

## CHANGES IN SELF-REPORTED MSPHYSICAL MEASURES REFLECT CLINICALLY MEANINGFUL CHANGES IN AMBULATION

Allison S. Drake, MSc; Paulette Niewczyk; Barbara E. Teter; Bianca Weinstock-Guttman; Cornelia Mihai; Carl V. Granger; Frederick E. Munschauer

*Jacobs Neurological Institute, State University of New York at Buffalo (NY, USA)*

**Background:** Quantitative measures such as the Timed 25-Foot Walk (T25FW) represent valuable tools used to evaluate the clinical impact of multiple sclerosis (MS) on motor function. Previous studies suggest that T25FW changes  $\geq 20\%$  can be considered clinically meaningful (CMA). The LIFEware System (LIFEware) has been widely embraced as a valid, reliable patient-oriented measure of functional status. However, the longitudinal relationship between T25FW and LIFEware measures has yet to be elucidated.

**Objective:** To characterize the relationship between CMA in ambulation detected by the T25FW and patient-perceived disability as measured by the MSPhysical (MSPhys) component of LIFEware.

**Design/Methods:** Clinical, demographic, and LIFEware data from 333 MS patients (mean  $\pm$  SD age,  $42.8 \pm 10.5$  years) enrolled in the New York State Multiple Sclerosis Consortium (NYSMSC) were analyzed retrospectively (mean time between,  $12.0 \pm 1.2$  months). Analysis of variance techniques were used to compare patients who experienced 1-year CMA in T25FW and those who did not. Logistic regression was performed to determine the factors most strongly associated with meaningful T25FW worsening.

**Results:** Using the conventional definition of a CMA in T25FW, 27% of patients experienced meaningful worsening at 1 year. Patient-reported worsening functional status was detected in 12.3% to 31.2% of patients according to changes in MSPhys item/composite scores. In logistic regression controlling for age, sex, and baseline clinical characteristics ( $\chi^2$  [5, n = 333] = 20.6,  $P < .001$ ), change in MSPhys was found to be the strongest, statistically significant predictor of clinically meaningful T25FW worsening, recording an odds ratio of  $\sim 2.0$  (95% confidence interval, 1.8–3.2;  $P < .01$ ).

**Conclusions:** These results suggest that the likelihood of a patient experiencing a CMA in T25FW is  $\sim 2$  times greater for patients who self-report worsening functional status after 1 year using the MSPhys component of the LIFEware System compared with those who do not. Although further validation is warranted, this study supports the use of the LIFEware System as a subjective measure of the clinical impact of MS on motor function.

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