Clin Orthop Relat Res (2011) 469:901–902
DOI 10.1007/s11999-010-1761-2

LETTER TO THE EDITOR

Letter to the Editor

The Sensitivity and Specificity of Ultrasound for the Diagnosis of Carpal Tunnel Syndrome

A Meta-analysis

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Published online: 6 January 2011

To the Editor:

We read with particular interest the meta-analysis by Fowler et al. [1]. It is true ultrasound has garnered interest during the last decade for diagnosis of carpal tunnel syndrome, considering its low costs, noninvasiveness, and short examination times, especially with the improvement of the transducers during the last 5 years. Therefore, a systematic review of available data and a meta-analysis regarding validity of ultrasound for the diagnosis of carpal tunnel syndrome seems to be particularly important. However, although the authors apparently rigorously selected papers by following PRISMA or MOOSE guidelines [2, 3], their meta-analysis is problematic. The authors stated in the Discussion section of their article, they combined results of different thresholds of cross-sectional area of the median nerve, which could lead to artificial variation of sensitivity or specificity or, contrariwise, mask the real variation of these parameters.

We also are concerned with the reference used in the selected studies, such as the transducers: more details are needed regarding what the clinical reference standard is (what clinical testing was used, who performed it), what is considered by the authors as positive electrodiagnostic testing, and what ultrasound machine and what transducers were used? This is particularly important to understand the heterogeneity of the results found by the authors. They also detailed why the likelihood ratio is better than sensitivity and specificity in the Methods section, but provided no results.

In our view, the authors provided a fair review regarding information pertaining to validity in the diagnosis of carpal tunnel syndrome by ultrasound, but their meta-analysis should be interpreted with caution, and needs further work. We think the authors should have provided more details regarding the references and materials they used (including the year of publication) to study the sensitivity of change without including a subgroup. The likelihood ratio would give better results than only sensitivity and specificity. Finally, we believe even if it were not feasible to pool the raw data (obtained by contacting authors of the reviewed papers), separate analyses should be performed at different thresholds to obtain reliable accuracy for clinicians.

(Re: Fowler JR, Gaughan JP, Ilyas AM. The sensitivity and specificity of ultrasound for the diagnosis of carpal tunnel syndrome: a meta-analysis. *Clin Orthop Relat Res.* 2010 Oct 21. [Epub ahead of print])

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