

For patients with tennis elbow, physiotherapy is superior to corticosteroid injections in the long term

Synopsis

Summary of Smidt N, van der Windt AWM, Assendelft WJJ, Devillé WLJM, Korhals-de Bos IBC and Bouter LM (2002): Corticosteroid injections, physiotherapy, or a wait-and-see policy for lateral epicondylitis: a randomised controlled trial. *Lancet* 359: 657-662. [Prepared by Gro Jamtvedt and Kåre Birger Hagen, Directorate of Health and Social Services, Oslo.]

Question: To compare the efficacy of corticosteroid injections, physiotherapy and a 'wait-and-see' policy for lateral epicondylitis. **Design:** Randomised controlled trial with three arms. **Setting:** Primary care, The Netherlands.

Patients: One hundred and eighty-five patients with lateral elbow pain that increased with pressure on the lateral epicondyle and with resisted dorsiflexion of the wrist; aged 18-70 years. **Interventions:** The intervention period was 6 weeks. Patients allocated to the wait-and-see group visited their family doctor once and were encouraged to await further spontaneous improvement. Ergonomic advice was provided and paracetamol or NSAIDs were prescribed if necessary. Patients in the corticosteroid group received up to three injections and were asked to avoid pain-provoking activities. The physiotherapy group received nine treatments of pulsed ultrasound, deep friction massage, and a progressive exercise program. The physiotherapy group also received home exercise equipment and an instruction book. **Outcomes:** Outcomes were assessed at baseline, 3 weeks after randomisation, and at 6, 12, 26 and 52 weeks. Primary outcomes were general improvement (6-point scale: 'completely recovered' to 'much worse'), severity of main complaints, pain during day and inconvenience, functional disability and overall elbow complaint severity (scored by assessor). Treatment was considered successful if the patient nominated that the condition had completely recovered or was much improved. Secondary outcomes were pain-free grip strength, maximum grip strength and pressure-pain threshold.

Results: At 6 weeks, significant differences in favour of corticosteroid injections were seen for all outcomes. For example the success rates were: injections 92%; physiotherapy 47%; and wait-and-see 32%. By 12 weeks, there were no between-group differences. However, at 26 and 52 weeks, the physiotherapy group scored significantly better in nearly all outcome measures than the corticosteroid group. There were small non-significant differences in favour of the physiotherapy group compared with the wait-and-see group. **Conclusion:** For patients with lateral epicondylitis corticosteroid injections are more effective than physiotherapy and a wait-and-see policy in the short term (< 12 wks). In the long term, physiotherapy becomes the best option followed by a wait-and-see policy.

Commentary

This study shows that corticosteroid injections, though initially successful, have poor long-term effect while the opposite holds for physiotherapy. However, it should be recognised that physiotherapy was only slightly more favourable than no treatment. Success rates at one-year follow-up were 69%, 91% and 83% for injections, physiotherapy and the wait-and-see policy, respectively. As success rates in excess of 80% also have been shown at one-year follow-up for placebo or minimal interventions (Hay et al 1999), this study indicates that in the long term, corticosteroid injection might be less beneficial to the patient than leaving the condition to cure itself.

Incomplete understanding of pathophysiological mechanisms underlying lateral epicondylitis has hampered development of effective therapeutic interventions. The numerous regimes included in the physiotherapy approach make it difficult to determine the relative contribution of each regime. There is little evidence for the efficacy of ultrasound and progressive exercise has been found superior to pulsed ultrasound. More selective and optimal physiotherapy interventions need to be disclosed, particularly for short-term effects.

A recent study of histological, immunohistochemical, and electron microscopy findings in tennis elbow showed no signs of inflammation (Kraushaar and Nirschl 1999). Instead, there were indications of incomplete or halted repair processes with signs of disorganised, immature or failed vascular and collagen remodelling (ie tendinosis). This suggests the need for a revised theoretical background when designing efficacy studies for lateral epicondylitis. If tendinosis is the pathology that causes lateral epicondylitis, treatments aimed at restarting the healing process (eg needling or forceful deep friction massage) may be promising. It is conceivable that concurrent controlled exercises will provide tensile loads necessary for adequate collagenous remodelling (Kraushaar and Nirschl 1999).

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References

- Hay EM, Paterson SM, Lewis M, Hosie G and Croft P (1999): Pragmatic randomised controlled trial of local corticosteroid injection and naproxen for treatment of lateral epicondylitis of elbow in primary care. *BMJ* 319: 964-8.
- Kraushaar BS and Nirschl RP (1999): Tendinosis of the elbow (tennis elbow). Clinical features and findings of histological, immunohistochemical, and electron microscopy studies. *Journal of Bone and Joint Surgery* 81A: 259-78.