## Changes in Treatment Plan for Carpal Tunnel Syndrome Based on Electrodiagnostic Test Results

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### Objectives
- The benefit and value of electrodiagnostic testing in the management of carpal tunnel syndrome (CTS) are debated.
- This study evaluated how often the surgical treatment plan for CTS changed based on electrodiagnostic test results. Secondly, we assessed factors associated with a change in the treatment plan for CTS.

### Methods
- **130** English-speaking adult patients underwent electrodiagnostic testing in a prospective cohort study.
- Prior to testing, patients completed a survey regarding demographics and validated questionnaires assessing symptom severity and functional status, catastrophic thinking, depressive symptoms, and heightened illness concern. Two-point discrimination was tested on the pulp of the index finger with use of a two-point aesthesiometer. Surgeons completed a survey regarding clinical information, likelihood of CTS, suspected severity of CTS, and treatment plan. Treatment plan after testing was collected from the medical record.
- The proportional difference in operative treatment plan pre- and post-testing was evaluated with the Chi-Square Goodness-of-Fit Test. Bivariate and multivariable analysis sought factors associated with a change in treatment plan.

### Results
- **Treatment plan changed in 25 patients (19%) based on electrodiagnostic test results:**
  1. The CTS was less severe on the test than expected in 11 patients (44%),
  2. Tests were normal in 9 patients (36%), and
  3. The CTS was more severe than expected in 5 patients (20%).
- The plan for operative treatment before electrodiagnostic testing decreased significantly after testing (83% versus 72%, respectively; \( p < 0.001 \)).
- The only variable that related significantly to change in treatment plan was median distal sensory latency (DSL; normal, prolonged or non-recordable; \( p < 0.001 \)).
- The best logistic regression model for no change in treatment plan included a prolonged DSL (OR = 5.1, \( p = 0.0012 \)) and a non-recordable DSL (OR = 27, \( p = 0.0022 \)), and explained 24% of the variability.

### Conclusions
- Our data and other studies have shown that electrodiagnostic test results have a clinically relevant impact on treatment plans for CTS. By performing electrodiagnostic tests, unnecessary surgery may potentially be avoided. Future studies should evaluate long-term outcomes in patients with changed treatment plans due to objective electrodiagnostic testing.