Review: some non-surgical interventions improve symptoms in carpal tunnel syndrome

O'Connor D, Marshall S, Massy-Westropp N. *Non-surgical treatment (other than steroid injection) for carpal tunnel syndrome*. *Cochrane Database Syst Rev* 2003;(2):CD003219 (latest version 28 Oct 2002).

QUESTION: In patients with carpal tunnel syndrome (CTS), what is the effectiveness of non-surgical treatment (other than steroid injection) compared with no treatment, placebo, or another non-surgical treatment for improving clinical outcome?

Data sources

Studies were identified by searching 7 databases and reviewing the reference lists of identified trials.

Study selection

Published and unpublished studies were selected if they were randomised controlled trials comparing a non-surgical treatment (other than steroid injections) with no treatment, placebo, or another non-surgical treatment in patients with CTS. Studies of patients with previous surgery for CTS were excluded.

Data extraction

Data were extracted by 2 independent reviewers on patients, interventions, outcome measures, and results. Study quality was assessed using a descriptive approach according to the Cochrane Reviewers' Handbook. Main outcome was improvement in clinical symptoms (eg, pain and paraesthesiae) ≥ 3 months after the end of treatment.

Main results

21 trials met the selection criteria. Interventions evaluated were splinting (3 trials); ultrasound (3 trials); ergonomic keyboards (2 trials); oral medications or vitamins (6 trials); and 1 trial each of exercise, yoga, mobilisation, magnet therapy, chiropractic care, laser acupuncture, and insulin injection. Duration of treatment ranged from 45 minutes to 6 months. 10 of the trials had a high bias rating; 8 had a moderate rating. Only 3 trials assessed the main outcome measure. Improvement in ≥ 1 outcome measure occurred with 9 of the 12 interventions (see table on website). No difference was seen with magnet therapy, exercise, or laser acupuncture, and chiropractic care led to an increase in physical distress (see table on website).

Conclusion

In patients with carpal tunnel syndrome, most non-surgical treatments do not seem to improve short term clinical outcome.

website extra
Additional information appears on the Evidence-Based Medicine website
www.evidence-based-medicine.com

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COMMENTARY

In applying the results of the review by O'Connor *et al* to clinicians, the trial diagnostic selection criteria are important. 17 of the 21 trials were rated highly because they included both electrodiagnostic findings and symptoms of CTS.

Regarding treatment efficacy, the reviewers took the patients' perspective by measuring clinical symptom improvement ≥ 3 months after the end of treatment as the primary outcome measure. Unfortunately, only 3 of the 21 studies had data on this outcome. The results of the other studies were based only on such secondary outcomes as electrodiagnostic test results and need for surgery.

The review found moderate evidence for short term benefit from oral steroids; limited evidence for short term benefit from splinting, ultrasound, yoga, and carpal bone mobilisation; and no good evidence for other non-surgical treatments. Of these, oral steroids may be the cheapest and simplest to implement, but side effects may be a concern. The other beneficial treatments may be more expensive and resource intensive, but also safer.

2 previous Cochrane reviews that evaluated steroid injections¹ and surgery² for CTS put the results of O'Connor *et al* in perspective. Marshall *et al* showed that steroid injections were superior to placebo 1 month¹ after injection, but symptom relief beyond 1 month has not been shown. Steroid injections were superior to oral steroids up to 3 months after treatment, although other studies have shown they were no better than anti-inflammatory treatment and splinting at 8 weeks or laser treatment at 6 months.¹ Surgery was superior to splinting at 1 year in 1 small randomised trial.²

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1 Marshall S, Tardif G, Ashworth N. *Cochrane Database Syst Rev* 2003;(1):CD001554.

2 Verdugo RJ, Salinas RS, Castillo J, *et al*. *Cochrane Database Syst Rev* 2003;(1):CD001552.