

ABSTRACT

Introduction: This cross-sectional, non-interventional, non-randomized, prospective and observational study aims to determine whether sarcopenia and its types occur in a cohort of 16 patients with Huntington's disease and, if so, at which stages of the disease. The study also aspires to identify patients with Huntington's disease who are at risk of sarcopenia (so-called presarcopenia). In addition, the study also compares the results of nutritional and functional status tests between a group of patients and healthy controls who were of the same sex, age and with no further acute or chronic disease that could significantly affect their nutritional and functional status. This was done to determine to what extent the patients exhibit reduced nutritional and functional parameters as compared with the healthy population.

Methods: Individuals with clinically diagnosed Huntington's disease who agreed to participate were recruited. These individuals are outpatients of the Department of Neurology, VFN in Prague and the 1st Faculty of Medicine, Charles University in Prague. A series of tests were performed to assess the nutritional and functional status of the individual - questionnaires of functional status, self-sufficiency and sarcopenia, bioimpedance testing, strength tests using a hand dynamometer and functional tests of standing and walking. The presence of sarcopenia and its types were determined in the patients. The results of the examinations and tests of the patients were compared with a set of healthy controls in a statistical analysis of the research. The statistical analysis consisted of descriptive statistics, two-sample unpaired t tests and Spearman's correlation tests.

Results: A total of 16 patients (53 ± 13.6 years) (9 women, 7 men) and 9 healthy controls (49.6 ± 16.9 years) (5 women, 4 men) were included in our study. Significantly worse results were observed in patients by muscle strength and functional tests compared to healthy controls. There was no significant difference in muscle volume between the groups. In this study, different dynamometer testing approaches were also compared and it was found that the position of the upper limb during testing was critical to the outcome. Sarcopenia was detected in 5 patients, 3 males and 2 females, according to the applied algorithm. When a modified algorithm was performed, sarcopenia was detected in even 7 patients (3 males, 4 females).

Conclusion: The results of this study showed that sarcopenia is common in the tested group of patients. Due to the age and the present disease, it is possible to speak of the occurrence of secondary sarcopenia. Primary sarcopenia also occurred in patients who were over 65 years of age. The presence of sarcopenia significantly affected the functional status of the tested patients. A multimodal approach in the search of sarcopenia proved to be appropriate.

Keywords: Sarcopenia, Huntington's disease,, dynamometry, muscle strength, muscle mass, physical performance