Abstracts

Articles appearing in the May 2018 issue

Microglial activation, white matter tract damage, and disability in MS

Objective To investigate the relationship of in vivo microglial activation to clinical and MRI measures in multiple sclerosis (MS).

Methods Patients with secondary progressive MS (n = 10) or relapsing-remitting MS (n = 10) and age-matched healthy controls (n = 17) were studied. Microglial activation was measured using PET and radioligand [¹¹C](R)-PK11195. Clinical assessment and structural and quantitative MRI including diffusion tensor imaging (DTI) were performed for comparison.

Results [¹¹C](R)-PK11195 binding was significantly higher in the normal-appearing white matter (NAWM) of patients with secondary progressive vs relapsing MS and healthy controls, in the thalami of patients with secondary progressive MS vs controls, and in the perilesional area among the progressive compared with relapsing patients. Higher binding in the NAWM was associated with higher clinical disability and reduced white matter (WM) structural integrity, as shown by lower fractional anisotropy, higher mean diffusivity, and increased WM lesion load. Increasing age contributed to higher microglial activation in the NAWM among patients with MS but not in healthy controls.

Conclusions PET can be used to quantitate microglial activation, which associates with MS progression. This study demonstrates that increased microglial activity in the NAWM correlates closely with impaired WM structural integrity and thus offers one rational pathologic correlate to DTI measures.

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Treatment choices and neuropsychological symptoms of a large cohort of early MS

Objective To assess clinical characteristics, distribution of disease-modifying treatments (DMTs), and neuropsychological symptoms in a large cohort of patients with early-stage multiple sclerosis (MS).

Methods The German National MS Cohort is a multicenter prospective longitudinal cohort study that has recruited DMT-naïve patients with clinically isolated syndrome (CIS) and relapsing-remitting MS (RRMS) since 2010. We evaluated their baseline characteristics and the prevalence of neuropsychological symptoms.

Results Of 1,124 patients, with a 2.2:1 female-to-male ratio and median age at onset of 31.71 years (interquartile range [IQR] 26.06–40.33), 44.6% and 55.3% had CIS and RRMS, respectively. The median Expanded Disability Status Scale (EDSS) score at baseline was 1.5 (IQR 1.0–2.0). A proportion of 67.8% of patients started DMT after a median time of 167.0 days (IQR 90.0–377.5) since the first manifestation. A total of 64.7% and 70.4% of the 762 patients receiving early DMT were classified as CIS and RRMS, respectively. Fatigue, depressive symptoms, and cognitive dysfunction were detected in 36.5%, 33.5%, and 14.7% of patients, respectively.

Conclusion Baseline characteristics of this large cohort of patients with early, untreated MS corroborated with other cohorts. Most patients received early DMT within the first year after disease onset, irrespective of a CIS or RRMS diagnosis. Despite the low EDSS score, neuropsychological symptoms affected a relevant proportion of patients.

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