Conservative or surgical treatment for subacromial impingement syndrome: a systematic review

Dorrestijn O, Stevens M, Winters JC, van der Meer K, Diercks RL

CRD summary
This review concluded that there was no evidence for differences in pain and shoulder function outcomes between conservative and surgical treatment for subacromial impingement syndrome. The authors’ conclusions reflected the evidence presented but, given the small number of patients and trials, together with the poor quality of included trials, these findings should be interpreted with caution.

Authors' objectives
To compare conservative and surgical treatment for subacromial impingement syndrome in terms of improvement of shoulder function and reduction of pain.

Searching
PubMed, EMBASE, PEDro, and the Cochrane Central Register of Controlled Trials (CENTRAL) were searched (search dates ranged from 1929 to October 2007) without language restrictions. Search terms were reported. Reference lists of included articles were searched to identify additional studies.

Study selection
Randomised controlled trials (RCTs) comparing subacromial decompression with conservative treatment for subacromial impingement syndrome were eligible for inclusion. Eligible participants had to be over 18 years of age and resistant to conservative treatments for at least three months. Trials focusing on surgical repair of rotator cuff tears, adhesive capsulitis and shoulder instability were excluded. Diagnosis of subacromial impingement syndrome, presenting as pain upon abduction of the shoulder, had to be confirmed with a positive result on an impingement test, where elimination or a significant reduction of pain constituted a positive impingement test result. All outcome measures for shoulder function or pain were eligible for inclusion.

In the included trials arthroscopic subacromial decompression was compared with conservative treatment (supervised exercises, education, physiotherapy, physiotherapy with non-steroidal anti-inflammatory drugs and corticosteroid injections, and detuned soft laser treatment). Participants in the included trials had a mean age ranging from 42 to 59 years; duration of complaints, where given, ranged up to almost four years.

Two reviewers independently selected studies for inclusion in the review, with disagreements resolved through consultation with a third reviewer.

Assessment of study quality
Two reviewers assessed study quality for RCTs according to 11 criteria from the Dutch Cochrane Centre. Positive answers were summed and the maximum possible score was 9 points: a score of 0 to 3 points was low quality; 4 to 6 points was medium quality; and 7 or more points high quality. Trial quality was expressed as a percentage of positive answers to all criteria.

Disagreements were resolved by consensus or by consultation with a third reviewer.

Data extraction
Two reviewers independently extracted data for dichotomous outcomes to calculate risk ratios and confidence intervals and means (or medians) with standard deviations and differences in means (or median scores) and their confidence intervals for continuous outcomes. Unsuccessful attempts were made to contact authors for missing/incomplete data.

Methods of synthesis
The authors planned to combine studies in a meta-analysis, but statistical pooling was not considered appropriate due to the diversity of outcomes and incomplete reporting of outcomes. A best evidence synthesis was presented.

**Results of the review**

Four RCTs were included in the review (n=325 patients, 44 to 125); there was a discrepancy between the tables and text. Quality scores ranged from 2 to 6 with two RCTs of low quality and two of medium quality. The duration of follow-up ranged from six months to eight years.

No differences in pain and shoulder function outcomes were observed between conservatively and surgically treated patients with subacromial impingement syndrome, irrespective of study quality.

**Authors' conclusions**

There was no evidence for differences in outcome in pain and shoulder function between conservatively and surgically treated patients with subacromial impingement syndrome.

**CRD commentary**

The review question and inclusion criteria were clear and specific. The authors searched a number of relevant databases and other sources. This, together with the lack of language restrictions, reduced the chances that some relevant studies were not included or that language bias was introduced. No specific attempts were made to locate unpublished studies; some studies may have been missed. Procedures to minimise reviewer bias and error were reported for all stages of the review process.

The validity assessment used appropriate criteria and was used to inform the synthesis. The decision to use a narrative approach to the synthesis appeared reasonable in view of the heterogeneity between studies.

The authors' conclusions reflected the evidence presented, but as acknowledged by the authors, the small number of patients and trials, together with the poor quality of included trials, suggests that these findings should be interpreted with caution.

**Implications of the review for practice and research**

**Practice:** The authors did not state any implications for practice.

**Research:** The authors stated that high-quality trials are required to assess whether surgery for subacromial impingement syndrome is more effective than conservative treatment, using outcomes that quantify improvement of shoulder function and reduction of pain that are valid, reliable and responsive. Participants in such trials should present with a minimum severity of subacromial impingement syndrome to respond to study treatments, and strict inclusion and exclusion criteria should be used to ensure comparable study groups. For diagnosis of subacromial impingement syndrome, correct tests, such as the impingement test, should be used. For study design, power tests should be used, follow-up should be a minimum of one year and data on cost-effectiveness should be provided. Trials should also take into account the duration of symptoms and should investigate the influence of shorter-than-usual preoperative duration of symptoms compared with usual medical care.

**Funding**

University Medical Centre Groningen, The Netherlands.

**Bibliographic details**


**PubMedID**

19286397
Record Status

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.