Cervical endplay assessment does not improve the efficacy of cervical manipulation

Synopsis


[Prepared by Chris Maher, Editorial Board Member]

**Question:** Does cervical endplay assessment improve the short term efficacy of cervical manipulation?

**Design:** Randomised controlled trial of a diagnostic test. Allocation concealed; patients, assessors and therapists blinded to the results of the diagnostic test. **Setting:** Chiropractic outpatient clinic in USA.

**Patients:** 108 patients with neck pain were screened (inclusions: aged over 18, a minimum pain level of 10 on a 100 mm pain scale and no contraindication to manipulation); 104 were enrolled with no treatment drop-outs or loss to follow-up. Five subjects were excluded post-randomisation from the primary analysis and an additional two subjects from the secondary analysis as they were subsequently found not to meet the inclusion criteria.

**Interventions:** Subjects underwent cervical endplay assessment by two trained chiropractors and then received manipulation treatment from a chiropractor blinded to the results of endplay assessment. In both groups the treatment provider was instructed by an experimenter as to the specific neck manipulation(s) to perform. In the experimental group the manipulation treatment was based upon the endplay assessments noted by the examiner, and in the control group it was based upon sham endplay findings generated by a computer. **Outcomes:** The primary outcome was neck pain evaluated immediately after manipulation. Secondary outcomes included post-treatment stiffness and evening pain and stiffness (all outcomes presented on 0–100 point scales). **Results:** Both groups achieved immediate reductions in pain and stiffness, of the order of 40%, but there were no clinically or statistically significant between-group differences. Group mean (95% CI) between-group differences were: immediate pain, 0 points (-7 to 7); immediate stiffness, 1 point (-8.5 to 6.5); evening pain, -1.3 points (-11.1 to 8.5); and evening stiffness, 3.7 (-14.8 to 7.4). Negative results represent a greater reduction in control group. **Conclusion:** Basing cervical manipulation treatment on the results of cervical endplay assessment does not improve the short-term outcomes of a single session of cervical manipulation. Group means and 95% CI calculated by Chris Maher based upon data in paper.

Commentary

It has been a basic tenet of spinal manual therapy that clinicians should determine dysfunctional spinal segments and apply a technique directed specifically to the motion limitation detected. The presumption is that by applying a technique as specifically as possible the clinician will maximise the clinical outcome.

This study tested the assumption that applying cervical manipulation to spinal segments with limitation of motion would produce better clinical outcomes. In fact there was no difference between the treatment group and a control group in which manipulation was applied based on random selection of the target segment. Both groups responded positively to joint manipulation.

It appears, therefore, that the short term pain relief afforded by spinal manipulation does not depend on manipulating the ‘correct’ segment. The effect is more generalised. This is not surprising if the initial pain-relieving effect of the treatment is related largely to neurophysiological mechanisms, since these systems exhibit only a relatively crude somatotopic organisation. We have shown, for example, that applying a mobilisation technique to the knee joint modulates pain-related responses to stimulation of the foot in animals with inflamed ankle joints (Sluka and Wright 2001).

One limitation of the study is that they did not repeat the segmental examination. It would have been interesting to see if the clinical findings were actually changed by the non-specific manipulation.

Importantly, the authors point out that this study does not evaluate any long-term differences in clinical outcome. It remains possible that segmental specificity is more important for some of the potential longer-term effects of manual treatments. Because of the lack of longer-term studies and the relative paucity of research looking at joint-specific effects it would be prudent for clinicians to continue to apply joint manipulation with a good deal of specificity. It is important, however, to be aware that the effect(s) may not be as specific as we think.

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Reference

Acute low back pain improves rapidly, however recovery is not complete and recurrence is common

Synopsis


**Question:** What is the course of acute low back pain or sciatica? Do any factors predict a poor outcome?

**Data sources:** Studies were identified by searching Medline, EMBASE and CINAHL to March 2002. **Study selection:** Prospective studies (any language) enrolling an inception cohort of patients with low back pain or sciatica of less than 3 weeks duration. To be eligible studies had to describe the source of participants, method of sampling, have at least 3 month follow-up and report on symptoms, health-related quality of life, disability, return to work, or recurrences.

**Data extraction and analysis:** Two raters extracted data independently, using a prepared form, on target population, sample size, duration of low back pain at time of enrolment, description of interventions, duration of follow-up, prognostic factors and outcome measures. Disagreements were resolved by consensus. Data were pooled across studies using n-weighted pooled means for continuous data and variance-weighted pooled proportions for dichotomous data. **Main results:** 20 articles of 15 studies (9 randomised controlled trials, one controlled trial and five prospective cohort studies) were included, one describing the course of acute sciatica. Most studies reported that both pain and disability decreased rapidly within the first month: pain reduction 12% to 84% of initial levels (pooled mean 58%) disability reduction 33% to 83% (pooled mean 58%). The one study of sciatica reported similar one month results: 69% pain reduction, 57% disability reduction. Between 68% and 86% of participants initially off work returned to work within one month (pooled estimate 82%, 95%CI 73% to 91%). At long term follow-up pain and disability persisted, e.g. the pooled mean level of pain on a 100 point scale was 15 between 3 and 12 months. The cumulative risk of at least one recurrence within 12 months ranged from 66% to 84%, pooled estimate 73% (95%CI 59% to 88%). The only clinically useful predictor of outcome was the Vermont Disability Prediction Questionnaire. **Conclusions:** Patients with acute low back pain improve rapidly within the first month, however low levels of pain and disability persist from 3 to at least 12 months. Most people will have at least one recurrence within 12 months.

Commentary

Pengel et al (2003) review studies of acute back pain and conclude rapid improvement is typical, but that recurrences and residual pain are normal. This pattern holds for back pain in general, although outcomes are slightly less favorable for those with prior episodes (Von Korff and Saunders 1996).

Most back pain patients are not given clear information about expected course (Turner et al 1998). Some are told to expect to be pain-free within weeks. Since recurrent back pain is typical, patients need to understand that residual pain and recurrences are to be expected. Many patients worry that physical activity may be harmful, that they may become disabled, or that they have a serious underlying disorder (Von Korff and Moore 2001). Providing realistic outcome expectations is part of addressing these common concerns. It is important for patients to know that it is generally safe and beneficial to resume exercise and normal activities as their worst pain subsides, that they should not wait to be pain-free. Since recurrences are to be expected, patients can benefit from having a plan for managing flare-ups that prepares them for managing acute pain and resuming exercise and activities as pain improves.

Back pain outcomes vary. About fifteen percent of primary care back pain patients have moderate to severe chronic back pain with significant activity limitations. Some of these patients have significant work disability. These patients can also benefit if fears are addressed and support for resuming activities is provided. While work disability is a difficult problem to resolve for some chronic back pain patients, health professionals can help many patients by addressing their concerns about back pain and by encouraging exercise and resumption of normal activities (van Tulder et al 2000).

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References


