**Zlowodski M, Chan S, et al. Anterior Transposition Compared with Simple Decompression for Treatment of Cubital Tunnel Syndrome. JBJS Am 2007;89:2591-8.**

PMID: 18056489

Design: Meta-analysis of randomized clinical trials (RCTs)

Purpose of study: to compare the efficacy of simple decompression versus anterior transposition of the ulnar nerve in patients with cubital tunnel syndrome

PICOS:

* Patient population: patients who present with symptoms of ulnar nerve compression at the elbow, in whom a history or trauma or surgery of the affected elbow was absent
* Interventions: simple decompression with incision of the arcuate ligament (the Osbourne band)
* Comparison intervention: subcutaneous, submuscular, or intramuscular anterior transposition of the ulnar nerve
* Outcomes: clinical scores and electrodiagnostic measurements
  + Three studies used clinical scores, but the three scoring instruments were different
  + The clinical scoring instruments were largely subjective for assessments of sensation and strength, severity of residual symptoms, and subjective improvement; the clinical score for one study included postoperative work status amid other subjective outcomes
* Study types: randomized and quasi-randomized trials were considered for inclusion

Study selection:

* Databases were Medline, EMBASE, Cochrane Library, CINAHL, and conference proceedings through November 2006
* Two authors independently conducted the search and assessed the methodological quality of each study
* Quality scores measured on a 21 point scale which includes allocation concealment, patient blinding, outcome assessor blinding, and loss to follow-up
* Summary statistics were reported as standard mean differences using a random-effects model
* Three of the four authors were successfully contacted and furnished raw data from their studies

Results:

* 458 citations found in electronic search; 43 retrieved for detailed analysis after reading abstracts, and 4 RCTs selected for meta-analysis
* The 4 RCTs included 335 randomized patients, 327 of whom were followed; ulnar nerve transposition was submuscular in 2 studies and was subcutaneous in 2 studies; average patient was 51 years old; 65% were male
* Accurate pooling of preoperative symptom severity was not possible because the selected authors used different severity grading systems
* Study outcomes were measured either with electrodiagnostic or with clinical scales or both
* A funnel plot was used to detect publication bias but was not informative
* Decompression and anterior transposition did not yield different pooled outcomes on either the electrodiagnostic or the clinical outcome scales
* The point estimate of the standard mean difference of the clinical scores was 0.04 in favor of transposition, with 95% confidence limits between 0.36 in favor of transposition and 0.26 in favor of decompression
* One study compared operative outcomes in a subgroup of patients with ulnar nerve subluxation; the operative results in this subgroup were not different for the decompression and anterior transposition patients

Authors’ conclusions:

* No significant differences were found between transposition and decompression for cubital tunnel syndrome
* Using conventional criteria for effect size of standard mean difference, an SMD of 0.2 is small, 0.5 is moderate, and 0.8 is large; the 95% confidence limits of the clinical scores are small to medium and a large treatment difference is unlikely
* Future studies need to be better at avoiding sources of bias, such as lack of allocation concealment and blinding

Comments:

* The individual studies effect size estimates all include the null value showing no difference; the pooled estimate narrows the confidence interval to levels that make a large effect size difference unlikely
* The definition of the clinical question, the database searches, and the methods of estimating effect size are consistent with Cochrane methods
* None of the included studies reported adequate randomization procedures; the authors simply asserted that the patients were randomly allocated, and in one study, the allocation was clearly quasi-randomized (even and odd chart numbers); concealment of allocation was not done in any of the studies
* The best conclusion is that there is an absence of evidence for differences in efficacy between simple decompression and ulnar nerve transposition rather than convincing evidence of no difference, due to the questionable quality of the included studies

Assessment: adequate meta-analysis for a statement that there is an absence of evidence for the superiority of either simple decompression or ulnar nerve transposition in the setting of ulnar neuropathy at the elbow