27th World Congress
ISMST 2025
Bogotá

ISMST25-0020

Focused shockwave therapy applied to myofascial chains: A novel approach for spasticity management post-stroke

Federico Giordani[1], Jacopo Bonavita[1]
[1]*APSS Trento, Villa Rosa Neurological Rehabilitation Hospital, Trento, Italy*

Introduction
Spasticity, a common sequela of stroke, is increasingly recognized as having both central and peripheral components. Organic alterations in muscle and connective tissue can change the viscoelastic properties of peripheral tissues, creating a feedback loop of altered input and hypertonic neural response. Interaction between antagonist and synergistic myofascial structures may further contribute to movement limitations. Consequently, simultaneous treatment of these contiguous structures could break this cycle. Focal shock waves have demonstrated regenerative action on tissues and reduced spasticity when applied to the musculoskeletal component. While most studies propose a local approach, this study investigates the safety and efficacy of a more global treatment on lower limb spasticity by applying shock waves to multiple myofascial areas, even distant ones, based on myofascial lines and concepts.

Material & Methods
Ten adult stroke patients with lower limb spasticity were included, excluding those with recent botulinum toxin treatment, deformities, or coagulopathies. The intervention consisted of four weekly sessions, with 3-4 myofascial areas treated per session using 1500 shocks. Points were selected based on palpation along lower limb myofascial sequences, from the gluteal region to the foot. Safety was assessed by monitoring adverse reactions and medication changes. Outcomes, measured pre-treatment, post-treatment, and one month later, included hip, knee, and ankle ROM, MAS spasticity scores, and the 2-Minute Walk Test (2MWT).

Results
The measurement of articular ROM in the hip, knee, and ankle indicated an increase in the median range of motion both post-treatment and at the follow-up. Spasticity, measured by the MAS scale, showed a reduction in most patients, with a partial regression at t2 in all the analyzed segments. The 2MWT results demonstrated improvement after treatment, which was sustained at the 1-month follow-up Minor adverse reactions (redness, bruising, tenderness) occurred in a few patients but resolved with reduced intensity.

Discussion
The application of focused shock waves to myofascial structures of the lower limb globally improves joint excursion and reduces spasticity in all segments of the lower limb. This approach yields an immediate post-treatment effect, which is partially sustained one month later. Addressing myofascial chains globally may offer a more comprehensive strategy for enhancing the functional performance of patients affected by post-stroke spasticity. Furthermore, the safety profile of this protocol renders the treatment accessible and readily repeatable. Comparative studies are needed to determine the duration of the benefit, whether it is superior or inferior to the local approach, and the need for maintenance sessions.