Chiropractic spinal manipulation: what does the ‘best’ evidence show?

Edzard Ernst

Abstract

Background The evidence of effectiveness of chiropractic is controversial.

Objectives To summarise all Cochrane reviews of chiropractic spinal manipulation.

Methods The Cochrane database was searched for all Cochrane reviews of chiropractic manipulation. Cochrane reviews with the terms ‘chiropractic’, ‘manipulation’ or ‘manual therapy’ in the title, abstract or keywords were considered. Protocols of reviews were excluded, as were studies that did not focus specifically on chiropractic spinal manipulation. Data extraction was performed by the author according to predefined criteria.

Results Five Cochrane reviews were eligible for inclusion. Due to clinical and statistical heterogeneity, a meta-analysis was not possible and the findings of the reviews were discussed narratively. The five reviews related to the following conditions: low back pain, asthma, dysmenorrhoea and neck pain. Each review included between three and 39 primary studies. Cautiously positive conclusions emerged for low back pain and neck pain. For the two non-spinal conditions, the conclusions were negative.

Conclusions Cochrane reviews, generally considered to be the most reliable evidence, provide limited evidence that chiropractic may be effective for low back and neck pain, but failed to support the use of chiropractic for non-spinal conditions.

Keywords Chiropractic • Cochrane database • effectiveness • spinal manipulation • systematic review

Background

In recent decades, chiropractic has firmly established itself in the healthcare system of many countries, and numerous clinical trials of chiropractic have been published. However, the results of these trials tend to be full of contradictions. In such situations, evaluating the totality of the evidence through systematic reviews (SRs) might be the best way forward to inform clinicians about the value of chiropractic for specific conditions.

Many SRs of chiropractic have emerged but, confusingly, their evidence is far from uniform, even when dealing with the same clinical condition. Overt contradictions often emerge, as is the case for the conclusions of SRs of headache, fibromyalgia and whiplash injury. The more positive SRs are frequently authored by chiropractors, while the more negative SRs tend to be published by independent experts.

Most chiropractors continue to make therapeutic claims that are not supported by good evidence and tend to argue that those SRs that fail to generate positive conclusions are biased. It is therefore relevant to ask what the least biased SRs of chiropractic show. Several authors have demonstrated that...
Cochrane reviews tend to be superior to other reviews; they are more rigorous, more transparent, less biased and more up to date.11 They might therefore be considered ‘best’.

The aim of this article is to summarise the findings from Cochrane reviews of chiropractic spinal manipulation.

Methods

The Cochrane database was searched in April 2011 for SRs that had the term ‘chiropractic’, ‘manipulation’ or ‘manual therapy’ in their title, abstract or keywords. Articles were excluded if they referred to protocols only, were not specifically on chiropractic spinal manipulation (i.e. included chiropractic spinal manipulation amongst other forms of health care for a given condition),12,13 or focused exclusively on non-manipulative interventions that might be occasionally used by chiropractors.14–24 Reviews of combined chiropractic interventions (i.e. manipulation plus other physical therapies), were included. Reviews of massage therapy25 and those focusing entirely on non-manipulative interventions typically done by mainstream doctors26 were excluded.

All articles were read in full and key data were extracted by the author according to predefined criteria (Table 1). A meta-analysis was considered but, due to clinical heterogeneity of the primary studies, this plan was abandoned.

Results

The search generated 163 hits. Most articles were excluded because they did not specifically focus on chiropractic spinal manipulations (Figure 1). Five systematic reviews met the inclusion criteria and were included.27–31 Key data from these reviews are summarised in Table 1.

The included SRs related to the following conditions: low back pain,30,31 asthma,27 dysmenorrhoea28 and neck pain.29 The reviews assessed the effectiveness of spinal manipulation,28,29,31 any type of manual therapy27 and any type of treatment administered by chiropractors.30 As expected, all SRs were of outstanding methodological quality. Most were (co-) authored by chiropractors.

None of the included SRs provided strong evidence that chiropractic spinal manipulation is an effective treatment for the conditions in question. For back and neck pain, the conclusions were cautiously positive.29–31 For non-spinal conditions, the evidence failed to support the effectiveness of chiropractic27,28 (Table 1). All SRs noted the poor quality of the primary studies.

Discussion

This analysis revealed that few Cochrane reviews of chiropractic were available (i.e. five compared to 4407 in total, as at 12 October, 2010). Reviews that have been published either failed to produce strong evidence in favour of chiropractic29–31 or were clearly negative.27,28

Recent survey data suggest that many chiropractors use spinal manipulation to treat a wide range of non-spinal conditions.10,32 The evidence for this is, however, far from compelling.33 Similarly, most chiropractors make therapeutic claims that are not supported by good evidence.9,10 The traditional basis for using spinal manipulation is the notion that ‘subluxations’ exist and are of pathophysiological importance. This notion is, however, not based on sound data.34,35 Thus, it is the author’s opinion that chiropractic is biologically implausible and not supported by strong evidence from Cochrane reviews.

Considering that the ‘best’ available evidence is Unconvincing29–31 or negative,27,28 and that chiropractic manipulations are by no means free of risks,36 chiropractors should either produce convincingly positive evidence or stop promoting and employing unproven approaches to health care. A recent survey of 487 North American orthopaedic surgeons seems to agree with this view:

‘The majority of respondents agreed that chiropractors provide effective therapy for some musculoskeletal complaints, but disagreed that they could provide effective care for non-musculoskeletal conditions or for postsurgical rehabilitation. The majority was also of the opinion that chiropractors provide unnecessary treatment, engage in overly-aggressive marketing, breed dependency in patients on short-term symptomatic relief, and do not treat in accordance with evidence-based practices.’37

This analysis had several limitations. The paucity of Cochrane reviews was disappointing. Two of the reviews27,28 included only three RCTs with a small total sample size. The conditions treated were highly diverse. Many of the primary studies included in the SRs were of poor quality. Collectively, these drawbacks limit the conclusions of this review.

In order to move this field of inquiry forward, we need more high-quality research. Several clinical trials of chiropractic have recently been supported by the US National Centre for Complementary and Alternative Medicine (NCCAM). Such independently funded studies seem a step in the right direction. Unfortunately, a recent analysis of these data showed that ‘several RCTs failed to report adverse effects and the majority was not described in sufficient detail to allow replication.’38 This might serve as a reminder

Review 203
<table>
<thead>
<tr>
<th>First author (year)</th>
<th>Aim of review (quote)</th>
<th>Treatment</th>
<th>Condition</th>
<th>Number of trials (total sample size)</th>
<th>Authors’ conclusion (quote)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hondras (2005)</td>
<td>‘evaluate the evidence for the effects of manual therapies for bronchial asthma’</td>
<td>Any type of manual therapy</td>
<td>Asthma</td>
<td>Three RCTs (156 patients; two RCTs of chiropractic manipulation)</td>
<td>‘There is insufficient evidence to support the use of manual therapies for patients with asthma’</td>
</tr>
<tr>
<td>Proctor (2006)</td>
<td>‘determine the safety and efficacy of spinal manipulative interventions’</td>
<td>Any type of SMT</td>
<td>Dysmenorrhoea</td>
<td>Three RCTs (213 patients)</td>
<td>‘There is no evidence to suggest that spinal manipulation is effective’</td>
</tr>
<tr>
<td>Gross (2010)</td>
<td>‘assess if manipulation or mobilisation improves pain’</td>
<td>Any type of SMT</td>
<td>Neck pain</td>
<td>27 RCTs (1522 patients)</td>
<td>‘Cervical manipulation and mobilization...may provide immediate or short-term change’</td>
</tr>
<tr>
<td>Walker (2010)</td>
<td>‘determine the effects of combined chiropractic interventions’</td>
<td>Any type of therapy used by chiropractors</td>
<td>Low back pain</td>
<td>12 RCTs (2887 patients)</td>
<td>‘Combined chiropractic interventions slightly improved pain and disability in the short-term and pain in the medium-term for acute and subacute LBP. However, there is currently no evidence that supports or refutes that these interventions provide a clinically meaningful difference for pain or disability in people with LBP when compared to other interventions. Future research is very likely to change the estimate of effect and our confidence in the results’</td>
</tr>
<tr>
<td>Rubinstein (2011)</td>
<td>‘To assess the effects of SMT for chronic low back pain’</td>
<td>Any type of SMT</td>
<td>Chronic low back pain</td>
<td>26 RCTs</td>
<td>‘High quality evidence suggests that there is no clinically relevant difference between SMT and other interventions for reducing pain and improving function in patients with chronic low-back pain. Determining cost-effectiveness of care has high priority. Further research is likely to have an important impact on our confidence in the estimate of effect in relation to inert interventions and sham SMT, and data related to recovery’</td>
</tr>
</tbody>
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LBP, low back pain; SMT, spinal manipulation therapy.
that clinical research in this area has to be rigorous in order to be meaningful.

Conclusion

In conclusion, the 'best' available evidence failed to provide strong support for chiropractic as a treatment for neck or back pain, and provided no support for the use of chiropractic for non-spinal conditions.

External funding

None.

Conflict of interest

None declared.

References


Figure 1 Flow chart of included systematic reviews.

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