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(abstract deadline 17th January; word limit: 250)

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Title:

Multiple Sclerosis Impact Scale and brain volume are independent predictors of cognitive impairment in secondary progressive multiple sclerosis.

Background and Aims:

Cognitive deficits in multiple sclerosis (MS) affect up to 70% of patients with progressive MS. We investigate the associations between the disease specific Multiple Sclerosis Impact Scale psychological subscale (MSIS-29v2-PSYCH), magnetic resonance image (MRI) normalised brain volume and cognitive impairment in people with secondary progressive MS(SPMS).

Methods:

A group of SPMS patients were recruited at baseline from a randomised phase 2 clinical trial (MS-SMART). Patients were assessed using a cognitive test battery (Table 1) to define cognitive status based on conservative criteria (standard deviation of z-score of -1.96 on ≥ 2 tests), and completed the MSIS-29v2 questionnaire. Normalised brain volume (NBV) was measured using the geodesic information flow and SIENAX algorithms. We analysed associations of cognitive impairment with MSIS-29-v2-PSYCH subscale and brain volume using binary logistic regression (Figure 3).

Results:

60 subjects were analysed with baseline characteristics shown in Table 2. We find NBV and MSIS-29v2-PSYCH to be independent predictors of cognitive impairment after adjusting for age, gender and years of education (Figure 3). There is a significant negative association between NBV and cognitive impairment (OR: 0.45; 95% CI: 0.21-0.84; $p=0.0191$) and a significant positive association between MSIS-29-PSYCH and cognitive impairment (OR: 1.89; 95% CI: 1.03-3.72; $p=0.0491$).

Conclusion:

Baseline MSIS-29v2-PSYCH has the potential to be a predictor of cognitive impairment in a SPMS patients. Longitudinal data will confirm the role of this self-reported outcome measure as a marker of MS future cognitive status.

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Disclosures:

AD, FDA, NM, JS, AE, FP, DP, NJ, AC, SP, CH, NS, PC, SC declare no conflict of interests with respect to this work.

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GG is a steering committee member on the daclizumab trials for AbbVie, the BG12 and daclizumab trials for Biogen-Idec, the fingolimod and siponimod trials for Novartis, the laquinimod trials for Teva, and the ocrelizumab trials for Roche. He has also received consultancy fees for advisory board meetings for oral cladribine trials for Merck-Serono, Genzyme-Sanofi, and in relation to DSMB activities for Synthon BV, as well as honoraria for speaking at the Physicians' summit and several medical education meetings. He is also the co-chief editor of Multiple Sclerosis and Related Disorders (Elsevier).

FB serves on the editorial boards of Brain, European Radiology, Journal of Neurology, Neurosurgery & Psychiatry, Neurology, Multiple Sclerosis, and Neuroradiology, and serves as consultant for Bayer Shering Pharma, Sanofi-Aventis, Biogen-Idec, TEVA Pharmaceuticals, Genzyme, Merck-Serono, Novartis, Roche, Synthon, Jansen Research, and Lundbeck.

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BS has received funding from NIHR and the UK MS Society, has been a principal investigator for trials in multiple sclerosis funded by: Receptos, Novartis, Biogen, Merck, Genzyme, Roche and Teva.