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Demyelinating Disorders 1

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Demyelinating Disorders 1
Role of MRI in prognostic prediction of clinically isolated syndrome in Japanese patients

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Background: The recognition of clinically isolated syndrome (CIS) and the early use of disease-modifying therapies are considered to be of great prognostic importance in the Western population. However, there is little consensus on the prognostic evaluation with MRI among the Asian population, including Japanese.
Objective: We examined clinical findings in Japanese CIS patients and compared them with those of clinically definite multiple sclerosis (CDMS) patients at the first presentation.
Patients and methods: The study was based on the medical records of patients diagnosed with CIS using 2010 Revised McDonald Diagnostic criteria between November 2008 and April 2014. All patients were negative for AQP4 antibodies at the onset. They were divided into two groups according to whether they developed CDMS (progressive CIS) or not (non-progressive CIS). The age of onset, symptoms, Expanded Disability Status Scale, findings in cerebrospinal fluid, and lesion distribution on the initial MRI (both cranial and spinal) were compared.
Results: Fourteen patients were diagnosed with CIS of which 7 developed MS (50%). The mean age at onset and follow-up period for progressive and non-progressive CIS patients were 27.4 ± 13.8 vs 38.8 ± 11.5 year-old and 54.7 ± 14 vs 48.5 ± 18 months respectively. Comparative analysis of MRI findings at the first attack revealed that progressive CIS patients have more intracranial lesions (6.4 ± 3.6 vs 2.1 ± 3.5, $p < 0.05$) and brainstem lesions (0.8 ± 0.7 vs 0.1 ± 0.4, $p < 0.05$).
Conclusion: In our study, CIS patients with more intracranial and brainstem lesions have higher risks for conversion to CDMS.

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Use of multiple biomarkers to improve the prediction of multiple sclerosis in patients with clinically isolated syndromes

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Background: The early identification of patients at high risk of Clinically Definite Multiple Sclerosis (CDMS) represents the main purpose of diagnostic criteria and of clinicians in everyday clinical practice.
Objective: To investigate whether the incorporation of different biomarkers in a model with established MRI criteria improves the prediction of MS.
Methods: We evaluated baseline clinical data as well as MRI, multimodal evoked potentials and cerebrospinal fluid (CSF) data of patients with a first demyelinating episode. We used discrimination and calibration characteristics and reclassification of risk categories to assess incremental utility of different biomarkers for CDMS prediction.
Results: During follow-up (median 7.2 years), 127 of the 243 participants in our study (mean age 31.6 years) developed a second clinical attack (CDMS). In Cox proportional-hazards models adjusted for established MRI criteria, age at onset, number of T1 lesions and presence of CSF oligoclonal bands significantly predicted the risk of developing MS within 2 and 5 years. The C-statistic increased significantly when the three biomarkers were incorporated into a model with established MRI criteria, both at 2 years (C-statistic with biomarkers vs. without biomarkers, 0.74 vs. 0.69) and at 5 years (0.66 vs. 0.70). The use of multiple biomarkers led to a 29% net-reclassification improvement at 2 years ($p < 0.001$) and 30% at 5 years ($p < 0.001$).
Conclusions: The simultaneous addition of several biomarkers improves the risk stratification for MS in patients with clinically isolated syndromes beyond that of a model that is based only on MRI criteria.

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Efficacy for remyelination and safety of anti-lingo-1 monoclonal antibody (biib033) in acute optic neuritis: results from the renew study

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