

# Methylprednisolone injection improved symptoms for 1 year in patients with the carpal tunnel syndrome

Dammers JW, Veering MM, Vermeulen M. Injection with methylprednisolone proximal to the carpal tunnel: randomised double blind trial. *BMJ*. 1999 Oct 2;319:884-6.

## QUESTION

What is the effectiveness of a methylprednisolone injection in patients with the carpal tunnel syndrome?

## DESIGN

Randomized (allocation concealed\*), blinded (clinician, patient, and outcome assessor),\* placebo-controlled trial with 1-year follow-up.

## SETTING

Outpatient neurology clinic in a district general hospital in the Netherlands.

## PATIENTS

Patients > 18 years of age (mean age 52 y, 83% women) who had signs and symptoms of the carpal tunnel syndrome for  $\geq 3$  months confirmed by electrophysiologic tests. Patients who had already been treated for the carpal tunnel syndrome were excluded. Follow-up was 100%.

## INTERVENTION

Patients were allocated to receive a single injection of methylprednisolone, 40 mg, and lignocaine, 10 mg (intervention

group,  $n = 30$ ), or lignocaine, 10 mg, alone (control group,  $n = 30$ ) proximal to the carpal tunnel. In patients with bilateral symptoms, the arm with the most severe symptoms was included in the study.

## MAIN OUTCOME MEASURES

Symptom improvement was defined as having no symptoms or minor symptoms requiring no further treatment at 1 month. Patients were also evaluated at 3, 6, 9, and 12 months.

## MAIN RESULTS

More patients in the intervention group had symptom improvement than did

those in the control group at 1, 3, 6, 9, and 12 months ( $P < 0.01$ ) (Table).

## CONCLUSION

In patients with the carpal tunnel syndrome, an injection of methylprednisolone was effective in improving symptoms for up to 1 year.

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\*See Glossary.

## Methylprednisolone injection vs control for symptom improvement in patients with the carpal tunnel syndrome†

Follow-up	Methylprednisolone	Control	RBI (95% CI)	NNT (CI)
1 mo	77%	20%	283% (96 to 723)	2 (2 to 3)
3 mo	63%	7%	850% (185 to 3400)	2 (2 to 3)
6 mo	57%	7%	750% (152 to 3050)	2 (2 to 4)
9 mo	53%	7%	700% (136 to 2880)	3 (2 to 4)
12 mo	50%	7%	650% (119 to 2700)	3 (2 to 5)

†Abbreviations defined in Glossary; RBI, NNT, and CI calculated from data in article.

## COMMENTARY

This rigorous study by Dammers and colleagues of the benefits of methylprednisolone in the nonsurgical management of the carpal tunnel syndrome used a methodologically sound design to show that 1 injection of methylprednisolone may prevent the need for surgical decompression in 43% of patients at 1 year.

Injections into the carpal tunnel have traditionally been used as a temporary solution. Previous studies of corticosteroid injections in managing the carpal tunnel syndrome have used an uncontrolled series design. 1 study examined 497 patients who were treated with steroid injections; of these, 14% reported no further symptoms, 12% improved, and 26% eventually required surgery (1). Another study examined the benefit of injections in 50 hands among 41 patients with a mean follow-up of 18 months (2). At the conclusion of this study, 22% of the 50 hands were free of symptoms. Patients with minimal or intermittent symptoms and negative physical examinations had the highest success rate, whereas patients with persistent numbness or thenar atrophy had the lowest success rate. Yet another study reported that injections gave complete relief of all symptoms in 30% to 40% of patients, with relief lasting from several weeks to 6 months; a further 10% to 20% of patients gained partial benefit from injection, although most of these

patients eventually needed surgery (3). Dammers and colleagues do not report how many patients eventually went on to surgery, but we might assume that the patients who did not respond to steroid therapy became surgical candidates.

Methylprednisolone injection into the carpal tunnel is strictly a one-time procedure. Repeated injections carry the risk for tendon rupture and nerve damage. The technique is easily learned but should be mastered through hands-on training with an experienced operator.

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## References

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3. Dawson DD, Hallett M, Millender LH. Entrapment Neuropathies. Boston: Little, Brown; 1983.