International panel revises 'McDonald Criteria' for diagnosing multiple sclerosis

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International Panel Revises "McDonald Criteria" for Diagnosing MS -- Use of new data should speed diagnosis -- Publication coincides with MS Awareness Week

An international panel has revised and simplified the "McDonald Criteria" commonly used to diagnose multiple sclerosis, incorporating new data that should speed the diagnosis without compromising accuracy. The International Panel on Diagnosis of MS, organized and supported by the National MS Society and the European Committee for Treatment and Research in Multiple Sclerosis, was chaired by Chris H. Polman, MD, PhD (Free University of Amsterdam). Full details are available in the free-access paper published in the February 2011 issue of Annals of Neurology (2011;69:292-302 http://onlinelibrary.wiley.com/doi/10.1002/ana.22366/abstract).

"Treating MS early and effectively is likely our best way to prevent permanent damage to the nervous system, so speeding the diagnosis of MS without compromising accuracy is a key goal," stated National MS Society Chief Medical Officer Aaron Miller, MD, Professor of Neurology and Medical Director of the MS Center at Mount Sinai Medical Center in New York City. "These updated diagnostic criteria appear to achieve this goal."

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understand and apply the 2010 revised diagnostic criteria in practice. These include plans to produce pocket cards summarizing the new criteria.

Background: MS is a chronic, often disabling disease that attacks the central nervous system. Its progress, severity, and specific symptoms are unpredictable and vary from one person to another. Determining if an individual has MS can be difficult because there is no single test that can accurately determine the diagnosis. Generally the process of diagnosis involves obtaining evidence from patient history, clinical examination, a variety of laboratory tests, and magnetic resonance imaging (MRI) scans, all intended to rule out other possible causes of disease and to gather data consistent with a diagnosis of MS.

The newly revised 2010 McDonald Criteria incorporate updated information on using MRI as a tool for speeding diagnosis.

The McDonald Criteria for Diagnosis of MS were originally published in 2001. They were named for the chair of the original panel, the late neurologist W. Ian McDonald, MB, ChB, PhD. Dr. Polman chaired the panels responsible for the 2005 and 2010 revisions. The previous versions have been the subject of extensive debate and testing. A significant body of new information about the utility of the Criteria has been published. The International Panel reconvened in May 2010 in Dublin to consider these new data and to develop consensus for revising and updating the McDonald Criteria, with an eye toward speeding and easing diagnosis without compromising accuracy.

Diagnosis of MS -- The Basics Still Apply: The diagnosis of MS is a partly subjective process, and is best made by an expert who is familiar with the disease and who can interpret imaging and laboratory evidence that can supplement the clinical diagnostic process. The requirement remains that there must be no better explanation than MS for the clinical

and laboratory findings – other possible diagnoses must be considered and excluded. (Go to this link for free access to published guidelines on the differential diagnosis of MS (Multiple Sclerosis 2008 14;9:1157-1174 http://msj.sagepub.com/content/14/9/1157.abstract)

The key to an MS diagnosis has been, and remains, the objective demonstration of dissemination of typical disease signs and symptoms in time and space. The 2010 revisions maintain this requirement, but offer several ways of using imaging to determine dissemination. It remains the case that while the use of paraclinical and laboratory examination can speed an MS diagnosis, a solid diagnosis can be made on clinical grounds alone.

No single test can provide adequate information to support an MS diagnosis. Therefore, supportive and confirmatory paraclinical examinations – including analysis of lesions by MRI, of cerebrospinal fluid (CSF), and sometimes of evoked potentials – are still important in helping to confirm an MS diagnosis.

What Has Changed: There is new emphasis that the McDonald Criteria should only be applied to those who present with a clinically isolated syndrome (CIS) suggestive of MS, or who have symptoms consistent with a central nervous system inflammatory demyelinating disease. The panel also considered how well the Criteria can be applied to specific populations such as childhood MS (pediatric MS) and Asian and Latin American populations. They concluded that the 2010 Revised Criteria would apply to the majority of these populations, but the paper describes specific situations in which further considerations and tests would be recommended to properly diagnose MS in these groups.

In past versions of the McDonald Criteria, guidelines were presented for using MRI to demonstrate dissemination of disease in time and space, based on earlier studies. For the 2010 Revised Criteria, published

recommendations from the European MAGNIMS multicenter collaboration have been incorporated (Swanton JK, Rovira A, Tintoré M, et al. Lancet Neurol 2007;6:677-686; Swanton JK Fernando K, Dalton CM, et al. J Neurol Neurosurg Psychiatry 2006;77:830-833.) These indicate that:

- Dissemination in time can be demonstrated by a new T2 or gadolinium-enhancing lesion on a follow-up MRI, with reference to a baseline scan, regardless of when the baseline MRI was obtained. (Previous versions had specified that the reference scan be performed at least 30 days after the initial clinical event; this is no longer a requirement.)

- Dissemination in space can be demonstrated with at least one T2 lesion in at least two our of four areas of the central nervous system: periventricular, juxtacortical, infratentorial, or spinal cord. These lesions need not be gadolinium enhanced.

In the case of diagnosing primary-progressive MS, aspects of the previous criteria remain, but the MAGNIMS recommendations for demonstrating dissemination in space were incorporated to harmonize with other 2010 updates. As shown in Table 1, diagnosing primary-progressive MS requires one year of disease progression (determined retrospectively or prospectively), plus at least 2 out of these 3 criteria: dissemination in space in the brain based on at least 1 T2 lesion in periventricular, juxtacortical or infratentorial regions; dissemination in space in the spinal cord based on at least 2 T2 lesions; or positive cerebrospinal fluid (CSF) findings.

While the International Panel has provided revised and simplified criteria for MS diagnosis, recommendations for further testing of the Criteria are made as well, to bolster the scientific evidence supporting

the 2010 recommendations.

Comment: The 2010 Revisions to the McDonald Diagnostic Criteria for MS should speed and make easier and more certain the diagnosis of MS. As with the original Criteria, these need prospective study, and it is expected that additional research will result in further refinements.

"Efforts like the work of this international panel illustrate the National MS Society's role as a convening force to push forward progress that not only improves clinical care, but also identifies research opportunities and gaps," noted Timothy Coetzee, PhD, the Society's chief research officer. "The paper highlights the need for research to identify additional biological markers of MS and its subtypes. This gap impedes progress on several fronts, making it an important target for our research efforts," he continued.

Provided by National Multiple Sclerosis Society