

Comparison of High Resolution Ultrasonography and Nerve Conduction Study in the Diagnosis of Carpal Tunnel Syndrome: Diagnostic Value of Median Nerve Cross-Sectional Area

I read the recent publication by Mohammadi et al. on ultrasonographic diagnosis of carpal tunnel syndrome (CTS) with great interest.¹ Mohammadi et al. concluded that "In patients with the clinical diagnosis of CTS, we confirm that the diagnostic value of ultrasonography is similar to NCS, and sonography may be used in the primary evaluation of CTS".¹ The results of this study are similar to a recent report by Moran et al.² Confirmation of the feasibility of using ultrasonography for diagnosis of CTS can be reached. However, there are some points to be concerned on this report. First, very few number of subjects and non-matched controls in this work lead to the limitation for generalization of the result. The variability of the anatomy between sex, age and race should be discussed. Second, although ultrasonography might show the narrowing, it cannot show the pathophysiological change in nerve electrical conduction in CTS,² which is an important data for assessment of the se-

verity.³ Third, to judge the diagnostic value, the complete set of evaluation for sensitivity and specificity as well as cost effectiveness should be given.

Author:

Professor Viroj Wiwanitkit

Address: Wiwanitkit House, Bangkhae, Bangkok Thailand 10160

Email: wviroj@yahoo.com

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Reply

I thank Professor Viroj Wiwanitkit for his comments on this paper.

1- About the sample size, although the sample size is small, the results have shown a statistically significant difference, suggesting an appropriate association.

2- Based on the fact that matching causes selection bias in the study, it is appropriate only in specific situations. On the other hand, in order to control the confounding factors, other methods such as multivariate analysis or restriction is applied. In this study, most of the confounding factors have been included in the inclusion/exclusion criteria. In addition, we have mentioned in the text that age and sex distribution of the two groups are similar; therefore, are not considered as confounders.

3- As mentioned in the present article, sonography is only able to show anatomical changes, and we believe that the physiological changes occur after the

anatomical changes and nerve swelling, but as mentioned in the results, between the three groups of patients with mild, moderate and severe symptoms, there was no significant difference in the cross sectional area of the nerve, so we believe that sonography can not be used to detect the severity of the disease.

4- Regarding the third comment, in this stage we only intended to evaluate the accuracy of the test apart from the other matters such as cost-effectiveness. For evaluation of the diagnostic accuracy, the area under the curve of ROC analysis has been used. In addition, the concept of accuracy is apart from the concept of cost-effectiveness. Economical evaluation is indicated when a diagnostic test is going to be used in the health system broadly (e.g. screening).