy

The databases were searched using the terms “massage” and “fibromyalgia”. The search was limited to records published since 1990, when the American College of Rheumatology classification criteria for fibromyalgia were first published (Wolfe et al., 1990).

1.5. Study selection

After removing duplicates, a screening of records was performed by examining titles and abstracts. Full-text reports were retrieved and examined for compliance with eligibility criteria. Screening of records and eligibility assessment were performed independently by two reviewers. Disagreements between reviewers were resolved through consensus; if no consensus could be reached, a third reviewer decided.

1.6. Data collection process

Two reviewers independently extracted data using a form based on the checklist of the Cochrane Handbook for Systematic Reviews of Interventions (Higgins and Green, 2011). Due to missing data and need for clarification, attempts were made to contact the authors of nine included studies.

1.7. Risk of bias assessment

Two reviewers independently assessed risk of bias according to recommendations of the Cochrane Collaboration's tool (Higgins and Green, 2011). Five domains were used to assess four types of bias: selection bias (random sequence generation and allocation concealment), detection bias (blinding of outcome assessment), attrition bias (incomplete outcome data) and reporting bias (selective reporting). Performance bias was not used because it is not possible to blind participants and therapists in massage intervention (Boutron et al., 2004). The reviewers assigned a judgment of low, high or unclear risk of bias for each domain according to Cochrane Handbook criteria (Higgins and Green, 2011). Summing up selection, detection and attrition bias, the overall risk of bias in individual studies was considered low if at least three domains met the low risk criteria; high if two or more domains met the high risk criteria; and unclear otherwise. The risk of bias across studies was assessed with reporting bias.

1.8. Data analysis

Studies were grouped according to massage style. For each outcome, in each assessment time point, the following comparisons were investigated: two different styles of massage; one style of massage and another type of intervention; or one style of massage and one inactive treatment.

A meta-analysis of clinically homogeneous studies with low risk of bias was conducted. Statistical analyses were conducted using RevMan 5.2 (2012). Heterogeneity was assessed using the chi-squared test and I^2 statistic. Values of $p \leq 0.1$ indicated significant heterogeneity. According to I^2 results, heterogeneity was considered not important (0–40%), moderate (30–60%), substantial (50–90%) or considerable (75–100%) (Higgins and Green, 2011). A fixed-effect model was used when heterogeneity was considered not important. For moderate, substantial or considerable heterogeneity, a random-effects model was applied if no methodological

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