Interventions for treating the radial tunnel syndrome: a systematic review of observational studies

Huisstede B, Miedema H S, van Opstal T, de Ronde M T, Verhaar J A, Koes B W

CRD summary
This review evaluated the effectiveness of conservative and surgical interventions for treating radial tunnel syndrome (RTS) and concluded that there is a tendency for the effectiveness of surgical decompression of the radial tunnel in patients with RTS. The authors' cautious conclusions appeared to reflect the limited poor-quality evidence included in the review, but in the absence of full study details it was difficult to be completely confident about the reliability of the conclusions.

Authors' objectives
To evaluate the effectiveness of conservative and surgical interventions for treating radial tunnel syndrome (RTS).

Searching
Trials were identified by searching MEDLINE, EMBASE, PEDro, CINAHL and Cochrane Central Register of Controlled Trials to February 2007. Only English, German, French and Dutch articles were included. Some search terms were reported.

Study selection
Studies investigating an intervention for treating RTS in at least five patients who were aged 18 years or older and diagnosed with RTS in one or both arms with continual pain over the radial proximal forearm were eligible for inclusion. Studies in patients with acute trauma, polynuropathies or RTS as a secondary consequence of disease (such as rheumatic syndromes) were excluded. Studies in which part of the population met the inclusion criteria were included if results were presented separately.

Outcomes measures appeared to included pain, activity, movement, patient satisfaction and adverse effects.

Two reviewers independently assessed abstracts for inclusion. Inclusion of relevant studies was by consensus and a third reviewer was consulted where necessary.

Assessment of study quality
The quality of studies was assessed using an assessment tool adapted from van Tulder et al, Lievense et al, and Borghouts et al and developed for this study. The 19-item tool covered five topics: study population, interventions, study design, outcome measures and analysis. Two authors independently assessed validity of each study; disagreements were resolved by consensus.

Data extraction
Two authors independently extracted data on the study population, interventions, study design, outcome measurements and data analysis.

Methods of synthesis
A narrative synthesis was provided for some outcomes and a table showed percentage results. Methodological quality of included studies was scored from a possible 19 points. Studies were required to score more than 50 per cent on a quality assessment to be included in the analysis. The authors introduced a rating system for the strength of evidence and included four levels:

1. Tendency: generally consistent findings in multiple high-quality cases series.
3. Conflicting tendency: inconsistent or contradictory findings in multiple high-quality case series.
4. No tendency: no high-quality case series available.

**Results of the review**
Twenty one studies were identified; six obtained a quality score of >50 per cent and were included in the analysis. All studies included in the analysis assessed surgical treatment; one prospective trial was included, two studies included more than 50 cases of RTS and two studies followed patients for more than 12 months.

Effectiveness of surgical treatment ranged from 67 per cent to 92 per cent (five studies); Patient satisfaction ranged from 40 per cent to 83 per cent (three studies). Pain relief was reported in 95 per cent of patients (one study). Evidence was classified as level 1: tendency.

**Authors' conclusions**
There was a tendency toward effectiveness of surgical decompression of the radial tunnel in patients with RTS. The effectiveness of conservative treatments remained unknown. High-quality controlled trials were required to assess both surgical conservative treatments for RTS.

**CRD commentary**
This review addressed a clear question. There were clearly defined inclusion criteria for participants and interventions, but not outcomes. A number of relevant electronic databases were searched and some search terms were reported. There is no indication that the authors sought unpublished trials and the restriction to English, German, French and Dutch language publications may have increased the risks of publication and/or language bias. The authors attempted to minimise bias and errors during parts of the review process by carrying out study selection and quality assessment in duplicate. Limited information was reported about about study populations, outcome measures or results. The authors made it clear that because of the lack of RCTs or other controlled trials, case-series studies were included. The authors continued to explain the use of the word 'tendency' to underline the relative weakness of the evidence. The authors' cautious conclusions appeared to reflect the limited poor-quality evidence included in the review, but in the absence of full study details it was difficult to be completely confident about the reliability of the conclusions.

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

Research: the authors stated that a reliable and valid diagnostic protocol should be developed, because of a lack of clear protocol for diagnosing RTS. The authors also stated that high-quality controlled trials were needed to assess the placebo effect of surgery and the effectiveness of conservative treatments for RTS, specifically physiotherapy and steroid injection.

**Funding**
None received

**Bibliographic details**

**PubMedID**
18261668

**DOI**
10.1016/j.jhsa.2007.10.001

**Indexing Status**
Subject indexing assigned by NLM

**MeSH**
Anti-Inflammatory Agents /therapeutic use; Cohort Studies; Decompression, Surgical; Humans; Nerve Compression Syndromes /therapy; Physical Therapy Modalities; Radial Neuropathy /therapy

**AccessionNumber**
12008103987

**Date bibliographic record published**
01/12/2008

**Date abstract record published**
22/04/2009

**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.