

Impact of low frequency low-intensity magnetic field in the complex neurorehabilitation algorithm of patients with multiple sclerosis

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Abstract

Multiple sclerosis (MS) is an autoimmune demyelinating disease of the central nervous system, usually beginning between 20 and 40 years (predominantly in females). Neurological guidelines consider MS as the most frequent cause of non-traumatic disability in the young adult population. MS patients suffer from loss of autonomy and reduced quality of life, due to paresthesia, dysesthesia, motor weakness, spasticity, balance and coordination dysfunctions, depression and other signs of emotional instability or (even) cognitive impairment. Our goal was to evaluate the impact of low frequency low intensity magnetic field (MF) in the complex neurorehabilitation (NR) algorithm of MS patients (cerebro-spinal form, relapsing-remitting evolution).

Material & Methods: We observed a total of 168 patients (MW=46:122), with clinically and MRI proved definite MS, with quadripyramidal syndrome with developed spastic paraplegia and cerebellar ataxia (static, locomotory and dynamic dyscoordination); 2-4 weeks after a relapse. Patients were randomized into two therapeutic groups (84 per group). The control was done before, during and at the end of the NR course (of 20 treatment days) and one month after its end-using a battery of clinical methods and functional scales. In all patients we applied a complex NR programme of cryophysiotherapy and ergotherapy; including proprioceptive neuromuscular facilitation techniques; balance, coordination and gait training and goal-oriented activities. Group (gr) 1 received only this NR programme. In gr 2 we added transcranial and transmedullar MF: bitemporal and longitudinal (on the spine) localization of inductors.

Results: The comparative analysis of results demonstrates significant improvement in functional

capacity (EDSS scale of Kurtzke), autonomy (FIM) and emotional stability (Zung depression scale) in all patients. In the MF group, we observed most relevant reduction of spasticity, paresthesia and dysesthesia and amelioration of stability (Berg Balance scale).

Conclusion: Neurorehabilitation must be included in MS therapeutic guidelines. MF must be obligatory part of the NR-algorithm.

Biography

Ivet B Koleva is a Medical Doctor, Specialist in Physical and Rehabilitation Medicine/PRM/ and in Neurology, with European certification in PRM. She defended two theses (Philosophy Doctor and Doctor in Medical Sciences) in the field of Neurorehabilitation. Her scientific interests are in the field of neurorehabilitation, grasp and gait rehabilitation; pain and physical analgesia; functional assessment, etc. She is the Professor at the Medical University of Sofia, Bulgaria.