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Presentation PL3-07

Ultrasound Evaluation of the Plantar Fascia in CMT Patients: Clinical-Functional Correlations and Rehabilitative Implications

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Background: Charcot-Marie-Tooth (CMT) is the most common inherited neuromuscular disorder, often leading to disabling foot deformities, impaired gait, and loss of balance. Despite its high prevalence, little is known about the structural involvement of the plantar fascia, a key element in foot biomechanics and stability.

Objective: This study aims to explore, for the first time, the clinical relevance of plantar fascia alterations in CMT through non-invasive ultrasound imaging and their correlation with functional outcomes, highlighting a potential new avenue for early, targeted rehabilitation.

Methods: Twenty-six subjects with CMT (14F, 12M) at the High-Intensity Neurorehabilitation Unit, A. Gemelli University Hospital (Rome), underwent bilateral ultrasound of the plantar fascia. Parameters analyzed included thickness, echogenicity, and fibrillar pattern, categorized into three severity levels. Clinical-functional assessments included CMT-ES, Tinetti, Walk12, SPPB, and 10MWT. Statistical correlations were performed between ultrasound findings and clinical variables.

Results: Significant associations were found between fascial alterations and age ($p=0.024$), disease severity (CMT-ES, $p=0.014$), and functional performance (10MWT $p=0.017$; SPPB $p=0.039$).

Conclusions: This study suggests that plantar fascia changes, detectable via fast, non-invasive ultrasound, may serve as early markers of functional decline in CMT. These findings support the implementation of personalized physiotherapy and orthotic strategies. A patient-centered, multidisciplinary approach could enhance long-term functional outcomes and inform future therapeutic models.