J Rehabil Med 2019; 51: Epub ahead of print

LETTER TO THE EDITOR

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COMMENTS ON: "DOES ELECTROMYOGRAPHIC BIOFEEDBACK IMPROVE EXERCISE EFFECTS IN HEMIPLEGIC PATIENTS? A PILOT RANDOMIZED CONTROLLED TRIAL"

The *Journal of Rehabilitation Medicine* recently published an article by Arpa & Ozcaria (1). We congratulate the authors for their valuable work; we read the article with great interest and gathered knowledge. However, some aspects of the methodology and results need clarification.

First, the subject selection criteria in this study were not appropriate. The authors used as inclusion criteria patients with hemiplegia due to vascular causes, which is an umbrella term that includes ischaemic or haemorrhagic causes, and can affect any part of the brain; for example, middle, posterior and anterior cerebral artery (MCA, PCA and ACA), etc. The symptoms and outcomes are different for each area. As recovery also depends on the stages of stroke (2), the authors should have reported either ischaemic or haemorrhagic stroke and the specific area and stages of stroke.

Secondly, the study intervention was not specific for all participants, as both groups received inpatient rehabilitation that included exercise and ambulation training (such as isometric, isotonic and progressive resisted exercises), designed according to the patients' capabilities. According to the CONSORT statement, details of interventions should be intended and should be specific for all participants (3).

Thirdly, the data analysis sections used the Wilcoxon test to compare dependent groups. The Wilcoxon test is widely used for paired data for 2 independent samples. In this study data were collected 4 times from a single factor measure (pre, post, first and third month of intervention). Instead of the Wilcoxon test, the Friedman test would be more appropriate in this case (4).

In order to obtain a clear idea about the effects of the intervention the group's variables should be compare with baseline data, but in this study demographic data (age, gender, stroke duration and hemiplegic side) were compared. The current study should have compared range of motion, modified Ashworth score, muscle strength, functional assessment score, and 10-min walk test score (5).

Effect size is widely used to determine clinical significance in randomized control trials, but when there is a null hypothesis the strength of evidence should be indexed using the *p*-value. A smaller *p*-value represents stronger evidence (4). In this study the authors reported that all the variables showed significant improvement after treatment, first and third months of follow-up. Rather than the statement, "significant improvement" they should have mentioned significant clinical improvement, or better they should have reported the *p*-value.

The aim of this study was to assess the efficacy of an electromyographic (EMG) biofeedback-assisted exercise programme on clinical and functional outcomes in hemiplegic patients. However, in conclusion the authors stated that exercise with or without EMG biofeedback is effective for improving clinical and functional parameters in hemiplegic patients. Both statements are controversial, however; highlighting the above-mentioned issues would make this article stronger and more effective.

The authors have no conflicts of interest to declare.

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Accepted Apr 11, 2019; Epub ahead of print Apr 23, 2019

Rahemun Akter, MPT[1], Sohel Ahmed, MPT[2] and Subhasish Chatterjee, MPT, PhD Candidate[1]

From the [1]Department of Neurological Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed-to-be) University, and [2]Department of Sports Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed-to-be) University, Haryana, India E-mail: subhasisphysio@gmail.com

The authors of the original articles (Arpa & Ozcakir) were given the opportunity to comment in response to this Letter, but chose not to do it.

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Journal Compilation © 2019 Foundation of Rehabilitation Information. ISSN 1650-1977 doi: 10.2340/16501977-2557

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