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Abstracts

Articles appearing in the May 2020 issue

Wearing-off at the end of natalizumab dosing intervals is associated with low receptor occupancy

Objective We aimed to investigate whether wearing-off symptoms at the end of the natalizumab dosing interval were associated with clinical and demographic patient characteristics or natalizumab receptor occupancy (RO) on leukocytes.

Methods In this cross-sectional study of 40 patients with relapsing-remitting MS (RRMS) receiving natalizumab at the Department of Neurology, Haukeland University Hospital, we recorded clinical and demographic data including age, body mass index (BMI), working status, smoking habits, disease characteristics, treatment duration, vitamin D levels, and wearing-off symptoms. We quantified neurofilament light chain in serum and measured natalizumab RO in leukocyte subtypes by high-parameter mass cytometry. Associations with wearing-off symptoms were analyzed.

Results Eight (20.0%) patients who reported regular occurrence of wearing-off symptoms, 9 (22.5%) who sometimes had wearing-off symptoms, and 23 (57.5%) who did not have wearing-off symptoms were evaluated. Patients who regularly had wearing-off symptoms had lower natalizumab RO than patients who reported having such symptoms sometimes or never. The former group also had higher BMI and higher frequency of sick leave. High BMI was associated with low RO. No other demographic or disease characteristics were associated with the phenomenon.

Conclusions Low RO may explain the wearing-off phenomenon observed in some patients with RRMS treated with natalizumab, and high BMI may be the underlying cause.

NPub.org/N2/9520a

Covarying patterns of white matter lesions and cortical atrophy predict progression in early MS

Objective We applied longitudinal 3T MRI and advanced computational models in 2 independent cohorts of patients with early MS to investigate how white matter (WM) lesion distribution and cortical atrophy topographically interrelate and affect functional disability.

Methods Clinical disability was measured using the Expanded Disability Status Scale Score at baseline and at 1-year follow-up in a cohort of 119 patients with early relapsing-remitting MS and in a replication cohort of 81 patients. Covarying patterns of cortical atrophy and baseline lesion distribution were extracted by parallel independent component analysis. Predictive power of covarying patterns for disability progression was tested by receiver operating characteristic analysis at the group level and support vector machine for individual patient outcome.

Results In the study cohort, we identified 3 distinct distribution types of WM lesions (cerebellar, bihemispheric, and left lateralized) that were associated with characteristic cortical atrophy distributions. The cerebellar and left-lateralized patterns were reproducibly detected in the second cohort. Each of the patterns predicted to different extents, short-term disability progression, whereas the cerebellar pattern was associated with the highest risk of clinical worsening, predicting individual disability progression with an accuracy of 88% (study cohort) and 89% (replication cohort), respectively.

Conclusions These findings highlight the role of distinct spatial distribution of cortical atrophy and WM lesions predicting disability. The cerebellar involvement is shown as a key determinant of rapid clinical deterioration.

NPub.org/N2/9520b

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Zekeridou and V.A. Lennon. 2015; 2:e110. doi.org/10.1212/NXI.0000000000000110

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Alberto Vogrig, Marine Fouret, Bastien Joubert, et al. 2019;6: e604. doi.org/10.1212/NXI.0000000000000604

MOG cell-based assay detects non-MS patients with inflammatory neurologic disease

Patrick Waters, Mark Woodhall, Kevin C. O'Connor, et al. 2015;2: e89. doi.org/10.1212/NXI.0000000000000089

Does time equal vision in the acute treatment of a cohort of AQP4 and MOG optic neuritis?

Hadas Stiebel-Kalish, Mark Andrew Hellmann, Michael Mimouni, et al. 2019;6:e572. doi.org/10.1212/NXI.0000000000000572

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Steven L. Salzberg, Florian P. Breitwieser, Anupama Kumar, et al. 2016;3:e251. doi.org/10.1212/NXI.0000000000000251

