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A STUDY OF INITIAL NEUROLOGICAL SYMPTOMS AMONG BANGLADESHI MULTIPLE SCLEROSIS PATIENTS

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ABSTRACT

This study was undertaken in the Department of Neurology, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, from January 2002 to December 2003. The objective of this study was to determine the initial neurologic symptoms of multiple sclerosis among Bangladeshi patients. A total of 25 respondents of multiple sclerosis patients as cases selected. Diagnostic criteria for multiple sclerosis were enlisted during the study period. The clinical details, investigations of the respondents were reviewed. Data were recorded in predesigned data collection sheet. Out of 25 cases, male patients were 12 (48%) and females were 13 (52%), ratio being 1:1.08. Majority of the patients presented at second, third and fourth decades of life. Most of the patients (56%) had acute onset, followed by sub acute (28%) and insidious (16%). Certain clinical characteristics among Bangladeshi multiple sclerosis patients are noteworthy, namely, number of male and female patients almost equal (48% vs 52%), a higher rate of impaired vision (optic nerve involvement, 64%), motor weakness (92%), sphincteric disturbances (92%) and a lower rate of brainstem and cerebellar involvement. Painful tonic spasm was a prominent feature among Bangladeshi patients with multiple sclerosis (8 out of 25, 32%). Out of 25 patients, one (4%) expired due to aspiration pneumonia. Twenty four (96%) survived. Among them 9 (36%) has restricted activity, 7 (28%) were bedridden, 5 (20%) were chair bound, 2 (8%) had minor disability and were in work and 1 (4%) was completely normal.

KEYWORDS: Multiple sclerosis, sarcoidosis, Seven.

INTRODUCTION

Multiple sclerosis (MS) is an inflammatory demyelinating disease of central nervous system (CNS) causing significant morbidity with a variable course, thought to result from immune response to myelin sheath with variability in frequency.[1] It typically presents between the ages of 18 and 45 years, although the true onset of the disease likely predates the initial symptoms in most individuals. Multiple sclerosis is more frequently encountered in western countries and is distinctly unknown in certain ethnic and racial groups, such as Eskimos, Native Americans, Indians and Africans.[2,3] The variation in prevalence of MS according to geographical location and the modification of clinical picture by ethnic groups are all well known features of the disease. Current estimates suggest that the prevalence in the United States is approximately 350,000 with an annual incidence of about 12,000. Prevalence is low in Saudi Arabia and other Arab Middle Eastern countries with rates varying between 4 and 12 per 100,000 inhabitants. In contrast amongst Caucasians rate is as high as 309 per 100,000 have been reported.[4,5] It was thought that MS was uncommon in Bangladesh and other tropical and sub-tropical countries. Susceptibility is also associated with particular genetic factor, such as HLA-DR2, and there are documented differences in Caucasians and Orientals with MS patients in terms of HLA association and oligoclonal bands (OCBs).[6] There have been relatively a few studies from Asia, India and in particular no study from Bangladesh. Asian MS has traditionally been thought of as a distinct entity characterized by optic nerve and spinal cord involvement, with predominant visual involvement in the beginning being more common and less frequent involvement of cerebellum.[7] Clinical pattern of multiple sclerosis in Bangladesh is unknown. However, the detection of MS have increased as a consequence of use of modern investigative facilities, particularly with the availability of MRI facilities, increased awareness among medical professionals and patients.[8]

AIMS AND OBJECTIVES

Many studies are available from other countries of Asia, especially from Japan, Saudi Arabia and India. There has been no study from Bangladesh. The aim of this study was to find out and describe the initial symptoms of

multiple sclerosis and compare the observed clinical features between Bangladeshi MS patients with those of the western MS patients.

MATERIALS AND METHODS

This prospective study was carried out in the Department of Neurology, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, among both indoor and outdoor patients, during the period of January 2002 to December 2003. A total number of 25 patients were assessed, investigated and diagnosed having MS during the study period, who fulfilled the McDonald's diagnostic criteria for multiple sclerosis23. Patients with recent vaccination and/or viral infection, patients suffering from systemic lupus erythematosus (SLE), Rheumatoid arthritis (RA), sarcoidosis and other collagen vascular disease, neoplasm, cervical spondylosis and metabolic disorders were excluded from the study.[9] Clinical diagnosis of MS patients was based on medical history and clinical examination. Confirmation of clinical diagnosis was done by available relevant investigations specially MRI of brain and/or spinal cord with contrast when required.[10] Necessary laboratory procedures were done to ascertain exclusion criteria. Informed consents were taken from each patient before his/her inclusion in the study. All relevant information from history, clinical findings and investigations were documented in predesigned data collection 10 sheets. Patients were seen every three months interval or as required in the Department of Neurology, BSMMU, and subsequent data recorded in the data collection sheet. Data collected were compiled in a master sheet and required analyses were done using computer based software SPSS (Statistical Package for Social Science).

RESULTS

The age range of 25 patients of MS was 10 65 years, with mean (±SD) 30.56±13.44 years. The study included 8 (32%) cases < 20 years, 12 (48%) cases between 21 40 years, 4 (16%) cases between 41-60 years and 1 (4%) case above 60 years. The peak age of incidence of MS was found in 21-40 years age group (Table 1).

Table 1: Age distribution of the study subjects (n=25).

Age group (years)	Number of patients	Percentage
≤ 20	8	32.0
21-40	12	48.0
41-60	4	16.0
>60	1	4.0
Total	25	100

Out of 25 patients of MS, 12 (48%) were male and 13 (52%) were female. The male female ratio was 1:1.08 (Table 2).

Table 2: Sex distribution of cases (n=25).

Sex	Number of patients	Percentage
Male	12	48.0
Female	13	52.0
Total	25	100

The lesions at initial onset are shown in Table 6.3. Sixteen (64%) patients out of 25 had optic neuritis as their first symptom. Five (20%) patients had optic neuritis alone. Seven (28%) patients had optic nerve and brain, 4 (16%) patients had optic nerve and spinal cord involvement at onset. Seven (28%) patients had myelitis alone, 1 (4%) had spinal cord and brain involvement, and 1 (4%) had only brain involvement.

Table 3: Lesions at initial onset among Bangladeshi multiple sclerosis patients (n=25).

First involvement	Number of patients	Percentage
Only optic nerve	5	20.0
Optic nerve + brain	7	28.0
Optic nerve + spinal cord	4	16.0
Only spinal cord	7	28.0
Spinal cord + brain	1	4.0
Brain alone	1	4.0
Optic nerve involvement (n=16)		
Unilateral	8	50.0
Bilateral	8	50.0

Table 4 shows mode of onset among the study subjects. Out of 25 cases, 14 (56%) had acute onset, 7 (28%) sub acute onset and 4 (16%) chronic or insidious onset.

Table 4: Multiple sclerosis typing (according to mode of onset) (n=25).

Mode of onset	Number of patients	Percentage
Acute	14	56.0
Subacute	7	28.0
Chronic/insidious	4	16.0
Total	25	100

In Table 5, the number of previous attack has been shown. Out of 25 patients, 5 11 (20%) had one, 8 (32%) had two and 5 (20%) had more than two previous attacks. Seven (28%) patients had no history of previous attack.

Table 5: Distribution of the respondents by number of previous attacks (n=25).

Previous attacks	Number of patients	Percentage
One	5	20.0
Two	8	32.0
More than two	5	20.0
None	7	28.0
Total	25	100

Table 6: shows the course of the disease among the respondents. Fifteen (60%) cases had relapsing remitting course, 7 (28%) had secondary progressive course and 3 (12%) had primary progressive multiple sclerosis.

Table 6: Distribution of the cases according to course of the disease (n=25).

Disease course	Number of patients	Percentage
Relapsing remitting MS	15	60.0
Secondary progressive MS	7	28.0
Primary progressive MS	3	12.0
Total	25	100

The clinical presentations are summarized in Table 7. Out of 25 study cases, 23 (92%) had motor weakness, 10 (40%) had both upper and lower limbs weakness, 13 (52%) had only lower limbs involvement, 20 (80%) had rigidity of their limbs. Sensory symptoms, like numbness and paresthesia, diminished or loss of sensation, were found in following order respectively (84%, 60% and 4%). Impaired vision was found in 16 (64%) cases. Seven (28%) cases had pain in their eyes. Symptoms like ataxia, sphincteric disturbance, paroxysmal attack were found in a large number of patients {8 (32%), 23 (92%), 8 (32%), respectively}.

Table 7: Clinical presentation (n=25).

Presentation	Number of patients	Percentage
Weakness		
Upper + lower limb	10	40.0
Only lower limb	13	52.0
Only upper limb	0	0
No weakness	2	8.0
Rigidity	20	80.0
Sensory function		
Diminished	15	60.0
Lossed	1	4.0
Normal	9	36.0
Numbness/paresthesia	21	84.0
Impaired vision	16	64.0
Both eyes	8	32.0
Only left eye	3	12.0
Only right eye	5	20.0
Pain in the eyes		
Only right eye	1	4.0
Only left eye	1	4.0
Both eyes	5	20.0
Diplopia	1	4.0
Ataxia	8	32.0
Urinary Sphincteric Disturbance	23	92.0
Urgency	7	28
Incontinence	5	20
Retention	5	20
Frequency	3	12
Hesitancy	3	12
Paroxysmal attack (painful tonic spasm)	8	32.0

Functional status of the study patients has been shown in Table 8. Nine (36%) patients had restricted activities, 7 (28%) 12 were bedridden, 3 (12%) were chair bound, 4 (16%) suffered only minor disabilities and were still in work, and 1 (4%) had died.

Table 8: Present functional status (n=25).

Function Status	Number of patients	Percentage
Restricted activity	9	36.0
Bedridden	7	28.0
Chairbound	3	12.0
Minor disability	4	16.0
Normal activity	1	4.0
Expired	1	4.0
Total	25	100

DISCUSSION

Multiple sclerosis is an uncommon condition in Bangladesh, and its prevalence, incidence and other demographic data remains to be determined.[11] So far my knowledge goes no study has yet been published on multiple sclerosis in Bangladesh. The present study

disclosed that certain clinical features of multiple sclerosis patients are different from those of multiple sclerosis patients in western countries, but the age distribution in Bangladeshi multiple sclerosis patients were not significantly different from those of western and other Asian countries.[12] The present study was carried out to find out the initial symptoms of multiple sclerosis among Bangladeshi patients. The study subjects were taken from the Department of Neurology (both indoor and outdoor), Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh. During the study period, from January 2002 to December 2003, 25 multiple sclerosis patients were evaluated diagnostic criteria for multiple sclerosis 23.[13] Clinical examination and laboratory investigations were done in all patients. In this study, 12 (48%) patients were male and 13 (52%) were female (ratio 1:1.08). There was no marked female preponderance like other countries. The male female ratio in various countries are - USA 1:1.8, Northern Ireland 1:13, US army 1:1.8, Japan 1:1.3, Taiwan 1:3.2, Hawaii 1:3.2, India 1:3 and Thailand 1:3.[14] The male female ratio is higher in our country than western and oriental countries. Predominant male health seeking behavior and also less allocation of hospital beds for female patients in country may explain the above. These findings are not consistent with those of Acheson, who previously pointed out that the preponderance of female over male patients seemed to be greater where the incidence of multiple sclerosis was low than where it was high 27. We did not find any familial case. This may be because of multiple sclerosis start to be diagnosed during last few years in our country, and general population has no idea about this disease.[15] With regard to initial lesion, this study showed that optic neuritis (16/25, 64%) was common initial lesion among the Bangladeshi multiple sclerosis patients.[16] Five (20%) patients had optic neuritis alone, seven (28%) had optic nerve and brain involvement, four (16%) had optic nerve and spinal cord involvement. It was 43% in Japanese nationwide series, 14% in Israel, 43% in Brazil, 36% in Germany, 56% in Taiwan, 28% among UK army and 25% in the USA.13 Optic neuritis was lower than Thai series (68%) as shown by Jitpimolmard and Vejjajivaas, which is almost equal to Korean patients, where it was 64%. It is interesting that the incidence of optic neuritis when combined with spinal cord and brain involvement, it was even higher among Bangladeshi patients. Though multiple sclerosis is not different from the western variety, an increased frequency of visual involvement is a common feature in Asian variety 32.[17] Seven (28%) patients had only spinal cord involvement presented initially as myelitis, which is comparable in percentage with the other series (28.46%). The frequency of brainstem and cerebellar lesions were much lower than the US army, Brazil, USA, Japan, China and Taiwan. This is because of the use of brainstem evoked potential in developed countries that unmasked the silent lesion in the brainstem. Twenty three (92%) patients developed weakness of the limbs. It is much higher than Germany (43%), USA (54%), Japan (24%) and Taiwan (40%) series. This is because that our patients usually presents late in the disease course. Sphincteric abnormalities in the present group differ extensively from reported series in other countries.[18] It was 22% in Brazil, 10% in Germany, 30% in the USA, 4% in Taiwan and 23% in Korea 36. One of the striking features of this study was the high incidence of painful tonic seizure (PTS) specially in cases with severe spinal cord involvement. This phenomenon was seen in 8 (32%) patients out of 25 multiple sclerosis cases. Shibasaki and Kuroiwa 39 found the condition in 11 (17.2%) patients out of a consecutive series of 64 patients with multiple sclerosis, a much higher incidence than has been found in western countries. In Thailand, Jitpimolmard and Vejjajiva observed no less than 3 in 15 patients with multiple sclerosis.[19] It appears, therefore, that PTS is relatively frequent among multiple sclerosis patients in Bangladesh and in Asian countries where cases with severe spinal cord involvement are more frequently encountered.

CONCLUSION

Multiple sclerosis is a leading neurological disease causing chronic disability in young adults, especially in western countries, which might cost a large amount of money to each year. It has been established that multiple sclerosis in Bangladesh exhibits some clinical difference in its initial neurological symptoms from those of western countries but not from most of the Asian countries, which may be due to racial, genetic and environmental influences.

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