



Transcranial Magnetic Stimulation in Stroke Rehabilitation

Ozlem Altindag*

Department of Physical Medicine and Rehabilitation, Gaziantep University Research Hospital, Turkey

Letter to the Editor

Stroke is the most common causes of the long-term disability and the third most frequent cause of death [1]. After cerebrovascular disease, muscle strength and motor skills return to different degrees. The neurophysiologic mechanism of functional recovery or disability is still unclear. Understanding physiological events that allow functional plasticity is also important for rehabilitation planning.

It is believed that under normal conditions, there is a functional balance between the hemispheres regulated by interhemispheric inhibition. According to the model of interhemispheric competition, this balance is affected after descent; the excitability of the contra lateral hemisphere increases, whereas the affected hemisphere suffers from increased interhemispheric inhibition at an abnormal rate [2]. These alterations in excitability can be an important reason for impaired functional recovery.

Transcranial Magnetic Stimulation (TMS) is a reliable and non-invasive method for the motor cortex stimulation. TMS applied over the primary motor cortex, stimulation of corticospinal tracts can lead to presenting a motor evoked potential in the contra lateral extremity with painless technique. A possible strategy for stroke rehabilitation is the modulation of plasticity by repetitive TMS, seeking to restore the normal activity pattern [3]. Stimulation parameters, mainly frequency, influence its modulatory effect in terms of resulting excitation or inhibition [4]. Consequently, TMS aims to rebalance communication between hemispheres and to support functional healing.

After stimulation, it can be seen that the excitability of the lesioned hemisphere can be reduced and/or the over activity of the unaffected hemisphere can be reduced. This situation can provide evidence for the role of TMS in restoring the balance between hemispheres' activity [5]. For all that, changes in excitability do not always correlate with functional improvement. Nevertheless, the majority of the studies included here support the potential of this technique in improving motor function in stroke patients.

In this paper, it was aimed to emphasize the interventions about TMS in stroke management. I hope this paper will help us thinking and researching TMS in all ways.

OPEN ACCESS

*Correspondence:

Ozlem Altindag, Department of Physical Medicine and Rehabilitation, Gaziantep University Research Hospital, Gaziantep, Turkey,

E-mail: ozaltindag@yahoo.com

Received Date: 01 Sep 2018

Accepted Date: 14 Sep 2018

Published Date: 17 Sep 2018

Citation:

Altindag O. Transcranial Magnetic Stimulation in Stroke Rehabilitation. *World J Phys Rehabil Med.* 2018; 2(1): 1007.

Copyright © 2018 Ozlem Altindag. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

References

1. Kalkonde YV, Deshmukh MD, Sahane V, Puthran J, Kakarmath S, Agavane V, et al. Stroke Is the Leading Cause of Death in Rural Gadchiroli, India: A Prospective Community-Based Study. *Stroke.* 2015;46(7):1764-8.
2. Dionísio A, Duarte IC, Patrício M, Castelo-Branco M. The Use of Repetitive Transcranial Magnetic Stimulation for Stroke Rehabilitation: A Systematic Review. *J Stroke Cerebrovasc Dis.* 2018;27(1):1-31.
3. Hao Z, Wang D, Zeng Y, Liu M. Repetitive transcranial magnetic stimulation for improving function after stroke. *Cochrane Database Syst Rev.* 2013;(5).
4. Zhang L, Xing G, Shuai S, Guo Z, Chen H, McClure MA, et al. Low-Frequency Repetitive Transcranial Magnetic Stimulation for Stroke-Induced Upper Limb Motor Deficit: A Meta-Analysis. *Neural Plast.* 2017;2017:2758097.
5. Choi CM, Kim JH, Lee JK, Lee BY, Kee HS, Jung KI, et al. Effects of Repetitive Transcranial Magnetic Stimulation Over Trunk Motor Spot on Balance Function in Stroke Patients. *Ann Rehabil Med.* 2016;40(5):826-34.