

## Multiple Sclerosis: An Emerging Diagnosis in Taiwan?

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Multiple sclerosis (MS) is a demyelinating disorder of the central nervous system characterized by remission and relapse.<sup>1</sup> It affects young adults and often leads to neurological disability. The pathogenesis is complex with an immune-mediated and inflammatory process occurring in genetically susceptible individuals. It mainly occurs in Caucasians in the Northern hemisphere or high latitudes and less frequent in Asians. Twenty-eight years after the first report of 25 cases of MS in Taiwan,<sup>2</sup> Tsai CP *et al.*<sup>3</sup> in this issue used Poser criteria<sup>4</sup> to analyze the clinical features of 43 MS patients by reviewing the charts at Taipei Veterans General Hospital from 1985 to 1999 and estimated the MS prevalence in Taiwan based on the data from the Bureau of National Health Insurance (BNHI). The authors confirmed the low rate of MS (1.9 per 100,000) and frequent occurrence of optic-spinal form (21%) in Taiwan. This study raises important issues.

### Revised diagnostic criteria

Poser diagnostic criteria<sup>4</sup> require a minimum of 2 clinical attacks. As immunomodulatory drug therapies became available 10 years ago, there was a trend toward early treatment of MS. Some patients with clinically isolated syndrome develop new, asymptomatic white matter lesions on serial brain magnetic resonance images (MRI). They would not fulfill Poser criteria despite MRI evidence for active demyelinating disease, and therefore, not assessable to immunomodulatory drugs. To address this shortcoming, McDonald *et al.*<sup>5</sup> revised the diagnostic criteria for MS by integrating MRI with clinical and other paraclinical diagnostic methods. These criteria allow earlier diagnosis because dissemination in time and/or space may be documented with MRI even before a second clinical attack. That is, assuming an initial presentation suggestive of MS, the second lesion need not necessarily be clinically expressed. These revised criteria simplify diagnosis into either "MS", "possible MS",

or "not MS" categories. "possible MS" is designated for those at risk for MS, but for whom diagnostic evaluation is equivocal. Consequently, more cases of MS may be diagnosed in clinical practice using these criteria.

### Increasing case recognition

With the availability of MRI and increasing awareness, neurologists in Taiwan have been able to recognize and diagnose MS. Approximately 2 decades ago, MS was thought to be rare in Taiwan. Nowadays, it is still uncommon but readily recognized. Improving case recognition is probably the main reason of reported increase in prevalence rate of MS in Taiwan from 0.8 per 100,000 by Hung *et al.*<sup>2</sup> in 1976 to 1.9 per 100,000 in Tsai's study<sup>3</sup> in 2004.

### Improving treatment over the past decade

Corticosteroid treatment for acute MS attacks speeds symptom resolution but does not prevent relapses. There were no treatments for prevention of MS relapse until 1993 when the Food and Drug Administration (FDA) of the USA approved the first beta interferon (IFN $\beta$ -1b) for the treatment of relapsing-remitting MS. Three interferon betas formulations are currently available, 2 IFN $\beta$ -1a formulations (Avonex<sup>TM</sup> and Rebif<sup>®</sup>) and one IFN $\beta$ -1b (Betaferon<sup>®</sup>/Betaseron<sup>®</sup>). Overall, the annual relapse rate for individuals treated with interferon beta was significantly reduced by 30 - 37%, compared with the placebo groups.<sup>6,7</sup> Glatiramer acetate (Copaxone) is another drug approved by FDA for relapsing-remitting MS, with the annualized relapse rate reduced by 25%.<sup>8</sup> Because of the limitations of treatment, there have been several emerging treatment options.<sup>9</sup>

MS has drawn many epidemiological studies because of its unique clinical features and geographic distributions.<sup>10</sup> For example, if a neurologist in Taiwan examines a young adult in the emergency room with acute

onset of right-sided weakness, the first differential diagnosis coming into his or her mind would be stroke of young onset. In contrast, a neurologist in USA would consider MS first. However, the comparison of prevalence studies has been difficult due to disparity in a number of critical variables, such as different geographic areas, times, ethnic origins, size of populations and diagnostic criteria and tools. In addition, complete case ascertainment of MS depends on access to medical care, neurological expertise, accessibility and availability of diagnostic procedures, and the public awareness of MS. With the case registration in BNHI, easy accessibility to MRI, and improving case recognition among neurologists, it is time to call a collaborative study among all neurologists in Taiwan to analyze all MS cases in Taiwan using the revised McDonald criteria for retrospective analysis and prospective study.

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