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Reply to "Stimulus electrodiagnosis and motor and functional evaluations during ulnar nerve recovery"

Daniele Coraci[1,2], Federica Porcelli[1], Valter Santilli[1,3], Luca Padua[2,4]

Dear Editor,

We have read with great attention the paper by Fernandes and colleagues about electrodiagnosis as a monitoring tool in ulnar nerve recovery after surgical treatment of nerve lesion[1]. The study is very interesting and aims to demonstrate that, among the electrodiagnostic parameters, Chronaxie may be the one that best detects the evolution of neuromuscular responses in ulnar nerve recovery. The authors enrolled ten patients who underwent surgical intervention of neurorrhaphy and found a significant reduction in Chronaxie values and a negative significant correlation between Chronaxie and motor function, assessed with the Rosén and Lundborg motor domain score. Given that ulnar nerve lesions are quite common, the importance of the paper is twofold. First, it highlights in the introduction the value of valid diagnostic tools that can correctly evaluate the ulnar nerve lesion, thus allowing physical therapists to plan the best treatment approach. From our point of view, a detailed evaluation of this type of neuropathy is possible through electromyographic assessment and nerve conduction study. These methods allow the evaluation of nerve function and the knowledge of the severity of the lesion[2]. Furthermore, nerve ultrasound can be combined with the previous techniques to visualize the morphological features of the lesion, the exact site of nerve impairment, and the possibilities of anatomical variations[3,4]. These data prove crucial to the surgical management specifically tailored for each case. The abovementioned neurophysiological techniques and ultrasound are minimal or non-invasive medical tools that complete the necessary clinical evaluation and together are helpful for diagnosis, prognosis, and treatment approach[5]. The second main point of the paper of Fernandes et al. is the need to find objective methods to assess the recovery of ulnar nerve function after surgical treatment. We consider that, even in this case, needle electromyography can be especially useful, revealing for example the type of voluntary motor unit recruitment in the muscles supplied by the treated nerve. Moreover, ultrasound can reveal the possible evolution of the morphological pattern in comparison with the pre-intervention one[2]. Future studies comparing electrodiagnosis with other neurophysiological and imaging techniques may help us to define the best evaluation method for this type of nerve lesion. A combination of techniques and a comprehensive assessment of the patient, as well as continuous collaboration between physicians and physical therapists, may allow a thorough analysis of the pathological condition and a management strategy tailored to the patient.

Keywords: Chronaxie; ulnar nerve; evaluation studies; disability evaluation; rehabilitation.

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Response to the letter "Stimulus electrodiagnosis and motor and functional evaluations during ulnar nerve recovery"

Luciane F. R. M. Fernandes[1], Nuno M. L. Oliveira[1], Danyelle C. S. Pelet[1], Agnes F. S. Cunha[1], Marco A. S. Grecco[1], Luciane A. P. S. Souza[1]

Dear Editor and authors of the referred letter,

We thank the authors (Coraci and colleagues) for your interest in our paper and for the great contribution to this important research topic. The authors of the letter demonstrate a good perception of the relevance of our study (Fernandes et al.[1]), which aims to retrieve the use of stimulus electrodiagnosis. Another objective of this paper is to encourage the new generation of physical therapists to study, explore, and use this instrument in clinical practice. In addition, the selection of ulnar nerve lesions was purposeful, due to its high prevalence (Eser et al.[2]).

We understand the value of numerous neurophysiological techniques and nerve ultrasound to guarantee a more complex visualization of the lesion and its progress. We know that these approaches are helpful for diagnosis, prognosis, and treatment of nerve lesions. We opted to use stimulus electrodiagnosis because it is the only instrument that physical therapists can use in clinics. We can receive the results of the other techniques, but we cannot conduct evaluations such as ultrasound and electroneuromyography. Therefore, we tried to reinforce the importance of stimulus electrodiagnosis as a physical therapy tool, which obviously has to be combined with the results of other exams. We agree with the authors of the letter that this broad approach can contribute to the correct diagnosis and to a better follow-up of all nerve lesions.

The impact of future studies on this area, as suggested by the authors of the letter, can promote significant changes in clinical practice. We believe that each technique has its value, and all techniques can point out important and different aspects of the lesion and its recovery. We also agree that collaboration between physicians and physical therapists might allow a comprehensive appraisal of the pathological condition and a correct management tailored to the patient.

We are grateful for our opportunity, as physical therapists, to reflect on our approaches and on the combination of methods of evaluation in order to attain a better understanding of nerve lesions and the recovery of patients.

Keywords: Chronaxie; ulnar nerve; evaluation studies; disability evaluation; rehabilitation; movement.

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