

Abstract

Introduction: The aim of this cross-sectional, non-interventional, non-randomized, prospective and observational study was to investigate the most effective screening tool for detecting sarcopenia in patients with Huntington's disease (HN). Another stated aim of the study was to compare statistically the tested set of patients with HN with a set of healthy controls.

Methods: The study enrolled individuals with genetically diagnosed HN (patient group) and healthy individuals (control group) who agreed to participate. The demographic data of both groups were comparable. Both cohorts were tested with validated sarcopenia-finding tools such as the SARC-F, strength tests using a hand dynamometer, bioimpedance testing and functional tests (TUG, 30-second chair-standing test). Sarcopenia-finding algorithm created by The European Working Group on Sarcopenia in the Elderly (EWGSOP2) was also used. Normality of the data and the type of t-test subsequently used (Wels or Mann Whitney unpaired test) was determined using the Shapiro-Wilk test. The effectiveness of specific instruments was determined by calculating their sensitivity, specificity and accuracy.

Results: A total of 30 patients (49.67±12.90 years) (15 males and 15 females) and 30 healthy controls (50.17±16.47 years) (15 males and 15 females) were included in our study. The prevalence of sarcopenia was 50% in the patient group. Significantly worse results were observed in the patients in muscle strength and performance measures. Significant difference between the tested groups was also shown in the values of the phase angle and also in the volume of the musculature of the left lower limb. The comparison of total muscle volume did not prove to be significant. In determining the sensitivity, specificity and accuracy of the various tools and tests for sarcopenia, the most effective were the EWGSOP2 algorithm and the SARC-F, which showed an accuracy of 80%. Muscle strength testing (cut-off for geriatric patients) showed an accuracy of 76.67%.

Conclusion: We may conclude that the prevalence of sarcopenia was frequent in the studied group of patients. The results of our study suggest that HN significantly affects the functional status of the studied group of patients and also negatively affects the quality of their skeletal muscle. According to our results, the EWGSOP2 sarcopenia search algorithm, muscle strength testing using a hand-held dynamometer, and the SARC-F questionnaire appear to be the most accurate methods for diagnosing sarcopenia in patients with HN.

Keywords: Huntington's disease, sarcopenia, EWGSOP2, dynamometry, bioimpedance, 30 seconds chair stand test, TUG