



USE OF RADIAL SHOCKWAVE THERAPY ON LIMBS IN PATIENTS WITH AFTER-STROKE SPASTICITY

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Introduction

Increasing in muscle tone in limbs is a main problem in rehabilitation of disorders caused by brain stroke, as it seriously complicates the patient's activities of daily living. Low efficiency of traditional methods in the treatment of after-stroke spasticity has led to searching of new methods of its reduction. The acoustic shock waves, introduced into body tissue, rise microcirculation in small blood vessels, enhance the metabolic processes, launch cell reconstruction and renovation processes and besides, continuous or intermittent pressure on muscles and tendons can decrease their spinal hyperexcitability.

Methods

Twenty seven patients with after-stroke spasticity were enrolled in the study comprising 18 men and 9 women with a mean age of 62 years. Twenty patients had ischemic stroke and 7 patients had hemorrhagic stroke that occurred from 9 to 12 months previously. The protocol consisted of 5 treatment sessions using radial shock waves (Masterpuls MP200, Storz Medical AG, Switzerland) with next parameters: total 6 000 shocks per session; pressure 2,5 – 3 bars and frequency 10 – 15 Hz. Efficiency of the treatment was evaluated in 3 months after course of treatment. Tonicity of muscles was evaluated using the Ashworth scale, neurological status according to NIHSS, also all patients were investigated with electromyography in dynamic before treatment, after it and in 3 months follow-up. All patients were divided into two groups: group I with muscle tone of 1 – 2 points and group II with muscle tone of 3 – 4 points by Ashworth scale.

Results

The reduction in muscle tone was more significant in upper limbs, but effect of the treatment was observed even in 3 months after treatment. Regard to the range of passive motion, after the treatment it was increased twice, but after 3 months the difference with baseline was small. The results of electrophysiological research were correlated with clinical indexes. In assessment of the results of RSWT therapy was observed the growth of index' amplitudes and, in most cases, recovering of the speed markers and significant reduction in deformation and normalization of M-response duration was registered.

Conclusions

Application of radial shock wave therapy on spastic muscles of limbs in ambulatory patients affected by stroke resulted in a significant reduction in muscle tone of upper and lower limbs' flexors and increased an efficiency of motor function recovering in long-lasting period without medications.