Reviewer’s report

Title: The Diagnostic Value of Ultrasonography in Carpal Tunnel Syndrome: A Comparison between Diabetic and Non-Diabetic Patients

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Reviewer: Roy Beekman

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I have the following comments:

Major

- It is not clear how the participants were recruited. Consecutively? At a department of neurology? At a lab for neurophysiology?
- Were the US and NCS / EMG examiners masked for the status of the patient and his hand, and for each other’s test results?
- There are no relevant clinical data: Muscle weakness? MRC scores? Sensory loss? This is important to know the spectrum of patients examined.
- I have a major problem with the control group (C hands). These are the unaffected hands of CTS patients without DM. However, the findings in the unaffected hands of these patients are not independent observations. In clinical practice we need to discern CTS from other disorders (radiculopathy, musculoskeletal related disorders, plexopathy etc). A separate control group of DM patients with these disorders would have been more appropriate. In my opinion the methodology that the authors have chosen unfortunately undermines the validity of the diagnostic accuracy measured by ROC analysis: they have shown that US can discern CTS in DM from the unaffected hand of a CTS patient without DM, and that is not important in clinical practice.
- Patients with clinical and electrophysiological signs of a polyneuropathy were excluded. From the text, I am not convinced that all patients were tested for polyneuropathy. Were all patients clinically screened for polyneuropathy? This may be important.

Minor

- The authors state that there are no exact diagnostic ultrasonographic criteria for CTS. However, most investigators readily agree and recommend a CSA measurement at the pisiform bone, a valid and reliable test.
- What was the rationale for the study? Why is it important to test the validity of US in the diagnosis of CTS in patients with DM without polyneuropathy (an exclusion criterium for this study)? The answer is given in the discussion but it might be stated more clearly in the introduction.
- The clinical diagnostic criteria for CTS include Tinel’s and Phalen’s tests. However, these tests are not accurate. Lancet 1990;335:393-5. Clin
- **NCS criteria for CTS:** three tests are mentioned here. The “<” signs probably have to be replaced by “>” signs. Were all three criteria required or just one or two?
- Although I am not a native speaker, I recommend meticulous correction of grammar.

**Discretionary**
- EMG (myography) is often used as a synonym for Nerve Conduction Studies which may lead to confusion by some readers.
- A major problem of diagnosing CTS in DM is that the electrophysiologic abnormalities “drown” of “dilute” in a background polyneuropathy. It would be nice to have a study that investigates the role of US in these cases. However, the major problem is that there is no reliable reference test.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

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