

Cervical spine manipulation was not better than mobilization for improving outcomes in neck pain

Hurwitz EL, Morgenstern H, Harber P, et al. A randomized trial of chiropractic manipulation and mobilization for patients with neck pain: clinical outcomes from the UCLA neck-pain study. *Am J Public Health.* 2002;92:1634-41.

QUESTION

In patients with neck pain, is cervical spine manipulation (CSM) more effective than mobilization (CSMOB) for reducing neck pain intensity and neck pain-related disability?

DESIGN

Randomized (allocation concealed*), unblinded,* controlled trial with 6-month follow-up.

SETTING

4 clinics in Southern California, United States.

PATIENTS

336 patients 18 to 70 years of age (mean age 46 y, 69% women) who had neck pain, were health maintenance organization members, and had not received treatment for neck pain in the past month. Exclusion criteria included pain not primarily in the neck and inability to read English. Follow-up was 80% at 6 months.

INTERVENTION

42 patients each were allocated in a balanced $2 \times 2 \times 2$ factorial design to CSM with or without heat, CSM with or without electrical muscle stimulation (EMS), CSMOB with or without heat, or CSMOB with or without EMS. CSM consisted of ≥ 1 controlled dynamic thrust applied with high-velocity, low-amplitude force with minimal extension and rotation. CSMOB consisted of ≥ 1 low-velocity, variable-amplitude movement

applied within the patient's passive range of motion.

MAIN OUTCOME MEASURES

Changes from baseline in neck pain intensity (0 to 10 numerical rating scale) and related disability (10-item Neck Disability Index [NDI]) assessed at 2 and 6 weeks and at 3 and 6 months.

MAIN RESULTS

Analysis was by intention to treat. For all comparisons (i.e., CSM vs CSMOB, heat vs no heat, and EMS vs no EMS), the groups did not differ for adjusted mean changes from baseline in neck pain intensity or related disability, or for number of patients with clinical improvement in neck pain (reductions of ≥ 2 points vs < 2 points on the pain

scales) or related disability (reductions of ≥ 5 points vs < 5 points on the NDI) throughout follow-up. Outcomes at 6 months are in the Table.

CONCLUSION

In patients with neck pain, manipulation and mobilization did not differ for reduction in neck pain intensity or neck pain-related disability, regardless of application with heat or electrical muscle stimulation.

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*See Glossary.

Relative effectiveness of cervical spine manipulation (CSM), mobilization (CSMOB), heat, and electrical muscle stimulation (EMS) for neck pain at 6 months†

Outcomes	Comparison	Mean difference in change from baseline (95% CI)	Relative risk for clinical improvement (CI)
Average pain (0 to 10 scale)	CSM vs CSMOB	0.01 (-0.52 to 0.54)	0.92 (0.74 to 1.15)
	Heat vs no heat	-0.36 (-0.89 to 0.17)	1.14 (0.95 to 1.37)
	EMS vs no EMS	0.33 (-0.19 to 0.85)	0.90 (0.73 to 1.13)
Neck disability (0 to 50 scale)	CSM vs CSMOB	0.46 (-0.89 to 1.82)	0.85 (0.66 to 1.08)
	Heat vs no heat	-0.67 (-2.03 to 0.68)	1.14 (0.94 to 1.38)
	EMS vs no EMS	0.73 (-0.61 to 2.08)	0.87 (0.69 to 1.10)

†Mean difference and relative risk were adjusted for baseline variables including age, sex, and mental health score. Clinical improvement in average pain = reductions ≥ 2 points; clinical improvement in neck disability = reductions ≥ 5 points. CI defined in Glossary.

COMMENTARY

The well-done study by Hurwitz and colleagues has direct implications for primary care. It is the latest in a welcome series of high-quality randomized trials (1, 2) of therapies for musculoskeletal back and neck pain that have greatly increased our knowledge of optimal management of these conditions. This study reported no significant differences in pain or function at 6 months between patients treated with neck manipulation and neck mobilization, respectively. Furthermore, the sample size was sufficiently large that the results effectively exclude a clinically important difference between treatments (i.e., the study had sufficient power). Because this study did not have a "no manual therapy" group, it is possible that neither manipulation nor mobilization was an effective therapy and all that was observed was the natural history of the condition. However, I do not think this is the case, because a recent randomized study by Hoving and colleagues reported greater benefit from treatment with manual therapy (including mobilization) than with care from a general practitioner in patients with neck pain (2). Based on the current study and the one by Hoving and colleagues,

I think it is reasonable to offer a course of manual therapy that includes mobilization to patients with neck pain who do not respond to a short course of analgesics. Because neck manipulation has no proven benefit compared with mobilization and has been associated with serious, albeit rare, adverse events, neck manipulation cannot be recommended and should be avoided.

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References

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