54. Effects of Extracorporeal Shockwave Therapy on Spasticity in Cerebral Palsy (CP): Our Experience (pilot study)

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Introduction: Spasticity, an abnormality of the tonic stretch reflex, commonly found in Cerebral Palsy (CP), interferes with the normal growth and functionality of the musculoskeletal system, thus leading to deformities, functional limitations, and disability. The principal aim of treatment is to reduce spasticity and retard secondary musculoskeletal alterations, thus avoiding or delaying the need for surgery. Extracorporeal Shockwave Therapy (ESWT) is widely known to be efficacious in the treatment of tendon and osseous diseases as well as in tissue healing. Moreover, evidence from the Literature suggests that ESWT can reduce muscle spasticity, although the mechanism of action in still under investigation and further evidence may be useful.

Methods: 24 spastic diplegic children (6-10 years old, Gross Motor Function Classification System I-II) were treated with 4 sessions of weekly focalized bilateral ESWT on calf muscles (Orthowave, 2000 pulses, EL 0.03 mJ/mm2). Participants were evaluated before (baseline), after intervention program (T1) and 3 months later (T2). Primary outcome measurements were ankle ROM, calf spasticity by MAS and Tardieu scales, and descriptive walking abilities by quantitative gait analysis. Secondary outcomes were individually defined by Goal Attainment scale (GAS).

Results: Statistically significant improvements were observed in ankle ROM and calf spasticity by MAS; walking abilities by gait analysis didn't show any significant modification in kinetic or kinematic pattern of the ankle. Significant improvement was reported in activity performance measured by GAS.

Discussion: These findings provide further clinical evidence in this new field of application in term of efficacy, safety and a painless treatment approach in CP tone reduction.

Conclusion: These findings also seem to suggest some hypothesis on possible mechanisms of action.