Reviewer's report

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

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Reviewer: N. Jollyon Smith

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

Advice on publication: Accept after discretionary revisions

a) Discretionary revisions

1. While there is no argument about what is meant by a false positive test result, the term "false positive rate" is ambiguous, and could mean either the proportion of persons without disease among those with a positive test result, or the proportion of positive test results among persons who are free from disease. In the recent literature the latter definition seems to have been adopted, so that the false positive rate is (1-specificity), as stated by the authors, but some readers may be confused by the term. It would be preferable to explain precisely what is meant.

2. The positive and negative predictive values of a test depend upon the prevalence of the disease in the population (either the whole population for an epidemiological study, or patients referred with symptoms for a diagnostic study). The prevalence is not specifically stated, but in the caption to Table 3 it is assumed "... that the same rates of disease ... found among the samples examined applied to the corresponding groups among all survey responders". This statement, and the whole question of disease prevalence, could be considerably clarified and amplified.

3. In Table 1 and Table 3 values, with 95% confidence intervals, are quoted as whole numbers. Thus, for example the median nerve sensory conduction velocity is given as 39(37-42). This would be credible if the value was for example 39.5m/s and the confidence interval extended from 37m/s to 42m/s; alternatively it might have been 39.2m/s, confidence interval 36.6m/s to 41.8m/s. I think readers would prefer to see results stated to an appropriate accuracy without excessive rounding.

4. I was surprised that the authors found distal motor latency values to have sensitivity comparable to sensory measurements. This finding is at variance with my own experience of testing for carpal tunnel syndrome, and does not agree with existing evidence in the literature. Although the
authors acknowledge this discrepancy on page 10, I would suggest that the "several methodological differences" to which they refer could be discussed more fully.

b) Compulsory revisions

1. Page 9, last line, an upper cast "T" should be changed to lower case.

2. Page 13, third paragraph: the phrase " . . . might lead to that some patients who actually have CTS would be denied . . . " would be better expressed in English as " . . . might lead to some patients who actually have CTS being denied . . . "

**Competing interests:**

None declared.