
Effectiveness of extracorporeal shock wave therapy for tennis elbow (lateral epicondylitis)

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CRD summary

This review evaluated the effectiveness of extracorporeal shock wave therapy (ESWT) for tennis elbow. The authors concluded that the results for ESWT were conflicting and further good-quality research is required. Limitations in the review methods and inadequate reporting of the results mean that it is difficult to assess the reliability of the authors' conclusions.

Authors' objectives

To evaluate the effectiveness of extracorporeal shock wave therapy (ESWT) for tennis elbow (lateral epicondylitis).

Searching

MEDLINE (from 1966), EMBASE (from 1988), CINAHL (from 1982), ICL (from 1992), CHIROLARS (from 1994) and SPORTDiscus (from 1990) were searched to August 2004 for studies published in the English language; the search terms were reported. The search terms were selected by one reviewer without the aid of an expert librarian. Reference lists in existing reviews and other papers cited in the publications were searched and identified reports were screened. Additional studies were sought by contacting experts in the field and the Cochrane Collaboration. Unpublished studies were excluded, as were studies reported only in abstract form.

Study selection

Study designs of evaluations included in the review

Randomised controlled trials (RCTs) with or without follow-up were eligible for inclusion. The duration of follow-up ranged from 4 weeks to 6 months or more after the end of treatment.

Specific interventions included in the review

Studies that compared ESWT with placebo, no treatment or another treatment (either conservative or surgical) were eligible for inclusion. Studies that used ESWT as part of a multimodal treatment were excluded. Most of the included studies compared ESWT with sham therapy; other studies compared ESWT with steroid injection or another ESWT technique.

Participants included in the review

Studies of adults (aged 18 years and older) with tennis elbow were eligible for inclusion. The included studies were performed in male and female participants of varying ages. All of the studies excluded patients with co-existing neck or thorax complaints.

Outcomes assessed in the review

The primary review outcomes were:

pain (scales or descriptive words);

function (scales, tests or descriptive words); grip strength (pain-free or maximum); and

a global measure (overall improvement, proportions of patients recovered, or subjective improvement of symptoms).

The review also extracted data on adverse events.

How were decisions on the relevance of primary studies made?

One researcher selected studies. The researcher was not blinded to the study author, place of publication or the results.

Assessment of study quality

The studies were assessed using criteria described by Chalmers et al., with some 'minor modifications'. These criteria evaluated study design with emphasis on the blinding of doctors and patients and the description of the randomisation method; other criteria assessed the quality of the data analysis, the statistical analysis and presentation of the results. The maximum possible score was 100 points. The scores were expressed as percentages of the maximum possible scores and allowed for the exclusion of items not applicable to individual studies. Studies were considered to be high quality if they scored 70% or more, low quality if they scored less than 40%, and satisfactory if they scored between 40 and 69%.

The authors did not state how the validity assessment was performed.

Data extraction

One researcher extracted raw data on means for all outcomes, together with the authors' report of the study results. Data on adverse effects were also extracted.

Methods of synthesis

How were the studies combined?

The studies were combined in a narrative and additional descriptive information was tabulated.

How were differences between studies investigated?

Some differences between the studies were discussed.

Results of the review

Seven RCTs (n=712) were included.

The mean quality score was 59.2% (range: 45 to 75). Six studies reported adequate blinding of the outcome assessors and 3 studies reported adequate blinding of the patients and therapists. Four studies reported an appropriate method of randomisation, while all studies reported drop-outs and gave reasons for drop-out. Two studies reported a power calculation.

ESWT versus sham (5 studies): 3 of the 5 studies (2 satisfactory and 1 high-quality study) reported no difference between ESWT and sham therapy; the other 2 studies (1 satisfactory and 1 high-quality study) reported that ESWT was more effective than sham.

One satisfactory quality study compared ESWT with steroid injection. It reported that steroid injection was more effective than ESWT.

One satisfactory quality study compared two different ESWT techniques (lateral and back). Both techniques were reported to improve symptoms from baseline but there was no difference between them.

Authors' conclusions

The results for ESWT in the treatment of tennis elbow were conflicting. Further good-quality research is required.

CRD commentary

The review addressed a clear question that was defined in terms of the participants, intervention, outcomes and study design. Several relevant sources were searched, but no attempts were made to minimise publication or language bias. Only one researcher selected studies and extracted the data; this lack of duplication might have led to errors and bias. Validity was assessed using specified and relevant criteria and the results of the assessment were reported. Drop-out rates were apparently extracted but were not reported, and it was not stated whether or not the reported results were based on an intention-to-treat analysis. In addition, since actual results data were not presented for individual studies, it

was not possible to verify the findings reported. The authors stated that data on adverse effects were extracted, but adverse effects were not reported in the paper.

Given the small number of studies reporting conflicting results, a narrative synthesis was appropriate. The quality of the studies was taken into account when reporting the results. Studies often assessed more than one outcome, and it was not clear how the authors combined results from several outcomes into one finding per study. A lack of results data from individual studies, as well as a lack of adequate information about the methods used to classify study findings, means it is difficult to assess the reliability of the authors' conclusions.

Implications of the review for practice and research

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

Research: The authors stated that further well-designed RCTs are required to evaluate the effectiveness of ESWT in the treatment of tennis elbow.

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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.