Evaluation of interventions for rotator cuff pathology: a systematic review
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CRD summary
This review assessed the effectiveness of surgical and conservative management for rotator cuff pathologies. The authors concluded that there was insufficient evidence to draw definitive conclusions and that further research is required. The review excluded individual RCTs included in relevant Cochrane reviews. Much of the available evidence was of a poor quality and the authors’ conclusions are appropriately cautious.

Authors’ objectives
To assess the effectiveness of surgical and conservative management for rotator cuff (RC) pathologies.

Searching
MEDLINE, CINAHL, the Cochrane Library and PEDro were searched for studies published in English from 1966 to May 2003; the search terms were listed. The reference lists in retrieved reports were checked.

Study selection
Study designs of evaluations included in the review
Meta-analyses, systematic reviews, randomised controlled trials (RCTs), cohort studies and case series were eligible for inclusion. The review excluded individual RCTs that had already been included in three Cochrane systematic reviews.

Specific interventions included in the review
Studies of surgical or nonsurgical treatment were eligible for inclusion. The included studies used electrotherapy, physiotherapy, acupuncture, shockwave therapy, laser therapy, needle aspiration, and surgical interventions such as open, miniopen and arthroscopic surgical repair.

Participants included in the review
Studies of adult patients with RC pathology were eligible for inclusion. Eligible pathologies included full and partial-thickness tears of the RC, lesions, tendonitis and tendinopathy of supraspinatus, infraspinatus and subscapularis tendons, impingement syndrome, calcific tendonitis and bursitis. Studies of patients with RC pathology due to rheumatic disorders were excluded.

Outcomes assessed in the review
Studies that assessed pain, function, disability, strength, patient satisfaction and time to return to work were included.

How were decisions on the relevance of primary studies made?
Two reviewers independently selected studies for inclusion.

Assessment of study quality
The authors did not state that they assessed validity. They did, however, grade studies using a hierarchy of study design: level 1 studies were RCTs; level 2 studies were lower quality RCTs; and level 4 studies were case series. The authors did not state how this grading was performed.

Data extraction
The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction.
Methods of synthesis
How were the studies combined?
The studies were grouped by intervention type and a narrative synthesis was undertaken. The results for the three relevant Cochrane reviews and results from the primary studies for time to return to work were discussed separately. Levels of evidence were used to grade recommendations for interventions.

How were differences between studies investigated?
Differences between the studies were inconsistently discussed with respect to study quality.

Results of the review
Sixty-four studies were included. There were 21 studies of conservative treatment: one level 1 RCT (180 patients), 11 level 2 lower quality RCTs (785 patients) and 9 level 4 case series (1,056 patients). There were 43 studies of surgical interventions: 4 lower quality level 2 RCTs and 39 level 4 case series.

Conservative treatment.
There was support for treating RC disease with electrotherapy (2 of 2 studies reported positive results), steroid injections, exercise therapy (6 of 6 studies reported positive results) and acupuncture (1 study reported positive results).

The results from 3 studies of shockwave therapy were inconsistent.

Surgical treatment.
Most studies of surgical treatments were of a poor quality (level 4 studies) and there was insufficient evidence to compare surgical treatments.

Authors' conclusions
There was insufficient evidence to draw definitive conclusions on interventions for RC pathologies. Further research is required.

CRD commentary
The review question was broadly defined in terms of the study design, intervention, participants and outcome. This resulted in the inclusion of patients with a diverse range of underlying conditions. Several relevant databases were searched and the search terms were stated. By limiting the literature search to studies published in English, some relevant studies might have been omitted. Two reviewers independently selected studies, thus reducing the potential for bias and errors. However, the methods used to extract the data were not described, so it is not known whether any efforts were made to reduce errors and bias. Validity was not assessed.

A narrative synthesis was appropriate given the diversity of the studies, but the decision to exclude RCTs that had been included in the Cochrane reviews meant that the results from higher quality evidence were not presented for appraisal in the review. Most of the available evidence was of a poor quality and the authors' conclusions are appropriately cautious.

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

Research: The authors stated that further research is required to evaluate interventions such as combinations of modalities for RC pathology. Future studies should be adequately powered, use standardised methods to deliver treatment, have adequate long-term follow-up, report treatment complications in full, and consider the effect of prognostic indicators on the outcomes. Priorities include RCTs.
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