

Pain in Multiple Sclerosis: A South Indian Experience

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ABSTRACT

Pain is a common symptom in multiple sclerosis (MS), with a significant proportion being chronic pain. The profile of MS shows differences based on geographical regions and it has been inadequately studied in South India. The aim of this study was to understand the profile of MS in South India, with specific reference to pain. Patients admitted to a quaternary care center with an MS clinic between 2002 and 2009 were included in the study. Out of 51 patients with MS, 30 patients were followed up and their disability and quality of life (QoL) were assessed. The instruments used were the Kurtzke expanded disability status scale (EDSS) and SF-36 questionnaire. We found that there is a clustering of patients from three districts of Kerala (Ernakulam, Thrissur, Kottayam) probably suggests genetic and environmental factors in the pathogenesis of MS or it may be because of a referral bias. The predominant clinical features were motor and sensory system involvement, which is similar to studies from Northwest India. We conclude that pain is a major symptom compared to similar studies from other Indian regions and as found in other cross-cultural studies. We also suggest measures to improve the current scenario in India.

Keywords: Multiple sclerosis, Pain, Quality of Life.

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INTRODUCTION

Multiple sclerosis is a dynamic immunological disorder affecting the central nervous system. The problem of multiple sclerosis (MS) can be studied by two approaches. In the first and popular method, MS can be split into its various aspects, like clinical profile, immunological

basis, pathology, molecular genetics, etc. This approach, called reductionism, tries to 'understand the nature of the complex things by reducing them to the interactions of their parts'. However, multiple sclerosis being a complex disorder with protean manifestations, it can also be studied by the Holism approach, which incorporates the idea that 'the whole is more than the sum of its parts'. It is desirable to acquire a shift from the traditional reductionist approach to a more holistic approach in MS which views patient-related factors, like their awareness and attitudes toward the illness, quality of life (QoL), economic factors, family support systems, national health policies, health insurance and MS support groups and also drug-related factors, like the efficacy of the available treatments, its availability and its affordability. The following heading briefly describes the various aspects of our understanding of MS.

We decided to study the problem from both the reductionist and holistic perspective because they mutually complementary. This is because pain has emotional and cognitive components which also contribute to the disability and this can be understood from both perspectives. From our database of MS patients we analyzed whether they agree with already established viewpoints by comparing them with other Indian MS studies or whether they represent a distinct subset, which is hitherto unaddressed and also attempted to study patient and drug-related factors.

In the past, only a few authors have investigated the clinical profile of MS in India of which only one large series original article was from South India.¹ The patient and drug-related parameters mentioned above, including pain, has not been studied so far to the best of our knowledge. Hence, we undertook this study at the MS clinic in Amrita Institute of Medical Sciences, Cochin, Kerala, which is a tertiary care referral university hospital where a multimodal approach toward MS management includes expanded disability status scale (EDSS) assessment by a qualified rater, assignment to clinical trials, clinical psychological assessment and cognitive behavioral therapy, physiotherapy and occupational therapy. The psychological impact of the MS was found to be significantly associated with the severity of the disability.²⁻⁸ Only a few authors have investigated the QoL in MS and there is no such study from India.

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Patients

The study was conducted at Amrita Institute of Medical Sciences, Kochi, India. It is a retrospective-prospective study. We studied the case records of all central nervous system demyelination spectrum disorders from 2002 to 2009, of which 51 patients had a diagnosis of multiple sclerosis, 44 acute disseminated encephalomyelitis, eight clinically isolated syndromes, and 14 had optic neuritis. Out of 51 patients with MS, 30 patients were followed up and their disability and QoL were assessed.

The inclusion criteria were clinically definite MS, according to Poser criteria.

Demographic data, like age, sex, marital status, socio-economic status and education were recorded. Clinical data concerning MS type, duration of disease, EDSS were assessed by a qualified neurologist.

Quality of life was assessed by filling a questionnaire by literate patients and by verbal communication for illiterate patients.

The efficacy of the available treatments, its availability and its affordability were also assessed. The following investigations were done, routine hematology, blood chemistry, cerebrospinal fluid study, vasculitic work up (in suspected cases), evoked potentials and magnetic resonance imaging (MRI) scans. These results were compared with other Western and Indian studies.

Instruments

Expanded Disability Status Scale

The Kurtzke EDSS is a method of quantifying disability in multiple sclerosis.

The EDSS quantifies disability in eight functional systems (FS) and allows neurologists to assign a functional system score (FSS) in each of these. The functional systems are: pyramidal, cerebellar, brainstem, sensory, bowel and bladder, visual, cerebral and other. Expanded disability status scale steps 1.0 to 4.5 refer to people with MS who are fully ambulatory. Expanded disability status scale steps 5.0 to 9.5 are defined by the impairment to ambulation.

Short Form 36 Health Survey

We assessed the QoL in our MS patients using the short form (SF-36) questionnaire. The SF-36 questionnaire is one of the most widely used health related quality of life (HRQoL) instruments. It was devised to satisfy the minimum psychometric standards necessary for the group comparisons involving general health dimensions (not specific to age, disease, or treatment group).⁹

STATISTICAL ANALYSIS

Statistical package for social sciences (SPSS) 14.0 was used to analyze the data. Univariate and bivariate analysis was used for analyzing the data.

RESULTS

The Demographics of Multiple Sclerosis

The general characteristics of the 51 MS patients included: age range (02–75) with a mean \pm SD 37.7 \pm 18.1 years. Out of them, 31(60.8 %) were females and 20 (39.2%) were males with a male: female ratio of 2:3. The largest number of patients were from the following districts of Kerala: Eranakulam, Thrissur and Kottayam.

Clinical Features of Multiple Sclerosis

Multiple sclerosis had an acute onset in 40 (78.4%) patients and the remaining had insidious onset. In eight (15.7%) patients there was history of antecedent fever prior to the onset of symptoms. In two (3.9%) patients it was temporarily related to vaccination. There was no family history of similar illness (MS). Forty-seven (92.1%) patients had relapsing-remitting MS, one (2%) had primary progressive MS and three (5.9%) had secondary progressive MS. Symptoms were of acute onset in 78.4% and insidious onset in the rest. The most common symptoms at onset were motor weakness (51%). Sensory symptoms were also noted in an equal number (51%) (Graphs 1 and 2).

Neuroimaging

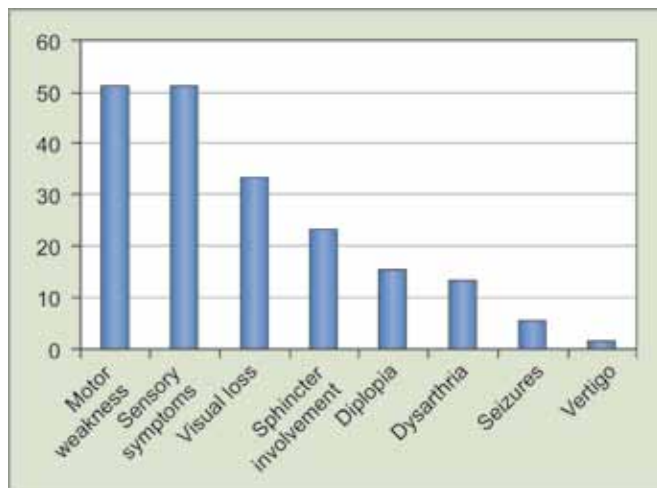
Magnetic resonance imaging protocol included a sagittal spine screening which will increase the yield of spine lesions. Magnetic resonance imaging was done in all patients. Multiple lesions were seen in 45 (88.2%) patients. The most common lesions were periventricular and subcortical white matter (62.8%). Brainstem lesions were found in 22 (43.1%) patients. Spinal cord lesions were found in 17 (33.3%), cortical lesions were seen in 16 (31.4%), deep gray matter involvement in 11 (21.6%) and contrast enhancement in 20 (39.2%) (Graph 3).

Evoked Potentials

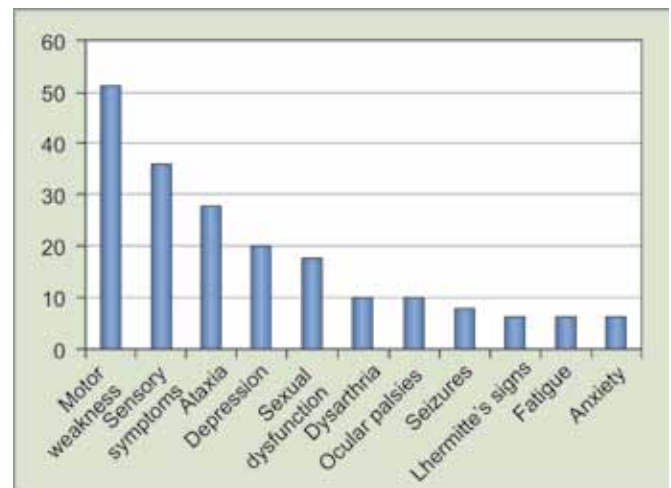
Visual evoked potential was abnormal in 26 (51%) and brainstem auditory evoked potential was abnormal in 12 (23.5%).

Cerebrospinal Fluid Examination

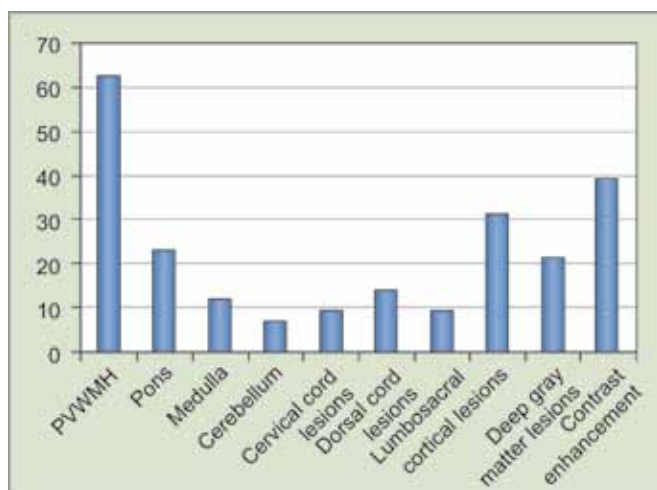
Lumbar puncture was performed in all 51 patients. The opening pressure was normal in all patients. The



Graph 1: Neurological symptoms in multiple sclerosis at onset



Graph 2: Symptoms on follow-up



Graph 3: Magnetic resonance imaging characteristics in our patients

Table 1: Disability and quality of life scores

EDSS	Patients (%)
≤ 2	54.6%
2.5–4.5	24.5%
≥ 5	19.9%

SF-36	Summated score (0–100)
Vitality	20
Physical functioning	35
Bodily pain	41
General health perceptions	10
Physical role functioning	5
Emotional role functioning	25
Social role functioning	64
Mental health	34
Physical summary score	31
Mental summary score	29

most common abnormality was raised proteins (32.6%). Oligoclonal bands were positive in six patients (11.8%). Cerebrospinal fluid cell count ranged between 0 and 6 cells/cumm, all were lymphocytic predominant. Cerebrospinal fluid protein ranged from 21 to 52 mg%.

Expanded Disability Status Scale and Quality of Life

A total of 54.6% of the patients had EDSS score ≤ 2, 24.5% between 2.5 and 4.5 and 19.9% ≥ 5 (Table 1). Quality of life was impaired in both physical and mental domains.

Factors related to Treatment

Thirteen of our patients were on interferon therapy, of these eight were on Avonex® and five were on Rebif®. A common reason cited for not taking interferon was financial constraint. This was compounded by the lack of national health scheme delivery, health insurance and support groups.

DISCUSSION

How Our Data contributed to the Reductionist Stand Point?

Our study reflects the experience of MS from tertiary care center in Kerala spanning a period of 8 years. From a reductionist point of view, our findings are by and large similar to that described earlier in the literature. The male female ratio in our study was 2:3. This was similar to that described by Singhal¹⁰ and similar to the Gangopadhyay et al.¹¹ The clustering of patients from three districts of Kerala (Eranakulam, Thrissur, Kottayam) probably suggests genetic and environmental factors in the pathogenesis of MS or it may be because of a referral bias. The predominant clinical features were motor and sensory system involvement, which is similar to studies from Northwest India. The presence of visual impairment is low (33.3%) which is comparable to the study from eastern India. This dispels the myth that optic nerve involvement is the commonest presentation in this population.¹¹



Patients were nonresident Indians residing in the middle East and they developed MS while they were there. This probably again points to an environmental component or a bias because of the large number of non-resident Keralites. Relapsing-remitting course was common in our patients. On MRI, periventricular white matter lesions were found in 62.8% compared to only 33.33% in the Sarma et al.¹ Cerebrospinal fluid oligoclonal band yield was low which is in conformity to that reported in the Chinese and Japanese reports.⁴

How Our Data contributed to the Holism Approach?

Patient and drug related factors, including QoL have been assessed and this stands apart from the rest, in our study. The SF-36 QoL questionnaire was translated and validated in Malayalam. All our patients were literate. In our study, generally, the patients scored middle and low on all QoL subscales. Benedict et al in their studies, reported that HRQoL was poor in MS patients.¹² Previous studies demonstrated that psychological well-being and QoL were reduced in MS patients and were inversely related to the disability status.¹³⁻²⁰

Cognitive and behavioral manifestations were studied prospectively and depression/anxiety and pain were common problems.

The mortality of MS was relatively low (<5%). However, the disability as assessed by EDSS was high and most of them required support of ancillary departments like occupational therapy and also symptomatic treatment for spasticity. Pain was a major symptom which contributed to the psychological morbidity.

Awareness about MS and its treatment was high in our patients on follow-up. However, the major deterrent stated by our patients was lack of financial support, apart from other problems with logistics.

Suggestions to improve the Current Scenario in India

Need for MS clinics and MS registry and their role in major centers: The clinic should aim at a holistic approach with the help of a multidisciplinary support. Example, in our center patients were on Botulinum toxin therapy for spasticity and bladder problems which can symptomatically improve QoL.

Nodal physician identification: As the number of neurologists in India is limited it is essential to identify physicians and train them in MS diagnosis and management.

Build a trust of funds: On similar lines as the delivery of other expensive treatments like coronary stents, the development of a trust of funds can be utilized to reduce

the cost of MS therapy. Also, as more patients are treated, the prices will come down.

Improvement of QoL: Most patients are young and early disability has a significant effect on their psychological profile. Most of them are anxious and depressed and the clinics should involve a psychologist to promote treatments like cognitive behavioral therapy and relaxation techniques.

Support groups: They should guide the patient as it may not be always possible for a Doctor to devote adequate time in such a multi symptomatic diseases where various levels of intervention will be required at different points of time.

Clinical trials: Thankfully, clinical research in India has come a long way in helping the problem of MS and more research trials are in the pipeline.

Alternative medicine: As MS is a degenerative disorder with no absolute curative therapies; judicious use of well-researched alternative medical therapies is also an option which patients often seek solace in.

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