



Centre for

CLINICAL EFFECTIVENESS

EVIDENCE CENTRE: FINAL REPORT

REQUEST:

What is the evidence for the effectiveness of hydrotherapy as a treatment for spinal (lumbar, thoracic, cervical) pain?

REQUEST MADE BY:

Sarah Goldsmith, Manipulative Physiotherapist, Monash Medical Centre

DATE OF REPORT:

24 September 1998

DISCLAIMER

The information in this report is a summary of that available. It is primarily designed to give readers a starting point to consider the currently available research evidence. Readers should not use the comments made in isolation and should have read the literature suggested. Readers should also be aware that more appropriate research might have become available since the request was dealt with.

INTRODUCTION

Centre for Clinical Effectiveness

The Centre for Clinical Effectiveness exists to enhance patient outcomes through the clinical application of evidence-based research. The Public Health Division, Department of Human Services, Victoria, and the Southern Health Care Network fund the Centre.

Amongst other programs, the Centre operates an Evidence Centre that accepts requests to identify and critically appraise the available evidence on particular clinical topics. It offers this service to staff of the Southern Health Care Network, especially Program Directors who will use the information provided to influence medical planning and decision-making.

SEARCH STRATEGY

Search terms

- hydrotherapy, balneotherapy
- randomised controlled trials, clinical trials, comparative studies
- treatment outcomes

Limits

- Restricted to publications of last **2** years
- English language only
- Human only

Rationale

The Centre for Clinical Effectiveness Evidence Centre searches for best available evidence using a strategy that incorporates two factors:

1. A hierarchy that reflects methodological quality, that is the likelihood of systematic bias affecting the research results reported.
2. A desire to limit the amount of material provided if adequate, sound, research summaries already exist.

The Evidence Centre goes first to databases that enable us to identify systematic reviews, then evidence-based clinical practice guidelines or health technology assessments, then individual randomised controlled trials. If adequate sound summaries of the best evidence available are found then individual research trials are not included in the report. If adequate summaries are not found our search strategy becomes considerably broader and may incorporate individual studies that may be more prone to bias, less generalisable, or have other difficulties identified through our critical appraisal of their methodology. For this reason, when citing research, we define the NHMRC Level of Evidence appropriate for each study.

Levels of Evidence

The quality of the evidence presented in this report was systematically assessed and classified according to the NHMRC's *Guidelines for the Development and Implementation of Clinical Practice Guidelines* (1995):

Level I	Evidence obtained from a systematic review or a meta-analysis of at least two relevant randomised controlled trials
Level II	Evidence obtained from at least one properly designed randomised controlled trial
Level III	Evidence from well designed controlled trials without randomisation, well-designed cohort or case-control analytic studies preferably from more than one centre or research group, or multiple time series with or without the intervention
Level IV	Opinions of respected authorities, based on clinical experience, descriptive studies or reports of expert committees

DATABASES

We searched the following databases and Internet websites in this order:

Cochrane Library CD-ROM
 Best Evidence CD-ROM
 Medline (OVID)
 CINAHL
 National Library of Medicine (NLM)
 Agency for Health Care Policy and Research (AHCPR)
 NHS Centre for Reviews and Dissemination (NHS CRD)
 Health Information Research Unit (HIRU)
 Aggressive Research Intelligence Facility (ARIF)
 Turning Research into Practice (TRIP)

RESULTS

From these sources we identified:

Evidence-based clinical practice guidelines	0
Non-evidence-based clinical development and use guidelines	0
Systematic reviews	0
Well-designed controlled trials, well-designed cohort or case-control analytic studies	2
Descriptive case series	1
Consensus reports, narrative reviews	0
Economic studies	0

We are reasonably confident these figures represent the most important findings published to date by those considered experts in the field.

EVIDENCE SUMMARIES

Format

Evidence Summaries are in the form of a spreadsheet. Each spreadsheet contains the article citation, the study design with level of evidence available according to NHMRC guidelines (NHMRC, 1995), a description of the patients-diagnostic test(s)-outcomes. This is followed by details concerning the validity of the study according to specified criteria. The remaining columns describe the results and pertinent remarks from the authors and the Centre for Clinical Effectiveness reviewer.

References appraised

McIlveen B, Robertson VJ. A randomised controlled study of the outcome of hydrotherapy for subjects with low back or back and leg pain. *Physiotherapy* 1998; 84:17-26.

Sjogen T, Long N, Storay I, Smith J. Group hydrotherapy versus land-based treatment for chronic low back pain. *Physiotherapy Research International* 1997; 2: 212-222.

Roberts JM, Freeman J. Hydrotherapy management of low back pain: a quality improvement project. *Australian Journal of Physiotherapy* 1995; 41:205-208.

<p>EVIDENCE REPORT SUMMARY TABLE</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Effectiveness of hydrotherapy as a treatment for spinal (lumbar, thoracic, cervical) pain.</p> </div>	<p>Study design NHMRC Level of Evidence</p>	<p>DESCRIPTION: Patients, Interventions, Comparisons, Outcomes</p>	<p>VALIDITY: Methodology, rigour, selection, opportunities for bias</p>	<p>RESULTS: Generally favourable or unfavourable, specific outcomes of interest, estimate of experimental effect and precision if appropriate</p>	<p>AUTHORS' COMMENTS: Risk/benefit, limitations</p>	<p>REVIEWERS' COMMENTS: Risk/benefit, methodology, conclusions</p>
<p>McIlveen B, Robertson VJ. A randomised controlled study of the outcome of hydrotherapy for subjects with low back or back and leg pain. Physiotherapy 1998; 84:17-26.</p>	<p>RCT Level 2</p>	<p>Patients: 109 patients (volunteers) with low back or back and leg pain Intervention: 8 sessions (2/week * 4 wks) group hydrotherapy; n=56 Comparison: no treatment (delayed hydrotherapy); n= 53 Outcome: improvement in: mean changes in functional ability, pain, neurological levels, range of spinal movements Setting: Melbourne, physiotherapy centre</p>	<p>Focused issue: yes Randomised assignment: lottery draw: All patients accounted for: 14 dropouts (5%); 11 in hydrotherapy group Blinding: Initial and post intervention assessor yes, patients no Potential for bias: contamination (additional exercise, medication etc); most dropouts were in hydrotherapy</p>	<p>Marginally significant difference in improvement of disability (ODS): 27% (hydrotherapy) vs 8% (p=0.04). No significant difference between groups for changes in functional ability (flexion, extension, right and left SLR), pain, or neurological tests. Negative trial: sample had sufficient power at 5% level to detect significant difference if it existed</p>	<p>Investigators chose (outcome) measures that are used conventionally in physiotherapy practice and that are known to be reliable, that cater for a wide range of levels of performance and that were practical given the restriction of time that subjects with pain could spend in a measurement session.</p>	<p>Study established a priori point differences in function/pain scores for classification as improved/deteriorated.</p>
<p>Sjogren T, Long N, Storay I, Smith J. Group hydrotherapy versus land-based treatment for chronic low back pain. Physiotherapy Research International 1997;2:212-222.</p>	<p>Cohort Level 3</p>	<p>Patients: 60 subjects with non-specific chronic low back pain Intervention: 12 sessions (2/week * 6 wks) group hydrotherapy; n=30 Comparison: group land-based treatment, n= 30 Outcome: pre to post treatment changes in: thoracolumbar mobility, pain levels, functional ability, and medication Setting: Melbourne, rehab/rheum. outpatient clinics</p>	<p>Focused issue: yes Randomised assignment: no, sequential allocation All patients accounted for: 4 dropouts (2/group) Blinding: Initial and post intervention assessor yes, patients no Potential for bias: unrandomised allocation, contamination (additional exercise, medication)</p>	<p>No significant difference between hydrotherapy vs land-based treatment for: thoracolumbar range of movement, pain levels, ODQ (functional ability), walking test, medication. Negative trial: sample did not have sufficient power at 5% level to detect significant difference if it existed</p>	<p>The belief that the hydrotherapy treatment would prove to be more beneficial than the land treatment ... was not supported. The inclusion of a control group ... would have been beneficial.</p>	
<p>Roberts JM, Freeman J. Hydrotherapy management of low back pain: a quality improvement project. Australian Journal of Physiotherapy 1995;41:205-208</p>	<p>Retro-spective case series Level 4</p>	<p>Patients: 81 patients (records) with low back pain Intervention: hydrotherapy Comparison: <u>no control group</u> Outcome: pain, lumbar mobility, activities of daily living scores Setting: Canberra, outpatients clinic</p>	<p>Focused issue: yes Randomised assignment: no, no control group All patients accounted for: 68 patients with follow-up (84%) Blinding: No Potential for bias: no control group, same person did all assessments and interventions</p>	<p>Highly significant beneficial response to hydrotherapy: mean (SD) 1.84(1.7) out of possible max. score of 4. Examination of freq. of treatment: clinical improvement occurred by 9 wks with 2/week sessions (non statistical analysis only). Diagnostic groups most likely to benefit: intervertebral disc disease, osteoarthritis and inflammatory disease (non stat. analysis)</p>	<p><u>No conclusions can be drawn from an audit such as this.</u></p>	<p>Uncontrolled trial limits ability to assess the effectiveness of hydrotherapy.</p>