Reviewer's report

Title: Which clinical tests of sensory and motor function are most responsive in patients undergoing carpal tunnel decompression?

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Reviewer: Shigeharu Uchiyama

Reviewer's report:

Review of the manuscript entitled “Which clinical tests of sensory and motor function are most responsive in patients undergoing carpal tunnel decompression?”

Major revision is necessary.

General comments.

This study showed responsiveness of clinical sensory tests and motor tests to surgery of open carpal tunnel release in patients with carpal tunnel syndrome. The authors observed that BCTQ symptom severity scale was most responsive. The monofilament test was more responsive than tactile gnosis, which is not widely performed to assess sensory function in patients with carpal tunnel syndrome in daily practice. With the information available, it may not be persuasive to recommend the tactile gnosis test to be included for evaluation of CTS patients. The authors should show why tactile gnosis should be included in the future study despite smaller responsiveness than SWET. This may be shown by looking at correlations among all the parameters they measured. Furthermore, the authors should include the most objective measurements of CTS, nerve conduction studies in the analyses. Also, the title of the manuscript should be changed to tactile gnosis oriented one.

Specific comments

1. Page 1: The title should be changed. For example, “responsiveness of tactile gnosis to carpal tunnel release surgery”, etc.

2. Page 2: Abstract, in the section of Conclusion; The first sentence, “and should be used in the future …” should be deleted unless they demonstrate their statement is valid. The last sentence “Both power and pinch strength….” should also be deleted.

3. In the section of Methods, the authors should describe how they diagnosed “carpal tunnel syndrome”, without nerve conduction studies and the indication for surgery. They should provide the information of severities of the disease, preferably determined by median nerve function. This can be done if you have data of nerve conduction studies. Since you have only limited number of the patients who underwent nerve conduction studies, the stage of thenar muscle atrophy (for example; normal, slight, moderate, or severe) may replace them, although the data quality is lower.
4. Page 5, Terminology should be consistent throughout the manuscript. Line 10, thumb and first finger, Line 16, thumb and index finger, Table 1, worse finger 1,2,3,4,5.

5. Page 7, in the section of Results, please spell out “CTD”.

6. Page 7, line 15, they have 63 patients. How many are “idiopathic” and how many are the secondary CTS?

7. Page 8, line 4 to 11. It is quite unusual to do the second surgery for CTS, if the surgery is properly done. Any specific reasons? Did the authors include those patients in the analysis? The authors classified the patients into two groups, based on the improvement of the symptoms and sensory parameters were compared. The analysis in this phrase may not add useful information for this study. Please delete them. Instead, again, correlation among all the parameters of sensory and motor measurements, BCTQ scores, and self-reported improvement scores should be calculated.

8. Page 9, line 16-18. The authors should show in the result section that those patients with impaired locognosia test and STI test at 8 months after surgery had worse preoperative median nerve function. Otherwise this sentence should be deleted.

9. Page 9, line 22. Most of the clinicians do not use the RIHM for assessment of patients with CTS. If response is good when compared with conventional methods, then the readers may start to use it. But unfortunately, I do not see any advantage of using the RIHM with the results the authors reported.

10. Page 11, in the section of conclusions. Too long. At least the authors should delete the phrase 2 and 3.

**Level of interest:** An article of limited interest

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests