

## Multiple sclerosis in Pakistan

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We describe retrospective data from the largest series of patients ( $n = 142$ ) with multiple sclerosis (MS) from Pakistan. Mean age at onset was 27 years, with a female to male ratio of 1.45:1. The disease onset was polysymptomatic in 75% patients. Motor weakness was the most common onset symptom (70%), followed by sensory symptoms (45%). Optico-spinal type of MS was seen in only 3% of patients. The course was relapsing-remitting (RR) in 81%, primary progressive (PP) in 21%, and secondary progressive (SP) in 4% of patients. Almost three-fourths of the patients were moderately (45%) or severely (31%) disabled at the time of evaluation. Two-thirds of patients with severe disability had a mean disease duration of only 5.2 years. In conclusion, MS is not uncommon in Pakistan, and many patients were found to have severe disability despite short disease duration. *Multiple Sclerosis* 2007; 00: 000–000. <http://msj.sagepub.com>

**Key words:** analysis; multiple sclerosis; Pakistan; review

### Report

The prevalence of multiple sclerosis (MS) varies considerably in Asian countries, but, in general, occurs less than in Caucasians [1]. To our knowledge, no in-depth studies of MS have taken place in Pakistan. In this report, we describe our analysis of 142 cases of MS from five centers in the cities of Karachi, Islamabad, and Peshawar. For the retrospective analysis of these 142 cases, we used the Poser criteria [2], for clinically definite (CD) MS and the Thompson's criteria [3], for primary progressive (PP) MS.

A total of 84 (60%) females and 58 (40%) males were included in the study. The mean age at review was 31 years (range: 15–54 years). The mean age at symptom onset was 27 years. The onset was polysymptomatic in 107 patients (75%). The common symptoms at presentation included varying degrees of paresis in 99 (70%) patients, sensory symptoms in 63 (45%) patients, fatigue in 45 (32%) patients, visual symptoms in 39 (29%) patients, ataxia in

31 (22%) patients, dysarthria in 30 (21%) patients, bladder dysfunction in 20 (15%) patients, and vertigo in 11 (7%) patients.

All 142 patients underwent brain magnetic resonance imaging (MRI), which was abnormal, and consistent with diagnosis of MS in 137 (95%) patients. Spinal MRI was performed in 37 (26%) patients, and abnormalities consistent with MS were seen in 22 (15%) patients. Of 56 (40%) patients given contrast, enhancing lesions occurred in 25 (18%) patients.

The disease course was relapsing-remitting (RR) in 115 patients (81%), primary progressive (PP) in 21 (15%) patients, and secondary progressive (SP) in six (4%) patients. Cerebral involvement alone was seen in 99 (70%) patients, and spinal involvement alone was seen in five (3%) patients. Optico-spinal type of MS occurred in four (3%), optico-cranial was seen in 20 (15%), and craniospinal type in 11 (7%) patients.

At the most recent follow-up evaluation of these patients, 33 (24%) patients were fully independent

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and functioning normally, 63 (45%) patients required assistance for ambulation or activities of daily living (ADL), 45 (31%) patients were chair or bed bound, and one patient had died of sepsis after pulsed steroid treatment. Disease duration was available from 99 patients. The mean duration of illness was 4.6 years. Of the 45 patients with severe disability (chair or bed bound), disease duration was available for 29 patients, and for these patients, the mean duration was 5.2 years.

A total of 135 (95%) patients received at least one course of pulse steroid during the course of their illness. Only two (1%) patients received Interferon beta therapy. Methotrexate was used in 16 (11%) patients, and mitoxantrone was given to 14 (10%) patients. Seven (5%) patients never received any disease specific therapy.

## Discussion

There is very limited published literature on MS from Pakistan. One retrospective study observed 25 Pakistani patients with MS [4], and found features comparable to Western countries. In one study from Karachi, out of 85 patients with demyelinating disease, 45 (53%) were diagnosed with MS [5]. In the study by Raza *et al.* [4], a RR pattern was seen in 80% patients, while 20% patients had SPMS. The study by Asif [5], showed a RR or relapsing progressive (RP) pattern in 21 (47%) patients, SPMS in 14 (31%) and PPMS in nine (20%) patients [5]. Almost two-thirds of patients in our series were severely disabled at 5.2 years after onset. This rate of MS progression is faster than in typical Western MS. We do not know if this is the natural course of the disease in our part of the world, or represents sampling bias. All participating centers in this study are tertiary care centers and tend to see sicker patients compared to primary care centers.

Motor weakness was the most common symptom at onset (70%), whereas visual impairment was seen in 29% of cases. Our findings are in agreement with western type MS, which reports <5% patients with optico-spinal type MS. These figures are in contrast to Asian type MS, which report up to 50% patients with optico-spinal presentation from Japan and other far eastern countries.

The majority of patients are treated with pulse steroids and <25% patients received any disease modifying agent. In Pakistan, high cost is probably

the major limiting factor in the utilisation of disease modifying agents, such as interferon [6].

Due to the retrospective nature of the study, it is difficult to measure the exact prognosis of these patients. However, information at the most recent visit to the neurologists showed that approximately one-quarter of the patients were functioning normally, 45% patients required assistance for ambulation or ADL, and 31% patients were chair or bed bound. One patient died of sepsis after pulse steroid therapy. These findings are in contrast to long term follow-up data on MS patients from western countries, showing that 80% of the patients reached progressive phase by 25 years, 65% required aids for walking, and 15% had died [6].

In conclusion, MS is not uncommon in Pakistan. Optico-spinal MS is seen in a very small number, and overall features of MS in Pakistan are similar to MS seen in the western hemisphere. Approximately three-quarters of the patients are moderately or severely disabled by MS, which could be related to extremely low use of disease modifying agents in our patient population.

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## References

1. Wasay M, Khatri I, Khealani B, Sheerani M. Multiple sclerosis in Asian countries. *Int Mult Scler J* 2006; **13**: 16–26.
2. Poser CM, Paty DW, Scheinberg L *et al.* New diagnostic criteria for multiple sclerosis: guidelines for research protocols. *Ann Neurol* 1983; **13**: 227–31.
3. Thompson AJ, Montalban X, Barkhof F *et al.* Diagnostic criteria for primary progressive multiple sclerosis: a position paper. *Ann Neurol* 2000; **47**: 831–35.
4. Raza SQ, Anjum MN, Bakhtiari M, Rasool F. Multiple sclerosis in a tropical population. *Pakistan J Neurol* 1998; **4**: 16–24.
5. Asif SA. A study of clinical features of demyelinating diseases in Karachi, including multiple sclerosis. CPSP Dissertations, 1999: 47–72.
6. Olek MJ, Dawson DM. Multiple sclerosis and other inflammatory demyelinating diseases of the central nervous system. In Bradley WG, Daroff RB, Fenichel GM, Marsden CD eds. *Neurology in clinical practice*, third edition. Butterworth-Heinemann, 2000: 1431–66.