(S124) SPASTICITY, MOBILITY, AND BALANCE IN PEOPLE WITH MULTIPLE SCLEROSIS
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Background: Spasticity is a motor disorder characterized by a velocity-dependent increase in tonic stretch reflexes resulting from hyperexcitability of the stretch reflex. More than 80% of people with multiple sclerosis (MS) have spasticity, and it is most common in the muscles of the lower legs. Lower-leg spasticity may result in deficits of mobility and balance, but there is a dearth of empirical evidence regarding this hypothesis. Objectives: The purpose of the current investigation was to examine the association between spasticity, mobility, and balance in people with MS. Methods: The sample included 34 individuals with a definite diagnosis of MS who underwent testing as part of entry into a health and wellness program. Participants underwent an Expanded Disability Status Scale (EDSS) evaluation by a clinician and measurement of spasticity in the calf muscles of both legs using the modified Ashworth scale (MAS). Mobility was measured using the Timed 25-Foot Walk (T25FW), 6-Minute Walk (6MW), Timed Up and Go (TUG) test, and Multiple Sclerosis Walking Scale–12 (MSWS-12). Balance was measured with the Berg Balance Test (BBT) and Activities-Specific Balance Scale (ABC). Results: The sample had a range of EDSS scores between 3.5 and 7.5, with a median of 6.0. The range of MAS scores was 0 to 3, with a mean ± SD of 0.5 ± 0.8. There were 13 people with spasticity of the calf muscles based on MAS scores that exceeded 1.0. Independent-samples t tests indicated that those who had spasticity of the calf muscles had significantly worse mobility based on T25FW (P = .001, d = 1.7), 6MW (P = .0001, d = 2.7), TUG (P = .0001, d = 1.9), and MSWS-12 (P = .001, d = 1.4) scores. Independent-samples t tests further indicated that those who had spasticity of the calf muscles had significantly worse balance based on BBT (P = .0001, d = 1.8) and ABC (P = .0001, d = 1.5) scores. Conclusions: These findings provide evidence that spasticity of the calf muscle has a large negative effect on mobility and balance in people with MS. This suggests that treatments for reducing spasticity might improve mobility and balance in this population.

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