The effectiveness of spinal manipulation for the treatment of headache disorders: a systematic review of randomized clinical trials

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Authors' objectives
To carry out a systematic review of the literature examining the effectiveness of spinal manipulation for the treatment of headache disorders.

Searching
MEDLINE, EMBASE, PsycLIT, CAMPAIN, the Science Citation Index, AMED, CISCOM and the Cochrane Library were searched from inception to March 2001. The authors also handsearched their personal files and the reference lists of included studies and review articles. No language restrictions were applied.

Study selection
Study designs of evaluations included in the review
Only published randomised controlled trials (RCTs) were included in the review.

Specific interventions included in the review
Any kind of spinal manipulation was included in the review. Where described, the types of spinal manipulation included 'manual therapy', chiropractic and osteopathic manipulation.

Participants included in the review
Though not explicitly stated as an inclusion criterion, the included participants appeared to be adults with any type of headache. The studies included participants with migraine, tension-type headaches, 'cervicogenic' headache, 'spondylogenic' headache, and dull, non-throbbing, bilateral headaches.

Outcomes assessed in the review
No inclusion criteria relating to the outcomes were stated. The specific outcomes included in the review were: pain (visual analogue scale), headache pain intensity, headache frequency, OTC use, SF-36, number of headache hours per day, use of analgesics, electromyographic muscle tension levels in frontalis, temperature in dominant hand, daily headache diary, cervical muscle tenderness, and disability.

How were decisions on the relevance of primary studies made?
The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
The methodological quality of the included trials was assessed using the criteria outlined by Jadad et al. (see Other Publications of Related Interest). Two reviewers independently assessed validity.

Data extraction
Two reviewers independently extracted data from the included studies. Data were extracted on author, year, quality score, sample size, participant diagnosis, intervention details, control details, primary outcome measure, main results and reviewer's comments.

Methods of synthesis
How were the studies combined?
A narrative synthesis of the studies was undertaken.
How were differences between studies investigated?

Heterogeneity was not investigated statistically, but differences between the studies were displayed in tabular format and discussed in the text of the review.

Results of the review

Eight RCTs (n=760) were included.

The included RCTs scored between 1 and 3 on the Jadad scale (maximum score 5). The mean score was 2.3, suggesting a fairly low quality overall.

Migraine headaches.

One study found comparable improvements on a composite headache index between spinal manipulation, amitriptyline and the two treatments combined (where manipulation required 14 visits rather than 3 visits for medication). There was a non significant trend for these benefits to remain at 4 weeks in the manipulation group than in the other two groups. Another study found a significant improvement in intensity of pain. It also showed improvements in duration of migraine and disability for chiropractic spinal manipulation, physical therapy manipulation and a mobilisation ‘placebo’, but there were no significant differences between these groups. A third (low-quality) study reported that migraine patients receiving spinal manipulation experienced significant reductions in headache frequency and duration, disability and medication use in comparison with a placebo laser condition; these effects persisted at the 2-month follow-up.

Tension headaches.

One study found similar improvements with spinal manipulation and amitriptyline at the end of the treatment phase (12 spinal manipulation visits over 6 weeks versus 2 visits in the medication group). However, at the 4-week post-intervention follow-up, the manipulation group reported significantly greater improvements on all outcome measures. Another study found significant post-intervention improvements in headache frequency and analgesic use in both the manipulation and placebo laser therapy groups, but no significant differences between these two groups. Another small trial indicated that osteopathic spinal manipulation was superior to ‘palpatory’ examination alone in terms of headache pain (based on a single session of manipulation).

Other.

A small three-armed trial found no differences between ‘manual therapy’ by physicians and either sham therapy performed by non-physicians or waiting-list control for patients with ‘headache of spinal origin’. Another trial found significant reductions in headache hours and intensity for chiropractic manipulation in the treatment of cervicogenic headaches, compared with a placebo light control. However, this finding was from a publication where additional patients had been added to an earlier analysis that had indicated no difference between the groups.

Authors’ conclusions

It is unclear whether or not spinal manipulation is an effective treatment for headache disorders. Methodological limitations, coupled with the small number and considerable heterogeneity of the randomised trials, made it difficult to rule out non-specific (placebo) factors as an explanation for the clinical improvements that were consistently observed across trials, irrespective of headache category.

CRD commentary

This review was based on a reasonably broad question, which was reflected by the vagueness of some of the inclusion criteria applied in selecting the studies. To identify relevant evidence, the authors searched a range of electronic databases and handsearched reference lists and personal collections. Two reviewers independently assessed the validity of each included study according to a published checklist. Relevant details of the included studies were tabulated and the evidence was combined in a reasonable manner given the obvious heterogeneity among the studies. The cautiousness of the authors’ conclusions seems justified given the paucity and poor quality of the evidence identified.
Implications of the review for practice and research
Practice: The authors did not state any implications for practice.

Research: The authors stated that additional, better-designed trials are required before such treatments can be considered effective for headache disorders.

Bibliographic details

PubMedID
12383058

Other publications of related interest


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Subject indexing assigned by NLM

MeSH
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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.