The effectiveness of hydrotherapy in the management of fibromyalgia syndrome: a systematic review
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CRD summary
The review concluded that there was strong evidence for the effectiveness of hydrotherapy in the management of fibromyalgia syndrome. Improvements were particularly in pain, health status and tender point counts. Overall, limitations with regard to the quality and size of the included studies suggest that the authors' conclusions are overstated and not supported by strong evidence.

Authors' objectives
To examine the effectiveness of hydrotherapy in the management of patients with fibromyalgia syndrome.

Searching
AMED, British Nursing Index, CINAHL, The Cochrane Library, EMBASE, MEDLINE, ProQuest, PubMed, Science Direct and Web of Science databases were searched from 1990 to July 2006 for articles published in English. Search terms were reported. Selected journals were handsearched for relevant articles published between 1990 and June 2005. Reference lists of relevant articles were scanned for additional articles.

Study selection
Randomised Controlled Trials (RCTs) that evaluated any form of water-based therapy for patients (aged 18 years or over) diagnosed with fibromyalgia syndrome (according to the 1990 American College of Rheumatology classification criteria) and with a follow-up of at least six weeks after the intervention were eligible for inclusion. The treatment group had to have participated in a water-based therapy that constituted more than 50% of their treatment. The control group must not have undertaken any water-based therapy. Outcomes of interest were pain, function or quality of life (QoL). Studies that evaluated multimodal programmes or where patients had concomitant medical conditions were excluded.

Hydrotherapy interventions included in the review were balneotherapy (time in a sulphur pool), pool exercise (aerobic endurance and flexibility) and spa therapy (thermal pool baths). Control groups included no treatment, land-based exercise, relaxation exercise, or physician-directed relaxation. Cointerventions such as education and group exercise were reported for some trials. Duration of treatment ranged from 20 minutes per day for 10 days to once a week for six months. Participants ages ranged from 18 to 72 years and 90% were women. Disease duration ranged from 5.4 months to 42 years (where reported). Outcomes were pain, function and QoL. Various outcome measures were used (details reported in the review).

Three reviewers independently selected studies for inclusion. Disagreements were resolved through discussion and recourse to a fourth reviewer where necessary.

Assessment of study quality
Validity was assessed using a modified scale based on the van Tulder scale that assessed method of randomisation, concealment of allocation, blinding of care provider, patient and assessor, cointerventions, compliance, relevance and comparable timing of outcome assessment, intention-to-treat analysis and withdrawals and dropouts. Studies that scored more than 50% (5 or more points out of 9) were considered high quality; those that scored 5 points or less were considered low quality.

Three reviewers independently assessed validity. Disagreements were resolved through discussion with a fourth reviewer.

Data extraction
Differences between baseline and follow-up and between different treatment groups were calculated for pain, function and QoL. Studies were rated as positive (participants in the intervention group demonstrated greater improvement compared to control group), negative (no between-group differences or the control group reported greater improvements compared to intervention group) or contradictory (results were inconclusive).

Data were extracted independently by three reviewers. Disagreements were resolved through discussion, with recourse to a fourth reviewer where necessary.

Methods of synthesis
Data were combined in a narrative synthesis with additional data reported in tables.

Results of the review
Ten RCTs (n=571) were included in the review. The mean methodological quality was 4.5 (range 3 to 6). Four studies were deemed high quality with regard to randomisation, use of cointerventions and long-term follow up. Six studies were deemed low quality. Few studies reported intention-to-treat analysis, method of allocation or concealment of allocation. Follow up ranged from six weeks to 24 months.

Balneotherapy (four RCTs): There was moderate evidence for use of balneotherapy as treatment of fibromyalgia syndrome. Two low-quality RCTs reported significant improvements for pain, fatigue and anxiety (p<0.05) for the treatment group compared to control group for up to three months. One high-quality RCT reported improvements in depression score, tender point count, pain and total fibromyalgia impact questionnaire score for up to six months. No between-group analysis was conducted for one RCT. Reductions in pain were reported in both groups.

Pool-based exercise (four RCTs): There was moderate evidence for the use of pool-based exercise as treatment for fibromyalgia syndrome. Two low-quality RCTs reported significant improvements in fibromyalgia impact questionnaire subscales for pool-based exercise groups compared to control groups (p<0.05). One high-quality RCT reported significant improvements in pain for pool-based exercise compared to control group. One high-quality RCT reported conflicting results for outcomes that compared pool-based exercise with land-based exercise, where the only significant difference reported was for improvement in grip strength for the control group (p<0.05).

Spa therapy (two RCTs): There was moderate evidence for use of spa therapy as treatment for fibromyalgia syndrome. One high-quality and one low-quality RCT reported significant improvements in Fibromyalgia Impact Questionnaire total score, tender point count, fatigue and general well being for treatment group compared to control (p<0.05).

Authors' conclusions
There was strong evidence for the effectiveness of hydrotherapy in the management of fibromyalgia syndrome. Improvements were noted particularly in pain, health status and tender point count.

CRD commentary
The review question was clearly defined and supported by detailed inclusion criteria, although these were broadly defined in terms of intervention. Several relevant sources were searched. Only studies published in English were included, which may have resulted in relevant data being missed. Appropriate methods were undertaken to reduce reviewer error and bias for study selection, validity assessment and data extraction. Validity was assessed using established criteria and results of the assessment were reported. A narrative synthesis was appropriate due to differences between studies in terms of interventions and outcomes. Characteristics of the included studies were presented in a table. However, results for individual studies were reported without supporting data or levels of statistical significance, which made it difficult to verify the review findings. Sample sizes in the included studies were generally small. More than half of the included studies were reported to be of low quality. Overall, limitations with regard to the quality and size of the included studies suggest that the authors’ conclusions are overstated and not supported by strong evidence.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.
Research: The authors stated that further rigorous trials were required. These needed to include long-term follow-up and evaluate the separate effects of chemicals and heat in hydrotherapy. Additional benefits of exercising in water needed to be determined as well as whether the effects of hydrotherapy were sustainable enough to be clinically beneficial. The cost-effectiveness of hydrotherapy should be investigated.

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