THE CURRENT DIAGNOSIS CRITERIA FOR MULTIPLE SCLEROSIS

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ABSTRACT

In 2005, the International Panel on the diagnosis of multiple sclerosis gathered in March in Amsterdam to review the original McDonald criteria and to recommend appropriate revisions to these criteria.
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The goals of these revisions were "to incorporate new evidence where available, to develop consensus where evidence from research studies was scant and to simplify and clarify original definitions and concepts that users thought were confusing or difficult to implement".

The new criteria on the diagnosis of multiple sclerosis are known as 2005 Revisions to the McDonald Criteria.

The McDonald Criteria were tested on population with "classical" MS in Western adult populations is one of the affirmations which were written in original article, with the recommendation that the Revision to the McDonald Criteria should be tested to determine whether these criteria could be generalized or not, to determine the modifications that should be done to make them more appropriate for other populations, like Asian and Latin America communities.

The application of McDonald criteria starts with an accurate clinical evaluation of the patient. From the clinical point of view the patient could present signs and symptoms that are disseminated in space and time, which are the core requirements of diagnosis. The diagnosis could be made only on clinical ground basis following the criteria, but usually the imaging of the CNS is performed in order to increse the level of confidence.

There are some idiopathic inflammatory demyelinating diseases, which could "mimic" the disese and could fulfil current MS criteria. Such diseases are considered separate entities.

Until now is unclear whether acute and recurent diseminated encephalomyelitis are separate entities from multiple sclerosis.

Neuromyelitis optica (Devic's disease) and limited forms of neoromyelitis optica could sometimes be mistaken for MS, but antibodies against aquaporine 4 channel are a solution to make the differential diagnosis.

Mc Donald Criteria include MRI and CSF requirements. The MRI findings should also satisfy criteria for dissemination in time and space. These findings were stringent in the original criteria and must fulfil the imaging criteria established by Barkhof as modified by Tintore and coworkers.

The Revisions to the Mc Donald Criteria recommended some changes on MRI criteria, regarding the dissemination in time. For the dissemination in space provide a guidence on incorporating spinal cord lesions.

The CSF findings were a requirement to make the diagnosis of primary progressive multiple sclerosis, but the actual recommandation does not impose these findings.

THE SPECIFIC RECOMMENDATIONS OF THE REVISED MC DONALD CRITERIA

One of the new recommandations included in The 2005 Revisions to the Mc Donald Criteria refered to the MRI criteria for dissemination of lesions in time, so it has been decided that any new T2 lesion occuring at any time point after a so called reference scan performed at least 30 days after the onset of the initial clinical event meeats the imaging diagnosis criteria for dissemination in time. This new T2 lesion should have a sufficient size and location so that could not have been missed previously for technical reasons.

The actual 2005 Revisions MRI criteria for dissemination in time are either:

– detection of gadolinium enhancement at least 3 month after the onset of the initial clinical event, if not at the site corresponding to the initial event

or

– detection of a new T2 lesion if it appears at any time compared with a reference scan done at least 30 days after the onset of the initial clinical event.

Another recommendation refers to the MRI criteria for dissemination in space of lesions, so the Panel gathered in Amsterdam reached a consensus.

The actual MRI criteria for dissemination in space must fulfill three of the following:

1. at least one gadolinium-enhancing lesion or nine T2 hyperintense lesion if there is no gadolinium enhancing lesion
2. at least one infratentorial lesion
3. at least one juxtacortical lesion
4. at least three periventricular lesions.

A spinal cord lesion can be considered for an infratentorial lesion, but not for a juxtacortical or periventricular lesion; if the spinal cord lesion enhances it is considered to be equivalent to an enhancing brain lesion and the spinal cord lesion contribute together with individual brain lesion to reach the required number of T2 lesions.

The 2005 Revision of Mc Donald Criteria establish criteria for the primary progressive MS, so beside one year of disease progression (retrospectively or prospectively determined) two of the following are required:

– positive brain MRI: nine T2 lesions or four T2 lesions with positive visual evoked potential VEP (abnormal VEP of the type seen in multiple sclerosis: delayed P 100 wave)
– positive spinal cord MRI (two focal T2 lesions)
– positive CSF (isoelectric focusing evidense of oligoclonal Ig G bands or increasing Ig G index or both).

These revised criteria stress on clinical and imaging (brain and cord) evidence and put less emphasis on CSF findings, so the CSF changes are not required anymore.

CONCLUSIONS

The conclusions of The International Panel were: "the Revisions of the MS diagnosis criteria retain the core features of the original Mc Donald Criteria", which put emphasis on objective clinical findings, evidence of dissemination of lesions in time and space, use of supportive and confirmatory paraclinical examination in order to speed the process and to help eliminate false-negative or false positive diagnosis.

Different clinical presentations and the additional data needed for MS diagnosis are listed in the following table:

– two or more attacks, with objective clinical evidence	– no additional data
– two or more attacks, with objective clinical evidence of one lesion	– dissemination in space, demonstrated by: • MRI or • two or more MRI detected lesions consistent with • MS plus positive CSF or • await further clinical attack implicating a different site
– one attack, with objective clinical evidence of two or more lesions	– dissemination in time, demonstrated by: • MRI or • second clinical attack
– one attack, with objective clinical evidence of one lesion (monosymptomatic presentation, clinically isolated syndrome)	– dissemination in space, demonstrated by: • MRI or • two or more MRI detected lesions consistent with MS plus positive CSF or • await further clinical attack implicating a different site And dissemination in time, demonstrated by: • MRI or • second clinical attack
– insidious neurological progression suggestive of MS	One year of disease progression and two of the following: • positive brain MRI: nine T2 lesions or four T2 lesions • with positive visual evoked potential VEP (abnormal VEP • of the type seen in multiple sclerosis: delayed P 100 wave) • positive spinal cord MRI (two focal T2 lesions • positive CSF (isoelectric focusing evidence of oligoclonal Ig G bands or increasing Ig G index or both).

The major changes of the revised criteria consist of "liberalized" requirements for imaging and CSF findings so the neurological communities will be able to establish the diagnosis more accuarately and faster compared with previous application of the criteria.

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