Treatment of ruptures of the lateral ankle ligaments: a meta-analysis

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Authors' objectives
To perform a meta-analysis of randomised, controlled clinical trials of existing treatment strategies for acute ruptures of the lateral ankle ligaments.

Searching
The Cochrane CENTRAL Register, MEDLINE and EMBASE (Excerpta Medica) databases were searched from 1966 to 1988; the searches were supplemented by cross-bibliographic checks of the reference lists of the published reviews. The following MeSH terms were used: 'ankle', 'ankle injuries', 'ankle joint', 'lateral ligament', 'clinical trial', 'randomized clinical trial', 'random allocation', 'double-blind method', 'single-blind method' and 'placebo'. There were no limitations regarding the language in which the article was written. Several authors were contacted personally to ask them whether they were aware of unpublished studies. This did not lead to additional data.

Study selection
Study designs of evaluations included in the review
Randomised clinical trials (RCTs) of different forms of treatment for acute ruptures of the lateral ankle ligaments, reported between 1966 and 1998. Studies with inadequate follow-up, defined as a follow-up of less than 60 percent of the patients or of an unclear percentage of the patients, or a follow-up that was carried out exclusively with questionnaires, were excluded.

Specific interventions included in the review
Trials comparing cast treatment with functional treatment, operative treatment with cast treatment, and operative treatment with functional treatment as well as studies comparing different forms of functional treatment were included. Strapping, bracing, use of an orthosis (such as an air cast), elastic wrapping, and use of special shoes for at least five weeks were considered to be functional treatment. A short period of cast immobilisation (up to three weeks) was also considered to be a form of functional treatment, as the immobilisation was carried out for such a short period of time. Duration of follow-up ranged from 6 months to 3.8 years. Studies involving treatment of recurrent ankle injuries or chronic instability were not included.

Participants included in the review
People with acute ruptures of the lateral ankle ligaments.

Outcomes assessed in the review
Time lost from work, residual pain, and giving-way.

How were decisions on the relevance of primary studies made?
Eligible articles, blinded with regard to author and institution, were assessed by three independent investigators who checked the criteria for inclusion and exclusion. Differences between raters were resolved by consensus.

Assessment of study quality
Each trial was rated on the basis of three quality characteristics that are known to be most prone to bias: Was the assignment of patients randomised? Were all patients who entered the trial properly accounted for and attributed at its conclusion? Was the measurement of the outcome blinded? Randomisation was defined as any form of random allocation of treatments to patients with concealment of allocation to the patients and clinicians at the point of inclusion in the study. Eligible articles, blinded with regard to author and institution, were assessed by three independent investigators who scored the three quality features. Differences between raters were resolved by consensus.
Data extraction
Data were extracted by three independent investigators. Differences between raters were resolved by consensus.

Methods of synthesis
How were the studies combined?
Summary measures of effectiveness were expressed as relative risks with use of random-effects modelling.

How were differences between studies investigated?
A test of homogeneity of treatment effectiveness across similar trials was performed with use of the Q statistic. In addition, two analyses were performed. The first analysis was based on all included studies, and the second was performed on all high-quality studies. A study was considered high-quality when proper randomisation had been performed with concealment of allocation and all included patients had been attributed at the conclusion.

Results of the review
Twenty-seven trials with a total of 3345 participants.

Because the results of the subgroup analysis of the high-quality studies only were not fundamentally different from the results of the corresponding analysis of all studies, the results of the analysis of all studies are reported together.

With respect to giving-way, a significant difference was noted between operative treatment and functional treatment (RR 0.23; 95% CI: 0.17, 0.31) in favour of operative treatment and a significant difference was also noted between functional treatment and treatment with a cast for six weeks (RR, 0.69; 95% CI: 0.50, 0.94) in favour of functional treatment. With respect to residual pain, no significant difference was found between operative and functional treatment and a significant difference was found between functional treatment and treatment with a cast for six weeks (RR 0.67; 95% CI: 0.50, 0.90). Minimal or no treatment was found to result in more residual pain (RR 0.53; 95% CI: 0.27, 1.02) and giving-way (RR 0.34; 95% CI: 0.17, 0.71) than did functional treatment.

Authors' conclusions
A no-treatment strategy for ruptures of the lateral ankle ligaments leads to more residual symptoms. Operative treatment leads to better results than functional treatment, and functional treatment leads to better results than cast immobilisation for six weeks.

CRD commentary
This is a very well written review. The inclusion criteria and exclusion criteria are clearly stated and the search for studies is good. Methods of the review are clearly described, and validity of the included studies is assessed, and taken into account in the analysis. The authors' conclusions appear to follow on from the results of the review.

Implications of the review for practice and research
Practice: The authors state that a no-treatment strategy for ruptures of the lateral ankle ligaments leads to more residual symptoms. Operative treatment leads to better results than functional treatment, and functional treatment leads to better results than cast immobilisation for six weeks.

Research: The authors do not state any implications for research.

Bibliographic details

Other publications of related interest

**Indexing Status**
Subject indexing assigned by NLM

**MeSH**
Ankle Injuries /surgery; Casts, Surgical; Ligaments, Articular /surgery /injuries; Postoperative Complications; Randomized Controlled Trials as Topic; Rupture

**AccessionNumber**
12000001261

**Date bibliographic record published**
31/08/2001

**Date abstract record published**
31/08/2001

**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.