Multiple sclerosis in Oman

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ABSTRACT

Objectives: To describe the clinical characteristics of multiple sclerosis (MS) seen in Oman and compare it with those seen in the Arabian peninsula, the rest of Asia and the Western world.

Methods: A hospital based case descriptive study of MS patients, seen at Sultan Qaboos University Hospital in the Sultanate of Oman, between June 1990- June 2000.

Results: We saw a total of 30 patients during the study period, with a prevalence of 4/100,000. Mean age at onset was 27 and male to female ratio was 1.1:1. Visual and motor symptoms were the most common presenting features. Lesions were distributed in the optic nerve in 17, spinal cord in 16, cerebral hemispheres in 12 and brain stem and cerebellum in 10. One third of patients had the optico-spinal form of the disease. Twenty-three patients had a remitting and relapsing course, 4 had secondary progressive and 3 had a primary progressive course. Cerebrospinal fluid oligoclonal band was positive only in 20% of patients, and we carried out HLA analysis in 24 of these patients.

Conclusion: The incidence of MS is low in Oman, but similar to other countries in the region. The optico-spinal form of the disease constituted 30% in this series, comparable to other series reported from Asia. Generally, the clinical profile of MS seen in Oman is very similar to those reported from the Arabian Peninsula and other Asian regions.

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Multiple sclerosis (MS) is an inflammatory demyelinating disease of the central nervous system, with unequal distribution worldwide.[1,2] The prevalence of MS is considered to be low amongst the Asian and Middle Eastern population.[3-10] Earlier reports from Asian countries suggested that there were differences in the clinical features of MS, as seen in the Orient and the West.[11] There are only a few studies reporting the clinical features of MS from the Arabian Peninsular region and no reports from Oman.[4-10] The aim of this study is to document the clinical characteristics of MS seen in Oman, and to compare and contrast it with those seen in the Arab, Asian and Western world. The Arabian Peninsula is located between 10 and 30 degrees latitude north of the equator. Oman is the second largest country in the peninsula with an area of 271,950 square kilometers and an indigenous population of 1.5 million. Sultan Qaboos University Hospital was opened in 1991 and functions as the major national reference center for neurological studies. Free health care facilities are available to all Omanis and there is an efficient referral system to specialized centers.

Methods. Omani patients admitted to Sultan Qaboos University Hospital between June 1990 and June 2000, fulfilling the well-recognized Poser's Criteria[12] for the diagnosis of MS were included in this study. They were all seen and followed up by the authors during the entire period of study. We performed a thorough neurological evaluation and details regarding the place of residence, foreign travel, family history of similar illness, mode of onset, course of illness and pattern of progression

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was recorded. Other causes of multiple lesions and events were sought and excluded in appropriate cases. All patients had complete hematological and biochemical profiles, vasculitis screen including antinuclear antibody, double stranded DNA and rheumatoid factor, serology for Brucella, syphilis and HIV, CSF immunoglobulins and oligoclonal band, multimodal evoked potentials (EP), CT brain and MRI scan. Localization and distribution of lesions were based on a combination of clinical and investigational findings. These patients were classified according to Poser's Criteria[12] and followed up regularly in the Neurology Clinic. Their clinical course was classified into relapsing-remitting, progressive relapsing, secondary-progressive and primary-progressive.[13] Patients with relapsing-remitting course received long-term treatment with beta interferon injection.

Results. Thirty ethnic Omani patients were diagnosed to have MS during the study period. They were distributed from all regions of the country. Twenty-two had clinically definite MS, 5 had laboratory supported definite MS and 3 had clinically probable MS. Multiple sclerosis contributed to 1% of neurology admissions during the study period. The ratio of MS to motor neurone disease (MND) was 1:1.7 and using the method of Kurtzke,[14] based on the assumption that MND prevalence is 5/100,000 population, MS prevalence in Oman is 4/100,000 population. The male to female ratio was 1.1:1 (M=16, F=14). Mean age of onset was 27 years (range 19-42 years). Longest duration of illness was 15 years and shortest 2 months at the time of diagnosis. Twelve patients presented with blurred vision, 6 each with sensory symptoms and paraparesis, 5 with ataxia, 3 with diplopia and 2 with hemiplegia. Lesions were distributed in the optic nerve in 17, spinal cord in 16, cerebral hemispheres in 12 and brain stem and cerebellum in 10. One third of patients (10/30) had the optico-spinal form of the disease. The course of illness was remitting and relapsing in 23, secondary progressive in 4 and primary progressive in 3. The CSF oligoclonal band was positive in 6 patients (20%) and IgG was elevated in another 11. Visual evoked potentials (VEP) were abnormal in 17/30, brainstem auditory evoked potentials in 9/30 and somatosensory evoked potential in 12/30. Twenty-one patients had one abnormal EP, 2 had 2 abnormal EP's and 7 had all 3 abnormal. An MRI demonstrated typical hyper intense lesions greater than 3 mm, predominantly on T2 weighted images. Active lesions were shown on gadolinium enhanced T1 weighted images.

Discussion. Multiple sclerosis is uncommon in Oman. This is similar to the low prevalence reported from other Asian countries.[3] Oman is the easternmost region in the Arabian Peninsula, and it has the lowest prevalence in this region at 4/100,000 compared to 8/100,000 in Saudi Arabia and Kuwait. The highest frequency of MS was seen amongst the Palestinians compared to the rest of the Arabs.[5-8] No familial cases were reported from any of the series from this region.[4-10]

Demographic data of our cases are similar to those reported from other Arab countries, with peak age of onset in the 3rd decade[4-10] and similar sex distribution. Weakness was the most common presentation in all series of patients reported from the Arabian Peninsula, but our series has equal number of patients presenting with visual symptoms (40%). This is higher compared to other reports from the Middle East. Similarly, the proportion of optico-spinal form of cases in this series is the highest reported from this region, though not as high as reported from the East and Far East Asia.[11]

Pre MRI Asian series has reported increased incidence of optic nerve involvement, optico-spinal form of the disease and low frequency of cerebellar involvement. But in the post MRI era, with detection of mild and early lesions of MS, there was no difference between the Indian and the US patients, as reported by a case control study.[15] The only significant difference was the higher frequency of visual involvement in Indian patients by clinical and VEP criteria. Oligoclonal band detection rate is very low in our series, in keeping with similar observations from other regions across Asia, compared to 90-95% positivity in Caucasians.[3,11,16] The joint Asian study of MS reported the observations in a total of 263 patients from 7 countries in Asia.[16] They described 2 groups of patients, one with the "Western type" of MS and the other with the "Asian type" of MS. This study confirmed the features peculiar to "Asian MS" as noted in previous reports, namely, higher frequency of optico-spinal involvement, transverse myelitis, severe visual loss, paroxysmal tonic spasm and low rate of positive oligoclonal band. Spinal cord lesions detected on MRI extended over longer segments of the cord in these patients, in contrast to the short segment lesions seen in Caucasians. These differences in clinical and laboratory findings could have a genetic basis. Genetic studies have shown that the optico-spinal form and the western form of MS seen in Asian patients have different human leukocyte antigen (HLA) associations. The HLA DR2 associated haplotype DRB1-1501 was found in 42% of the "western" type compared to 14.2% in controls and 0% in the "Asian" type of MS patients in Japan.[17]

In summary, Oman falls into the low prevalence area for MS and has the lowest reported occurrence in the Arabian Peninsula. The demographic features

are similar, but the incidence of visual involvement and the optico-spinal form of the disease is higher in Oman, compared to those reported from the West as well as from other regions in the Middle East. The detection rate of oligoclonal band in the CSF is very low, similar to all Asian series. With the increasing awareness of MS and the wider availability of MRI facilities, a higher number of cases are likely to be recognized later. Future studies in Oman need to focus on community based incidence and prevalence rates and potential genetic factors.

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