

A Comparative Analysis Of Diagnosis Delays When Applying The 2017 McDonald Criteria To Patients With Recurring-Remitting Multiple Sclerosis

S. Gassama, R. Le Faucheur, L. Grangeon, D. Maltête, B. Bourre
Neurology Department, Rouen University Hospital, 76000 Rouen, France

INTRODUCTION - Multiple Sclerosis (MS) diagnosis remains a challenge because of the heterogeneity of the clinical presentation and the interindividual evolutivity among patients. Throughout the years, scientific and technological progress in multiple fields such as Imaging, Biology and Pathology contributed to better define MS diagnosis¹. In 2017, new elements were added to the previous MS definition, the 2017 McDonald criteria.² The objective of our study was to evaluate the impact of the 2017 McDonald criteria on MS diagnosis delay and on direct medical costs by studying a hundred recurrent-relapsing MS patients.

METHODS - We analysed the last hundred patients included in the EDMUS cohort by our Neurology department at the University Hospital of Rouen (France). Demographic (sex, age), clinical (Expanded Disability Status Scale - EDSS), imaging (lesion load on brain Magnetic Resonance Imaging - MRI), biology (oligoclonal bands in the Cerebrospinal Fluid - CSF) and economical variables were evaluated.

RESULTS - Application of the 2017 McDonald criteria were associated with a mean decrease of MS diagnosis delay of 28.58 weeks eg. about 7 months ($p=0,0002$; CI 95%=[16,1 ; 40,3 weeks]) among 12 patients. All of these patients had received a lumbar puncture and had positive oligoclonal bands in the CSF. The mean EDSS 3 months after the first attack was 1.38 ± 1.82 among these 12 patients.

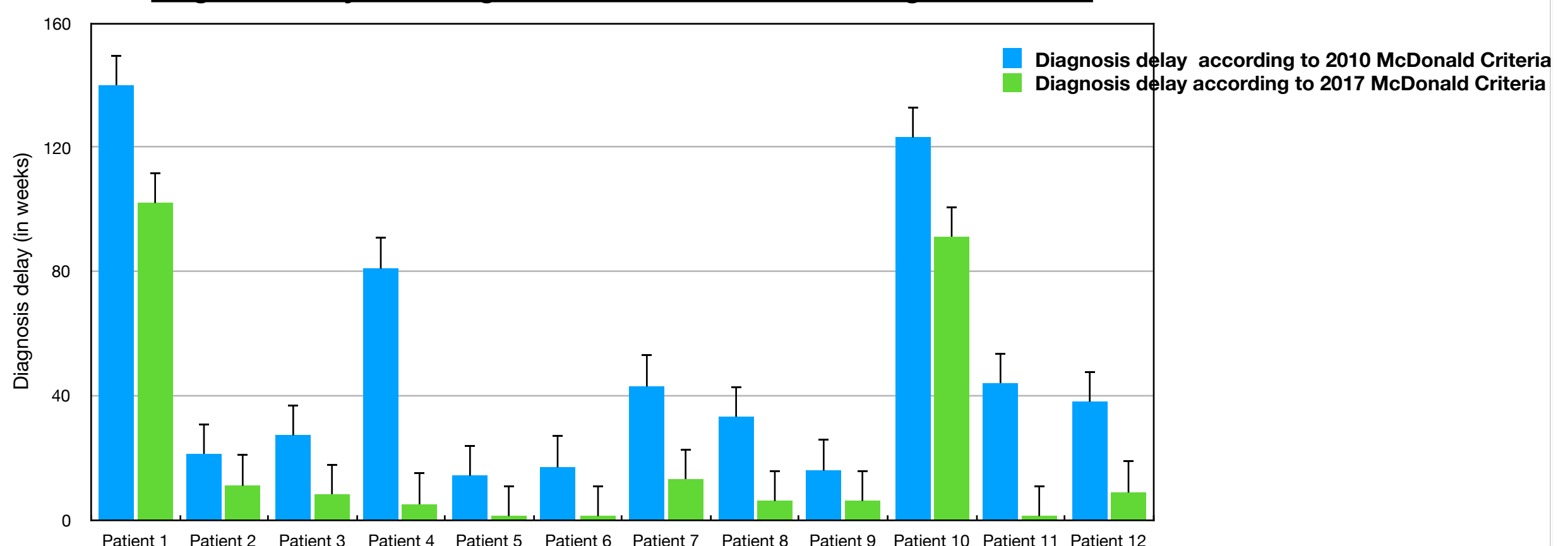
Furthermore, 23 patients had symptomatic lesions and 1 had cortical lesions. These last two criteria did not allow diagnosis delay reduction. The mean direct medical costs during the delayed diagnosis period was 461.90€ [23 ; 1507.48€] per patient.

DISCUSSION - First, acknowledging previous studies reporting that the average conversion delay from Clinically Isolated Syndrome to MS is 12.6 months³, the diagnosis delay reduction of 7.1 months described in our study can be considered significant. Second, only positive oligoclonal bands in the CSF allowed time to diagnosis reduction among our patients. Third, we analysed the economic impact of diagnosis delay reduction on our cohort focusing on direct medical costs, which were essentially due to imaging examination and specialised consultations.

Conclusion - In our cohort, applying the 2017 McDonald criteria reduced diagnosis delay when oligoclonal bands were positive in the CSF and could contribute in treating MS patients earlier than with the previous Revised 2010 criteria.

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Diagnosis Delay according to 2010 and 2017 McDonald Diagnosis Criteria



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2. Thompson AJ, Brenda BL, Barkhof F et al., Diagnosis of multiple sclerosis: 2017 revisions of the McDonald criteria. *Lancet Neurol* 2018; 17: 162-73
3. Rosenkranz SC, Kaulen B, Neuhaus A et al., Low clinical conversion rate in clinically isolated syndrome patients – diagnostic benefit of McDonald 2010 criteria? *Eur J Neurol* 2018, 25: 247-252