
The effectiveness of corticosteroid injections compared with physiotherapeutic interventions for adhesive capsulitis: a systematic review

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CRD summary

The review concluded that corticosteroids injections had a greater effect in the short-term compared with physiotherapy; the effect decreased over time. The authors stated that the results must be interpreted with caution due to the limited number of trials and differences between interventions. The review was generally well conducted and the authors' conclusions are suitably cautious and appear appropriate.

Authors' objectives

To determine the effectiveness of corticosteroid injections compared with physiotherapeutic interventions for treatment of adhesive capsulitis/frozen shoulder.

Searching

MEDLINE, EMBASE, CINAHL, AMED, Cochrane Central Register of Controlled Trials (CENTRAL), PEDro, NRR and National Recognition Information Centre were searched to 2009 for articles in English. Search terms were reported. Reference lists of relevant articles were searched.

Study selection

Published randomised controlled trials (RCTs) of corticosteroid injections versus physiotherapy interventions in patients with adhesive capsulitis or frozen shoulder were eligible for inclusion. Trials could include a control arm. Outcomes of interest included pain, range of motion, shoulder disability and function. Trials had to assess the outcome measures at least 48 hours after injection to ensure that the anaesthetic effect had ceased.

The included trials evaluated corticosteroid injection (20mg to 40mg triamcinolone or 20mg to 40mg methyl-prednisolone) with physiotherapy (various regimens included Maitland mobilisations and hot packs) in patients with painful shoulders or diagnosed adhesive capsulitis. Duration of disorder, where reported, ranged from between four weeks and one year. Length of follow-up varied between two weeks and one year. The outcomes reported included pain (visual analogue scale), range of motion, passive movement of shoulder and external rotation.

Two reviewers independently selected trials.

Assessment of study quality

Two reviewers independently assessed study quality according to the PEDro scale of 10 quality factors such as randomisation, allocation concealment, blinding and follow-up.

Data extraction

Two reviewers independently extracted data on pain, range of motion, shoulder disability and function and used the data to calculate standardised mean differences (SMDs) and 95% confidence intervals (CIs). Authors of the included trials were contacted for missing data.

Methods of synthesis

Pooled standardised mean differences, together with 95% CIs, were calculated using a random-effects meta-analysis. Statistical heterogeneity was assessed with X^2 and I^2 statistics.

Results of the review

Six trials (n=407) were included in the review. Sample sizes ranged from 20 to 109 patients. Trial quality was variable. Scores ranged from 3 to 8 out of 10. Few trials adequately concealed allocation or used blinding of clinicians or assessors.

Short-term (six to seven weeks): Compared with physiotherapy, corticosteroid injections had a statistically significantly greater improvement in shoulder disability (SMD 0.74, 95% CI 0.45 to 1.04, $I^2=0\%$; three trials) and passive external rotation (SMD 0.66, 95% CI 0.22 to 1.10, $I^2=48\%$; three trials). There was no significant difference between physiotherapy and corticosteroid injections in terms of pain (as measured by the visual analogue scale).

Mid-term (12 to 16 weeks): Compared with physiotherapy, corticosteroid injections had a statistically significantly greater improvement in shoulder disability (SMD 0.32, 95% CI 0.02 to 0.62, $I^2 = 0\%$; three trials). There was no significant difference between physiotherapy and corticosteroid injections in terms of pain (as measured by the visual analogue scale) or passive external rotation.

Longer-term (26 to 52 weeks): Compared with physiotherapy, corticosteroid injections had a statistically significantly greater improvement in shoulder disability (SMD 0.36, 95% CI 0.03 to 0.69; two trials) and passive external rotation (SMD 0.44, 95% CI 0.11 to 0.77; two trials). There was no significant difference between physiotherapy and corticosteroid injections at 26 weeks in terms of pain (as measured by the visual analogue scale). At 52 weeks, there was no significant difference between physiotherapy and corticosteroid injections in terms of shoulder disability, but there was a small benefit in terms of pain (SMD 0.36, 95% CI 0.02 to 0.70; two trials).

Authors' conclusions

Corticosteroids injections had a greater effect in the short-term compared with physiotherapy; the effect decreased over time. The authors stated that the results of this review must be interpreted with caution due to the limited number of trials and differences between interventions.

CRD commentary

Inclusion criteria for the review were clearly defined and several relevant databases were searched. There was the potential for both language and publication bias as only published English-language articles were included. Two reviewers undertook study selection, quality assessment and data extraction to minimise risks of error and bias in the analysis. The included trials were of variable quality, which the authors acknowledged. The trials were combined using meta-analysis and statistical heterogeneity was estimated, which appeared appropriate.

The review was generally well conducted. The authors' conclusions are suitably cautious and appear appropriate.

Implications of the review for practice and research

Practice: The authors stated that clinicians should advise patients with adhesive capsulitis, where appropriate, to have corticosteroid injections as the first line of treatment in an attempt to settle symptoms quickly.

Research: The authors stated that further research was required to establish the most effective treatment for patients with adhesive capsulitis. The benefits of physiotherapy in combination with corticosteroid injections needed to be established, as did the optimal volume and injection site for corticosteroids. A gold standard diagnostic test would be beneficial.

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