

Deriving Clinical Prediction Rules for Carpal Tunnel Syndrome Using General and Restricted Classification Systems

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Purpose: To develop clinical prediction rules (CPRs) for the diagnosis of carpal tunnel syndrome (CTS) using general and restricted classification systems.

Relevance: The majority of the diagnostic validity research for CTS has examined tests individually which is in contrast to clinical practice where the results of multiple tests are combined as part of the clinical reasoning process in order to formulate a differential diagnosis. A CPR is proposed as a means to statistically integrate the validity of multiple tests.

Materials and Methods: Thirty seven subjects (74 “hands”) were recruited from a convenience sample of consecutive patients referred for electrodiagnostic (EDX) testing due to upper limb symptomatic complaints. Subjects underwent EDX testing followed by completion of self-report questionnaires and a standardized clinical examination by examiners blinded to EDX results.

Analysis: CPR’s for general and restricted classification groups (based on EDX results and symptom location) were determined through logistic regression.

Results: The CPR derived for the general CTS classification included “hand numbness” and symptom reproduction with the upper limb neurodynamic test with a median nerve bias. The CPR derived for the restricted classification included: “hand numbness”, average score ≥ 2 on the symptom component of the Boston Carpal Tunnel questionnaire, wrist ratio index of $\geq .66$, BMI of \geq grade 1 obesity and flick sign.

Conclusions: The CPR for the general group did not yield improved diagnostic validity beyond that found with the single best test item (“hand numbness”) whereas inclusion of all five CPR items had the best validity in the context of a restricted classification for CTS.