

Cognitive Effects of Repetitive Transcranial Magnetic Stimulation in Patients with Parkinson's Disease

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Abstract : Parkinson's disease (PD) is a neurodegenerative disorder that causes motor and cognitive symptoms. The first-choice treatment for these patients is pharmacological, but this generates several side effects. Because of that new treatments were introduced such as Repetitive Transcranial Magnetic Stimulation (rTMS) in order to improve the life quality of the patients. Several studies suggest significant changes in motor symptoms. However, there is a great diversity in the number of pulses, amplitude, frequency and stimulation targets, which results in inconsistent data. In addition, these studies do not have an analysis of the neuropsychological effects of the treatment. The main purpose of this study is to evaluate the impact of rTMS on the cognitive performance of 6 patients with H&Y III and IV (45-65 years, 3 men and 3 women). An initial neuropsychological and neurological evaluation was performed. Patients were randomized into two groups; in the first phase one received rTMS in the supplementary motor area, the other group in the dorsolateral prefrontal cortex contralateral to the most affected hemibody. In the second phase, each group received the stimulation in the area that he had not been stimulated previously. Reassessments were carried out at the beginning, at the end of each phase and a follow-up was carried out 6 months after the conclusion of the stimulation. In these preliminary results, it is reported that there's no statistically significant difference before and after receiving rTMS in the neuropsychological test scores of the patients, which suggests that the cognitive performance of patients is not detrimental. There are even tendencies towards an improvement in executive functioning after the treatment. What added to motor improvement, showed positive effects in the activities of the patients' daily life. In a later and more detailed analysis, will be evaluated the effects in each of the patients separately in relation to the functionality of the patients in their daily lives.

Keywords : Parkinson's disease, rTMS, cognitive, treatment

Conference Title : ICPBS 2018 : International Conference on Psychology and Behavioral Sciences

Conference Location : Barcelona, Spain

Conference Dates : May 17-18, 2018