

ORIGINAL ARTICLE

MULTIPLE SCLEROSIS: A STUDY OF 318 CASES

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Abstract

Background-Multiple sclerosis (MS) is a multi-factorial disease with different epidemiological patterns and clinical presentations in various populations. Study of these different patterns can help us find the possible etiologic factors of this disease.

Methods-Following announcement in two national newspapers inviting MS patients to participate in this study, 411 individuals responded. By taking a complete medical history and reviewing medical record documents such as magnetic resonance imaging (MRI), 318 patients were diagnosed with MS and were included in this study. Data was collected by a self-administered questionnaire, which was mailed to the patients.

Results-The mean age in this group was 35.4 ± 9.6 years (mean \pm SD) and the female:male ratio was 1.5:1. The average age of onset for this disease was 26.6 ± 8.1 years (mean \pm SD). Sensory and visual disturbance were the most common initial presentations with a prevalence of 30.5% and 24.6%, respectively.

Conclusion-Data analysis showed that the demographic pattern of MS in Iran is similar to countries in the same geographical region such as Saudi Arabia, Kuwait, and Jordan.

Keywords • Multiple sclerosis • epidemiology • Iran

Introduction

Multiple sclerosis (MS) is the most common disabling neurological disease among the young and can be regarded as an organ specific inflammatory disease resulting from an aberrant immune attack on myelin or myelin-producing oligodendrocytes present in the central nervous system (CNS). There is poor understanding of the basic mechanism of initiation and progression of MS. However, it is widely accepted that some environmental factors trigger the process.¹⁻³ Different findings suggest a strong association between MS and geographical distribution in different groups of people.⁴

It is likely that genetically susceptible people

who are exposed to some environmental factors may develop MS in a definite period of time.^{5, 6} The study of demographic measures and clinical features of MS in different groups of people can provide important clues in determining the probable causative factors.⁷

Iran is situated in the Eastern Mediterranean region. Unfortunately, there are few studies on MS in the Iranian population⁸⁻¹⁰ and the prevalence of MS, according to World Health Organization (WHO) reports¹¹, should be about 4 in 100,000.

The present study was conducted on a group of MS patients from all over Iran, in an effort to collect some demographic data, which may provide a preliminary picture of some epidemiological features of MS in this country. It is clear that with the development and completion of the data bank of MS patients, a more distinct picture will be given which we hope will serve as a basis for further studies in this field.

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Patients and Methods

In March 1998, an announcement was made in two national newspapers for patients with MS to participate in a study. Those interested were required to contact the National Research Center for Genetic Engineering and Biotechnology (NRCGEB) and to provide their mailing address and telephone number. To confirm diagnosis, participants then were asked to send medical documents, including medical confirmation by a neurologist, MRI report and other paraclinical test results and a self-report of symptoms. After reviewing the documents and confirming the diagnosis by a neurologist, the cases were selected for the study.

Information was collected through a one-paged questionnaire, which was mailed to the patients, containing questions about demographic data and a brief history of the disease course.

Data entry and coding was done through a database system developed with FoxPro and analyzed by SPSS for Windows, version 7.5.

Results

Following confirmation of the diagnosis, 318 out of 411 patients who responded to our announcement were included in the study. A total of 234 patients were taken as definite MS patients based on their medical documents and/or written confirmation by their neurologist. The diagnosis was reported as indefinite in 84 patients due to insufficient data. The patients were aged 35.4 ± 9.6 (mean \pm SD) years, with a female:male ratio of 1:1.52. Most (73.2%) patients had a high school graduation certificate or higher educational degrees and only 26.8% had not graduated from school. The marital status of 22 (6.9%) patients was unclear, 124 (52%) patients were single, 172 (58.1%) were married. Two hundred and seventy patients (85%) had suffered from MS for 15 years or less and only 39 (12.2%) patients had shown symptoms within the past 2 years. The average age of onset, that was mostly below 40 years (95%), was 26.6 ± 8.1 (mean \pm SD) year. Figure 1 shows the patient's birthplace plotted on the map of Iran.

According to the data shown in Figure 2, which demonstrates the number of patients for year of the disease onset, most reported the first sign or symptom within the period of 1992 to 1996. A total of 254 (80%) patients were diagnosed within a 4-



Figure 1. Distribution of birthplaces of MS patients.

year period from the disease onset and only 30% were diagnosed in the first year.

The first presenting symptom is shown in Table 1. The most common presenting symptom was sensory impairment (30.5%) followed by visual impairment (24.6%). According to data shown in Table 2, there is no significant difference between male and female patients in respect of age, age of onset or years of education.

Discussion

One of the most important points in epidemiological studies on incidence, prevalence and geographical distribution is the method of case-finding and data collection.¹² In this study, patients were invited to the study by newspaper announcement. It is therefore likely that this group of patients is more educated than the actual Iranian MS population. This makes a considerable selection bias. The distribution of patient's birth place shows

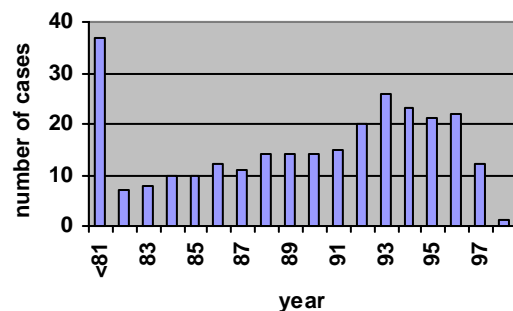


Figure 2. Number of new cases per year.

Multiple Sclerosis in Iran

Table 1. Frequency of presenting symptoms.

Presenting symptom	(%)
Sensory impairment	30.5
Visual impairment	24.6
Balance impairment	14
Motor impairment	13.7
Pain	7
Urogenital symptoms	1.8
Other symptome	8.4

that few patients are from the lower socioeconomic status (Figure 1).

Many Iranian neurologists believe that the number of patients with MS in Iran has been increasing in recent years. This study shows that early symptoms of this group of patients mainly started in the early 90's. Although any exact suggestion depends on more widespread studies and completion of the national MS databank.

Table 3 demonstrates the age of onset and M:F ratio in two western and two neighboring countries. Similarities were found to exist among regional and western countries.

Because of nonspecific signs or symptoms and temporary recovery after the initial flare-up, the definite diagnosis of MS is usually made late in the course of disease, in comparison to other neurological diseases. In this group, only 30% of patients were diagnosed within the first year. In this study, according to the inclusion criteria, patients can be divided into two groups: 1) patients with medical documentation and paraclinical findings and 2) patients included by their own claim and self report.¹⁸ As shown in Table 4, these two groups of patients show no considerable difference in main demographic parameters such as age, sex and age of onset and, so could be considered to be the same.

If we consider Iran as a low prevalence country with an estimated prevalence of about 4/100,000, we expect about 2400 patients with MS to be present in the 70 million Iranian population. This study covers about 12.5% of estimated Iranian MS

Table 2. Demographic parameters according to sex.

Parameter	Males	Females	p-value
Age(years)	36.4 ± 9.9	34.8 ± 9.4	0.15
Age of onset (years)	27.0 ± 8.1	26.3 ± 8.1	0.4
Years of Education	12.4 ± 4.2	11.7 ± 4.0	0.13

Table 3. Demographic data of MS in different countries.

Country	Age of onset	M/F ratio
England (Cambridgeshire) ¹³	31.7	1: 2.6
Scotland ¹⁴	34.5	1: 1.9
Jordan ¹⁵	29.6	1: 1.9
Saudi Arabia ¹⁶	25.9	1: 1.34
Kuwait ¹⁷	27.5	1: 1.05
Iran	26.6	1: 1.52

population which can be valuable at this time. Low prevalence areas can provide a better guide for evaluation of the role of probable risk factors. We hope to complete the information and provide a more exact picture of MS in Iran by the establishment of an MS national databank and by collecting data from MS clinics with the cooperation of neurologists from all over the country.

Table 4. Demographic information according to medical documentation.

Parameter	Medical documents	Patient's claim	P
M:F ratio	1: 1.54	1: 1.51	0.9
Age (years)	34.8 ± 9.6	36.5 ± 8.5	0.17
Age of onset (years)	26.3 ± 8.1	27.1 ± 7.6	0.4
Years of education	12.0 ± 3.9	11.9 ± 4.0	0.18

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