The efficacy of subacromial corticosteroid injection in the treatment of rotator cuff disease: a systematic review

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CRD summary
The authors of this review found that there was little reproducible evidence to support the efficacy of subacromial corticosteroid injections in the management of rotator cuff disease. These conclusions appear appropriate given the evidence presented, though there remains the possibility that some relevant evidence might not have been identified.

Authors' objectives
To determine whether subacromial corticosteroid injections (CSIs) are effective in the treatment of rotator cuff disease.

Searching
MEDLINE was searched from inception to January 2006 for articles published in the English language; the search terms were reported. The references of relevant studies were also screened for further trials.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials (RCTs) were eligible for inclusion in the review.

Specific interventions included in the review
Studies evaluating injectable corticosteroids in the subacromial space were eligible for inclusion. The specific interventions evaluated in the included studies were methylprednisolone (in combination with lidocaine or lidocaine plus tolmethin), triamcinolone (in combination with lidocaine plus placebo or naproxen) and betamethasone (combined with lidocaine).

Participants included in the review
Studies including participants diagnosed with rotator cuff disease were eligible for inclusion in the review. The mean age of the participants ranged from 46 to 61.3 years and the majority were female.

Outcomes assessed in the review
The authors did not state any inclusion criteria relating to the outcomes. The outcomes of interest were improvements in pain, range of motion and function, as well as complications.

How were decisions on the relevance of primary studies made?
The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
Individual studies were rated on eight quality criteria: specific inclusion and/or exclusion criteria stated; valid randomisation, groups similar at baseline, blinding of the patients, injectors and assessors, power analysis and use of a validated outcome measure. It was not clear how many reviewers conducted the validity assessment.

Data extraction
The authors did not state how the data were extracted for the review, or how many reviewers performed the extraction. Data on key study characteristics and outcomes were extracted.
Methods of synthesis
How were the studies combined?
The studies were combined in a narrative.

How were differences between studies investigated?
Differences between the participants, interventions and designs of the included studies were discussed in the narrative synthesis.

Results of the review
Nine RCTs (number of participants unclear) were included in the review.

The included RCTs met between four and eight of the eight validity assessment criteria.

Four out of 6 RCTs reported a statistically significant improvement in pain on a visual analogue scale for patients receiving CSI, relative to controls. One reported night-time pain relief at 1 month, but no differences at 3 months.

Three out of 7 RCTs reporting range of motion found a statistically significant improvement, ranging from 14 to 45 degrees.

Two RCTs found no difference between CSI and control groups on measures of function. Of the 2 RCTs that did find a significant difference, one reported that this was not significant at the 3-month follow-up.

Among the 9 RCTs included, a single case of mild skin hypopigmentation at the site of injection was reported for CSI, with no complications reported in the control groups.

Authors’ conclusions
There was little reproducible evidence to support the efficacy of subacromial CSIs in the management of rotator cuff disease.

CRD commentary
The review question was appropriately defined in terms of the interventions, participants and outcomes. Only one database was searched and bibliographies screened, which may mean that some studies (particularly unpublished studies) might have been missed. The validity of the individual included studies was assessed and the defining characteristics of these studies were presented in reasonable detail. However, it is not clear whether attempts were made to minimise error or bias in the study selection, data extraction and validity assessment processes. Given the heterogeneity of the included studies, the use of a narrative synthesis rather than a meta-analysis seems appropriate. The authors’ conclusions appear appropriate given the evidence presented, though there remains the possibility that some relevant evidence might not have been identified.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.

Research: The authors stated that future RCTs should include patient relevant outcome measures, and that all participants should have rotator cuff imaging performed before study enrolment. They also suggested comparing the accuracy of injection with short-term outcomes for pain and function.

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.