

Shock wave treatment in patients with unilateral spasticity of the upper limb after ischemic or hemorrhagic stroke

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1. Introduction

Spasticity is a common complication in patients with stroke. Patients suffer from exaggeration of stretch reflexes with uncontrolled, repetitive, involuntary muscle contractions and enhanced reflexes. It is associated with reduced quality of life, increased pain and joint contractures. Current treatment alternatives exhibit serious side effects with limited efficacy. Therefore, there is a strong need for an effective spasticity treatment. In this study, we aimed to test the efficacy of SWT for the treatment of post-stroke spasticity (PSS).

2. Material & Method

In this prospective, randomized, single-center trial 10 patients with unilateral upper limb PSS received SWT (n=5) or standard therapy (n=5). Patients in the SWT group received four shock wave treatments within two weeks. Prior to treatment, degree of PSS was assessed by measurement of passive stretch, volitional movement and active/passive function. For this purpose, the modified Ashworth scale (MAS), the range of motion (ROM) test, the box and block test, a robotic resistance test and a full neuropathological assessment have been performed in a standardized manner. Moreover, WHO quality of life (WHOQOL) questionnaire was used.

3. Results

Primary endpoint was the functional improvement of upper limb function at 12 weeks, whereas secondary endpoints included changes in quality of life and acceleration to mobilization/rehabilitation. No side effects of SWT occurred in the treatment group. Patients in the treatment group showed improvement in PSS symptoms manifesting in improved scores in the MAS, ROM, box and block and robotic resistance tests. Moreover, WHOQOL scores were improved upon treatment and mobilization time decreased.

4. Discussion

In this study we provide evidence for the efficacy of SWT in patients with PSS. SWT could develop a potent treatment option for patients suffering from PSS.