The efficacy of non-steroidal anti-inflammatory drugs (NSAIDs) for shoulder complaints: a systematic review
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Authors' objectives
To examine the efficacy of non-steroidal anti-inflammatory drugs (NSAIDs) for patients with shoulder complaints.

Searching
MEDLINE was searched from 1966 to 1993 using the keywords: 'shoulder', 'analgesics', 'anti-inflammatory drugs', 'bursitis', 'tendinitis', 'periarthritis', 'capsulitis', 'comparative study' and 'evaluation study'. Citation referring to review articles or RCTs were retrieved and their reference lists scanned for additional publications. Only full reports were included and the paper had to be published in English, German, French or Dutch.

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

Specific interventions included in the review
NSAIDs, either compared to placebo or to other treatment modalities, or to another NSAID. A variety of drugs were studied including naproxen, diclofenac and flurbiprofen.

Participants included in the review
At least 90% of the study population had to be patients with intrinsic shoulder complaints which included bursitis, tendinitis, periarthritis and capsulitis.

Outcomes assessed in the review
Successful treatment, defined as recovery of substantial improvement from baseline. The exact definition of success differed somewhat among studies but included severity of pain, functional limitations, range of movement and tenderness. The incidence of adverse effects from NSAIDs were also examined.

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

Assessment of study quality
The studies were assessed according to methodological criteria adapted from those used by Koes et al. (see Other Publications of Related Interest). Each publication was scored according to 17 methodological criteria referring to the selection of the study population, description of interventions, outcome measurements, analysis and presentation of data. Each methodological criterion was rated as 'plus' (for informative description of the criterion; adequate design and conduct) 'minus' (informative description, but inadequate design or conduct) or question mark (for lacking or insufficient information). All methodological criteria rated 'plus' were scored using pre-determined weighting factors and assigned a total methods score (maximum score 100). The selected publications were blinded for authors, source and results and independently scored by two reviewers. Disagreements were discussed during a consensus meeting and where necessary a third blinded reviewer was consulted for a final judgement.

Data extraction
The success rates in each intervention group (defined as a significant improvement from baseline) were determined by using information from text and tables of the original publications. These were (re)calculated according to the intention-
to-treat principle, and the power of each study was determined (based on a clinically-relevant difference in success rates of 25%). The conclusions of each study were also marked as either positive (if NSAIDs were significantly (p<0.05) more effective than a reference treatment for at least 2 relevant outcome measures) or negative (if NSAIDs were either less effective or no statistically significant difference was found), based on the success rate calculations conducted for the review.

**Methods of synthesis**

How were the studies combined?
The studies were combined by a narrative review.

How were differences between studies investigated?
Differences between the studies were discussed narratively.

**Results of the review**

Sixty-three publications were identified, of which 18 met the selection criteria for the review (one of which reported on 2 different studies which were then reviewed separately). Five studies compared NSAIDs to placebo or to other treatment modalities, while 14 compared two types of NSAIDs.

Only 5 of the 19 trials received a methods score of over 50 points (50%). The design or conduct of the trials was often inadequate with respect to loss to follow-up, sample size and analysis according to intention-to-treat.

The 5 trials comparing NSAIDs to placebo or to other treatment modalities demonstrated variations in success rates with NSAIDs from 20% to 86%. However, the studies varied considerably regarding type of NSAID, dosage, diagnosis or indication, duration of complaints and exact definition of success. 4 of the studies scored 50 points or more, of which 3 demonstrated superior short-term efficacy of NSAIDs. 2 out of 4 studies comparing NSAIDs with other treatment modalities found corticosteroid injections to be more effective than NSAIDs.

Success rates in the 14 studies comparing two types of NSAIDs had success rates ranging from 10% to 79% in the intervention groups. This may be due to similar variations among studies to those discussed above. Few differences between the various types of NSAIDs were demonstrated. Only 3 of the studies had sufficient power to demonstrate a clinical difference in success rates between treatments of 25%.

Adverse reactions were reported by 8-76% of patients receiving NSAIDs (mainly gastrointestinal or sometimes skin rash, dizziness or headache). These reactions were usually considered to be moderate or mild in nature and resulted in withdrawal from treatment in less than 10% of patients in most trials.

**Authors’ conclusions**
The trials with the highest methodological quality seemed to demonstrate superior short-term efficacy of NSAIDs compared to placebo. No conclusive evidence in favour of any particular type of NSAID for shoulder complaints was found. The methodological quality of the majority of the trials was poor.

**CRD commentary**
This systematic review was of reasonable quality and the validity assessment in particular was very thorough and well-described. The narrative discussion of the data was adequate and it is likely that the individual studies were too heterogeneous to conduct a meta-analysis. Although the inclusion criteria for the review and details of the included studies were presented, the type of shoulder complaints included had to be derived from the search strategy. The literature search included studies other than those published in English, however, it was limited to only one database and no unpublished material was sought, which could result in potential bias.

**Bibliographic details**

PubMedID
7730924

Other publications of related interest

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Subject indexing assigned by NLM

MeSH
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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.