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Baseline characteristics of the SDMT PRO population reveal early cognitive changes in multiple sclerosis patients

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Introduction: As cognitive changes may occur early in multiple sclerosis (MS) regular assessment of the cognitive status is recommended (Kalb et.al. 2018). The Symbol Digit Modalities Test (SDMT) is a validated, sensitive test to detect changes in cognitive processing speed and working memory. A clinically meaningful change is defined as a 4-points or 8-points difference in SDMT raw score (Weinstock et.al 2021) or a 10% difference with respect to pretest values (Benedict et.al. 2017). SDMT in combination with the Brief Visuospatial Memory Test Revised (BVMT-R) proved superior to the single application of the SDMT and showed the best agreement with the overall BICAMS score (Bätge et al. 2019). Whether and to which extent a clinically meaningful change in SDMT and BVMT-R translate into a relevant change in the quality of life or in psychosocial functioning of the patient has not been thoroughly investigated so far.

Aim: SDMT PRO aims to evaluate the relevance of SDMT and BVMT-R changes on everyday life issues of patients with relapsing (RRMS) and secondary progressive MS (SPMS).

Methods: Approx. 130 ambulatory RRMS/SPMS patients have been enrolled in the project to date, recruitment will close in June 2022. Patients' neuropsychological performance on SDMT and BVMT-R will be assessed at baseline, at 12 and 24 months follow-up, along with behavioral data collected from digitized Patient-reported outcomes (PROs), e.g. the Fatigue Scale for Motor and Cognitive Functions (FSMC) by the PatientConceptApp. In addition, each of the PRO dimensions (vocational status, fatigue, mood, cognition) will be monitored throughout the study via the app by means of short ratings based on Visual Analog Scales (VAS). Patients will be stratified in subgroups according to cognitive test performance over time.

Results: Baseline characteristics from the whole SDMT-PRO population will be shown as well as 12 months follow-up data for approx. 30 patients. First interim analysis from baseline characteristics (Penner et. al 2021, DGN 2021) showed that approx. 50% of the enrolled population had clinically significant reduced or borderline SDMT values (47%), while most patients (80.4%) had normal BVMT-R values. Additionally, patients had strong disease burden based on FSMC values.

Conclusions: Continuous evaluation of SDMT changes as well as monitoring of domains relevant for daily living and psychosocial functioning can reveal the impact MS has on the daily life on patients.

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