ORIGINAL RESEARCH

17. Handgrip Strength Asymmetry in Middle-aged and Older Adults: Clinical Aspects

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https://www.youtube.com/watch?v=hJIcIJ1w8oM&list=PLhqNq3xJClbafO0Y5bvBcgMmXpgzJxd44&index=5&t=4114s

Background: Identifying early markers of neurodegeneration remains a key challenge. Recent studies (Zammit AR, 2021; Chen Z. et al., 2022; Wang et al., 2023) suggest an association between handgrip strength (HGS) asymmetry and cognitive decline. This study explores clinical characteristics of HGS asymmetry in middle-aged and elderly patients.

Methods: Ninety patients (mean age 63.7±1.2 years; 58.9% men) were enrolled. Inclusion criteria: age >45, preserved hand function. HGS was measured using a KERN MAP 130K1 dynamometer. Asymmetry coefficient was defined as the ratio of non-dominant to dominant hand strength; values <0.9 or >1.1 indicated asymmetry. Cognitive function was assessed via the MoCA test; anxiety and depression via the HADS scale.

Results: Mean HGS: dominant hand – 28.5±1.8 kg, non-dominant – 25.9±1.3 kg. HGS asymmetry was found in 54.4% of patients (dominant hand – 38 cases; non-dominant – 11). MoCA scores were lower in the asymmetry group (22.8±0.6) vs. the non-asymmetry group (24.8±0.4; $p<0.05$). Significant declines were observed in visuoconstructive skills (1.67±0.24 vs 2.58±0.30) and memory (1.61±0.39 vs 2.11±0.40). MoCA negatively correlated with age ($r = -0.39$) and anxiety ($r = -0.32$). In the asymmetry group, strong correlations were found between gender and muscle strength ($r = -0.70$), and between muscle strength and MoCA scores ($r = 0.34$).

Conclusion: HGS asymmetry was present in over half of patients and was associated with lower cognitive scores. The asymmetry coefficient may serve as a clinical marker of early cognitive decline.

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