Reviewer's report

Title: Diagnostic properties of nerve conduction tests in population-based carpal tunnel syndrome

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Version: 1 Date: 26 Mar 2003

Reviewer: Michel E.H. Boeckstyns

Level of interest: A paper whose findings are important to those with closely related research interests

Advice on publication: Accept after discretionary revisions

This study reports analysis of new, i.e. not previously published data, collected during a study that was part of the main authors thesis "Carpal Tunnel Syndrome - Prevalence, Electrodiagnosis and Outcome Instruments", published in 1999. The purpose of the study was to evaluate the diagnostic accuracy of various nerve conduction tests in a population-based investigation, comprizing persons with clinical certain carpal tunnel syndrome (CTS) and persons without numbness/tingling in the hand (uncertain cases excluded). The main statistical method is the Receiver Operating Characteristic (ROC) curve, plotting the true positive rate (sensitivity) against the false positive rate (1-specificity) for the different cutpoint values of the diagnostic tests. Furthermore, the paper defines the diagnostic properties of the most accurate of the tests: the difference between the median and ulnar digit-wrist sensory latency. Finally it evaluates a standardized hand symptom diagram (this part should be mentioned as a one of the purposes of the study in the introduction). The methods are described with sufficient detail. For the sake of clarity it would be desirable if a 2 by 2 table was included, presenting the exact numbers of true positive, true negative, false negative and false positive cases as far as the most accurate test is concerned, as well as the numbers extrapolated to all survey responders. The sensitivity and specificity of the hand symptom diagram should be presented in the section "Results", on line with the reproducibility. Also, the authors present information concerning absent sensory responses in the section "Discussion", that was not presented in the section "Results". Overall, I find that the discussion is too long and lacks some structure, compared to the section presenting the results. The authors state correctly, that the performance of the nerve conduction tests as reported, not necessarily apply in clinical settings, where referred patients with numbness/tingling in the hand have to be diagnosed. I suggest, that this statement is included in the abstract conclusions.

Competing interests:

None declared.