

Subjective and objective motor function is associated with prodromal Parkinson's disease: a population based cohort study

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Objective: To investigate the association between subjective and objective motor function, and the probability of prodromal Parkinson's disease (PD) in a community-dwelling older population. **Methods:** We used data from a population-based cohort study of older adults (HElIenic Longitudinal Investigation of Aging and Diet). Subjective motor function was evaluated with a 12-item motor complaints questionnaire and objective motor function directly with two gait speed tests and indirectly with a physical activity questionnaire. Probability of prodromal PD was calculated according to the International Parkinson and Movement Disorder Society's research criteria for 1731 individuals without PD. Regression multi-adjusted models were used to investigate the association between each motor measure and the probability of prodromal PD. **Results:** For each unit increase in motor complaints score, for each second increase in the 1m and 4m gait speed test, and for each kcal/kg/day lower energy expenditure (corresponding to 20min of light walking/day for a 75-kg man) there was a 27, 15, 8 and 3% higher probability score for prodromal PD, respectively ($p \leq 0.001$). Having at least one subjective motor complaint or gait speed less than 0.8m/s increased the odds of having possible/probable prodromal PD ($n=49$; $p=0.05$). The inclusion of motor variables in the same model, showed that all three measures (complaints, gait speed and physical activity) contributed significantly to the model ($p < 0.01$). **Interpretation:** Subjective motor complaints, as well as simple objective motor measures assessing gait speed or physical activity, may be associated with prodromal PD. These data may serve to enable early identification of prodromal PD cohorts.