Effectiveness of physical therapist administered spinal manipulation for the treatment of low back pain: a systematic review of the literature

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CRD summary
The review concluded that physical therapy spinal manipulation appeared to be a safe intervention that improved clinical outcomes for patients with low back pain. These conclusions may not be reliable due to some review limitations.

Authors’ objectives
To examine the effectiveness of physical therapy spinal manipulations for the treatment of patients with low back pain.

Searching
PubMed, CINAHL, SPORTDiscus, ProQuest Nursing & Allied Health Source, Scopus and Cochrane Central Register of Controlled Trials were searched to May 2012 for studies in English. Search strategies were reported in an appendix.

Study selection
Eligible studies were randomised controlled trials (RCTs) that compared spinal manipulations performed by physical therapists for low back pain with any control group that did not receive physical therapy manipulation. Studies had to report measurable clinical outcomes or efficiency of treatment measures. Spinal manipulation had to involve use of a high velocity low-amplitude thrust technique. Patients could not receive additional manual therapy interventions.

Group mean ages ranged from 30 to 43 years. Acute and chronic pain populations were studied. Typically between one and five sessions were administered over a period of up to four weeks (these details were not reported in some studies). Patients in some studies received additional interventions such as exercises or conventional physical therapy. Most control treatments were exercise based (others included ultrasound and non-thrust mobilisation). The studies were published between 2004 and 2009. Most studies recorded outcomes using the Oswestry Low Back Pain Disability Questionnaire.

Two reviewers independently selected studies for inclusion; disagreements were resolved by a third reviewer.

Assessment of study quality
Study quality was determined by two authors who independently awarded studies a score out of 10 using criteria developed by the Physiotherapy Evidence Database (PEDro). Disagreements were resolved by discussion.

Data extraction
Outcome data were extracted and where possible standardised mean differences (Cohen's d) were calculated. Where this was not possible, mean differences with 95% confidence intervals and p-values were extracted.

One reviewer extracted data which were then checked by a second reviewer.

Methods of synthesis
A narrative synthesis was reported with studies grouped by outcome.

Results of the review
Six RCTs were included (529 participants). Two studies had three treatment arms. One trial scored 6 out of 10 on the PEDro scale, two trials scored 7 and three scored 8. Blinding of patients and therapists was not possible.

Four out of six studies that evaluated pain and disability outcomes found effects in favour of manipulative therapy; improvements were generally significant for up to six months for disability scores and up to four weeks for pain scores.

The manipulation group in one study reported statistically significantly less medication use, health care utilisation and lost work time. Only one study reported adverse events as an outcome (treatments groups appeared similar).
Authors' conclusions
Physical therapy spinal manipulation appeared to be a safe intervention that improved clinical outcomes for patients with low back pain.

CRD commentary
The review addressed a clear question and was supported by reproducible eligibility criteria. Several electronic databases were searched. The restriction to studies in English meant that some relevant studies may have been missed. There did not appear to a strategy aimed specifically at identifying unpublished studies. Suitable methods were employed to reduce the risks of reviewer error and bias throughout the review.

The authors reported in their quality assessment results table that groups were similar at baseline in all studies yet they stated elsewhere in the report that two studies had baseline imbalances so the reliability of the study quality assessment results appeared questionable. Sufficient study details were provided.

A narrative synthesis appeared appropriate due to variations between studies (particularly in comparator treatments). Most studies had small group sizes so it was difficult to rule out the possibility of results arising by chance differences. There was no evaluation of the clinical relevance of results (statistical significance does not necessarily equate to clinical significance).

In light of these limitations the authors' conclusions may not be reliable.

Implications of the review for practice and research
Practice: The authors stated that there was evidence to support use of spinal manipulation by physical therapists in clinical practice.

Research: The authors stated a need for more diligent reporting of adverse events in future studies. They also suggested a need for longer follow-up periods and that general well-being, work disability, patient satisfaction and cost-effectiveness outcomes should be assessed.

Funding
Walsh University, USA.

Bibliographic details

PubMedID
23316428

Original Paper URL
http://www.spts.org/journals/ijspt/archived-issues/december-2012-ijspt/ijspt-v7n6-kuczynski

Indexing Status
Subject indexing assigned by CRD

MeSH
Humans; Low Back Pain; Physical Therapists; Manipulation, Spinal

AccessionNumber
12013003310

Date bibliographic record published
26/02/2013
Date abstract record published
17/07/2013

Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.