



CODEN [USA]: IAJ PBB

ISSN: 2349-7750

**INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.1344173>Available online at: <http://www.iajps.com>

Research Article

**A HOSPITAL-BASED CLINICAL PRESENTATION OF
MULTIPLE SCLEROSIS IN PAKISTAN COMPARATIVE TO
STUDIES OF OTHER REGIONS**¹Iqra Iqbal, ²Zahra Abbas, ³Bushra Asghar¹Nishtar Hospital Multan²WMO DHQ Layyah³Allied Hospital Faisalabad**Abstract:**

Objective: The research objective is the assessment of multiple sclerosis, presented clinically.

Methodology: Our research uses hospital-based observation at Services Hospital, Lahore (Neurology Dept. from March, 2016 to February, 2017) studying patients with multiple sclerosis, diagnosed on the criteria of Poser. The basis of our observation includes gender, age, family history, clinical course, symptoms and signs, visual evoked potentials, MRI, oligo-clonal band and cerebrospinal fluid.

Results: The subject size was twenty including thirteen females and 1:2 Male ratio Female. At clinical presentation, mean age was recorded as 25.80 years, visual defect seventy percent, paroxysmal spasm twenty-five, sensory impairment thirty-five, sphincter disturbances sixty, cerebellar signs thirty, and pyramidal weakness seventy-five percent each. The presentation of MS included secondary Progressive MS, Relapsing and Remitting MS, Primary Progressive MS and Progressive Relapsing MS with a percentage of 20, 55, 15, and 10 respectively. Results of 5%, 55%, 75%, 85%, and 100% reported positive in oligo clonal bands, MRI, OS type, visual evoked potential abnormality, and cervico-dorsal respectively.

Conclusions: MS is very common in Pakistan with the ratio of affection between female and male as 2:1 respectively (mean age: 25.80). Clinical results with oligo clonal band at low yield and high optico-spinal occurrence are in agreement with variety of diseases in Asia.

Key Words: Cervico-Dorsal (CD), Optico-Spinal (OS), Multiple Sclerosis (MS), Oligo clonal Bands (OB), Magnetic Resonance Imaging (MRI), Cerebral Spinal Fluid (CSF) and Central Nervous System (CNS).

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Please cite this article in press Iqra Iqbal et al., *A Hospital-Based Clinical Presentation of Multiple Sclerosis in Pakistan Comparative to Studies of Other Regions.*, *Indo Am. J. P. Sci.*, 2018; 05(08).

INTRODUCTION:

MS is an inflammatory disease mediated by acute immune causing axonal loss and nervous system's focal demyelination. Chances of demyelination are limited and indeterminate [1, 2]. The characterization of disease is done as separated parts of CNS involved in lesions and time of occurrence. MS mostly starts at adult age and follows variable path resulting significant morbidity [2]. The features of MS include ethnicity factors and geographical setting [3]. This disease resides in Caucasia and reports show its existence in West on large scale [4]. Few cases have been stated from South Asia [5 – 7]. In Asia, spinal cord and optic nerve impairment before the disease dominates is a common case in Asia [8]. The objective of our study was to follow the path and pattern of MS clinically in a highly sophisticated healthcare centre of Pakistan.

METHODOLOGY:

Being among the largest tertiary hospital of Pakistan, our research setting was selected to be Services Hospital, Lahore. Subject size of 20 patients with MS (according to criteria of Poser [9]) were selected from March, 2016 to February, 2017. At clinical presentation, onset age, gender, history of family, visual and sensory defects, paroxysmal spasm, cerebellar signs, disturbances in sphincter, and pyramidal weakness were recorded as parameters. Primary and secondary progressive, progressive relapsing MS, and relapsing remitting were the clinical course of our research. Our clinical procedure included primary and secondary progressive,

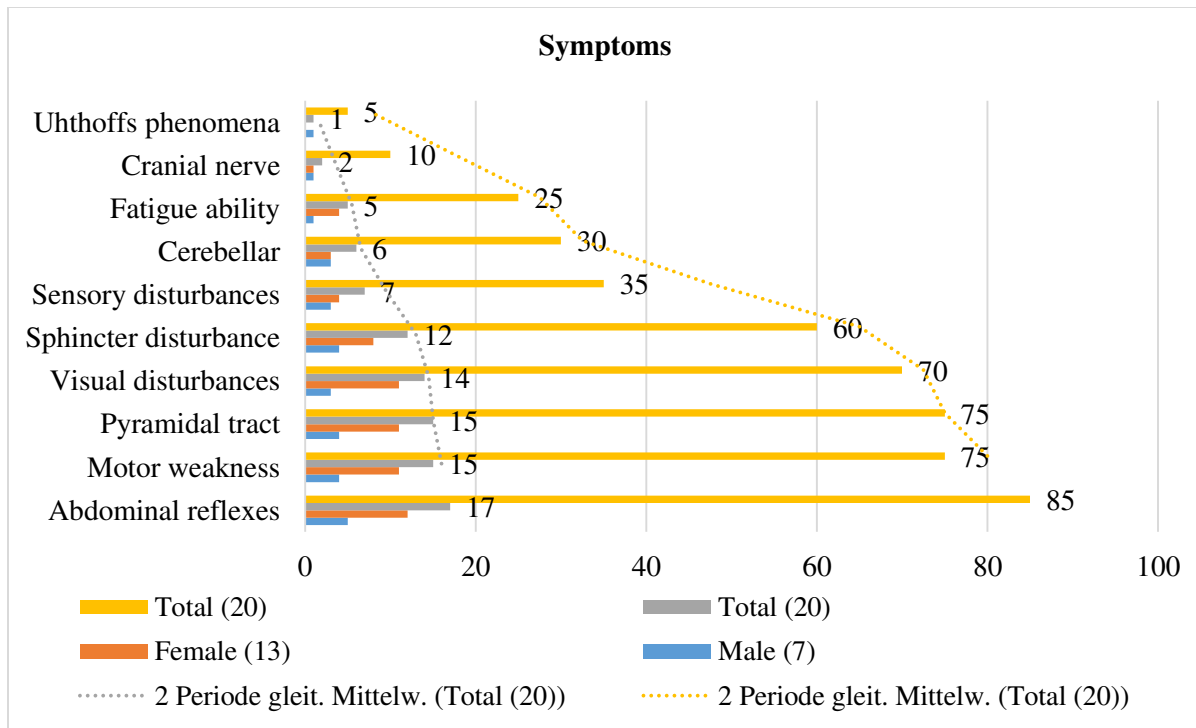
relapsing remitting and progressive relapsing Multiple Sclerosis. The compositions of MS topology were cerebellar and spinal only, OS, OS-cranial, optico-cranial, spino-cerebellar, and OS-cerebellar. The condition for OSMS consideration was the parallel/within weeks' development of transverse myelitis and bilateral visual damage with/without following improvement [8,10]. According to the criteria of Poser, patients were categorised as clinically/lab-supported definite and clinically/lab-supported probable MS. To ensure MS and exclude other diseases, CSF analysis, MRI, blood test and VEP test were carried out. In blood test, double strength DNA, rheumatoid factor, anti-nuclear antibodies, ESR, biochemistry and blood count were tested. VEP, CSF, MRI were performed for central demyelination evidence, oligo clonal bands, and to spot brain for white matter lesions.

RESULTS:

Subject size of 20 with male-female ratio as 1:2 (female 13, male 7). The mean age for male was 27.70 and for females 25.07. CPMS were 35%(7) and CDMS were 65%(13) according to Poser's criteria. The clinical course was followed with 20%(4) SPMS, 55%(11) RRMS, 10%(2) had PRMS, and 15%(3) had PPMS. Involvement of Pyramidal tract and motor weakness (75%) observed during MS presentation following sphincter disturbance, visual impairment, cerebellar involvement, paroxysmal spasm, and sensory disturbances at 60%, 70%, 30%, 25%, and 35% cases respectively (Table-I).

Table – I: The list of symptoms

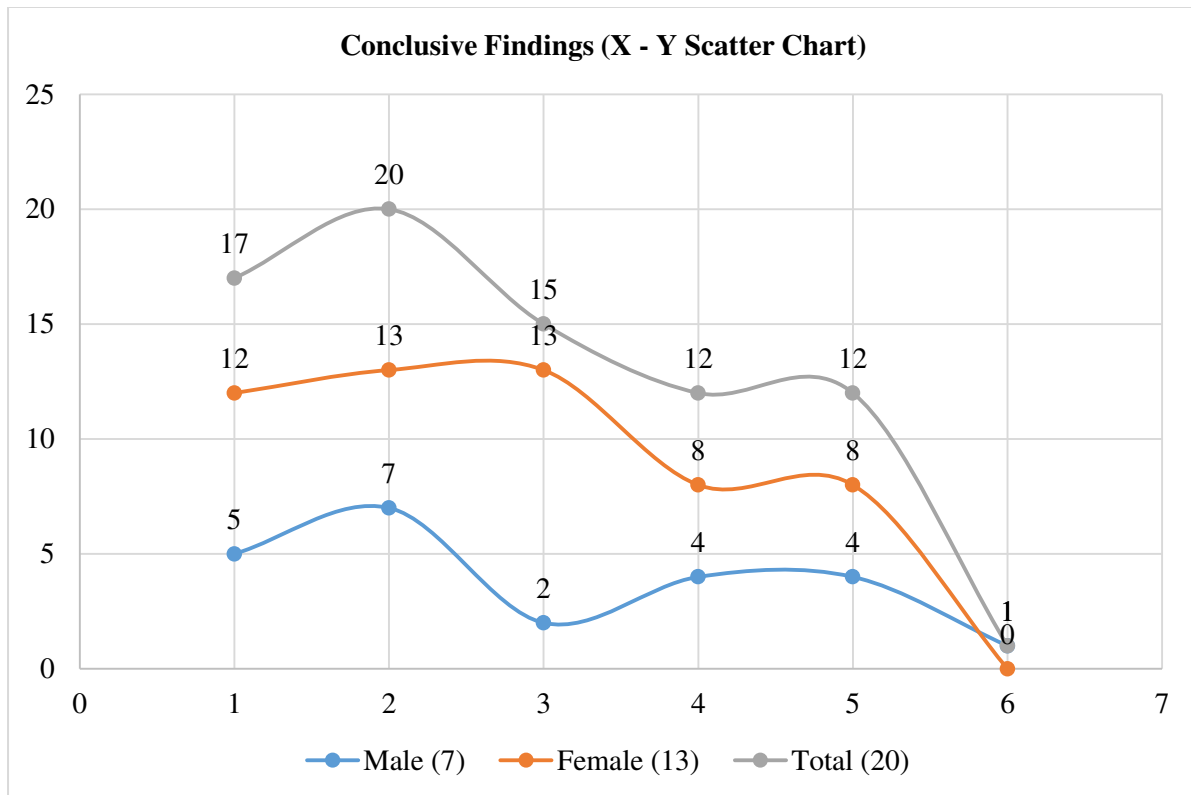
Clinical features	Male (7)	Female (13)	Total (20)	
			No	Percentage
Abdominal reflexes	5	12	17	85
Motor weakness	4	11	15	75
Pyramidal tract	4	11	15	75
Visual disturbances	3	11	14	70
Sphincter disturbance	4	8	12	60
Sensory disturbances	3	4	7	35
Cerebellar	3	3	6	30
Fatigue ability	1	4	5	25
Cranial nerve	1	1	2	10
Uhthoff's phenomena	1	0	1	5



Topography results included patients with OS form (55%) where twenty percent had pure OSMS (or Neuro-myelitis optica), thirty-five percent had OSMS with MRI positive, cerebellar only in ten percent, and optic-spino-cerebellar in fifteen percent (Table-II). Only one patient (5%) with oligo clonal band, the rest had CSF normal. VEP results showed abnormal presentation with 85% (17) cases of demyelinating disorder.

Table – II: Findings of all investigations

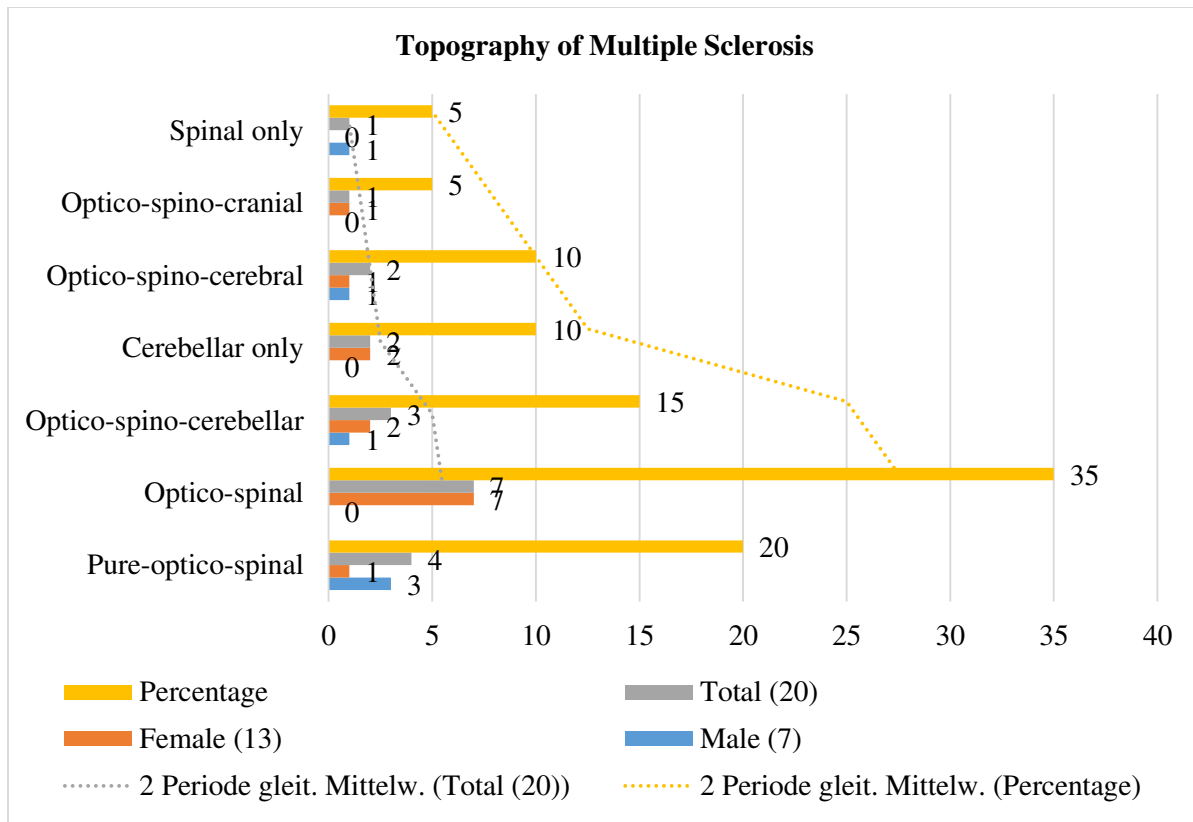
INV	Male (7)	Female (13)	Total (20)
VEP	5	12	17
MRI (Brain)	7	13	20
Abnormal	2	13	15
MRI (Spinal)	4	8	12
Abnormal	4	8	12
OCB	1	0	1



Only 75% (15) of the cases were found compatible MRI with MS out of all twenty. Demyelination resulted positive in all twelve cases that went through cervico-dorsal MRI. Out of twelve cases (20%) going through both brain and spinal MRI with normal scan (Table – III).

Table – III: MS topology

Topography	MRI Brain 20(7Mand13F)75%	MRI Spine 12(4Mand8F)60%	Male (7)	Female (13)	Total (20)	Percentage
Pure-optico-spinal	-VE	+VE	3	1	4	20
Optico-spinal	+VE	+VE	0	7	7	35
Optico-spino-cerebellar	+VE	—	1	2	3	15
Cerebellar only	+VE	—	0	2	2	10
Optico-spino-cerebral	+VE	—	1	1	2	10
Optico-spino-cranial	+VE	—	0	1	1	5
Spinal only	-VE	+VE	1	0	1	5



DISCUSSION:

MS is not common in tropical area. Neuro-epidemiological researched did not report any MS cases in South Asia [11]. Sri Lanka and Iran has less cases while India has several reports of MS [5, 7, 12, 13, 14]. According to our study, Pakistan has less study about the clinical spectrum of MS [15]. In this study, mean age was recorded 27.80 with youngest of 17 and oldest of forty [14, 15, 18, 19]. Male/female ratio was reported as 1:2 respectively. Some studies like Kurtzket al (in US) [20], and Brazilian reports showed female predominance [17, 21]. Our reports observed 65% relapsing-remitting and 35% secondary progressive as 2nd most common case which is in union to Bhatia et al [16] and Singhal and Wadia [14] but Brazilian results showed 91% of relapsing-remitting, one percent of SPMS, and 8% of PPMS [17, 22]. In Asia, pyramidal, cerebellar and optic involvement and sensory disturbances were presented with the frequency of 75%, 10%, 70%, and 35% respectively [23 – 25]. These results are in a correlation with Japan [25] and south Asia [23]. OSMS with MRI normal were observed in 20% (4) patients at a ratio of 3:1 as Male: Female, however oligo-clonal band found negative in all four patients. A study in Japan [28, 29] reported definite female

majority with 8.50% (10) cases of OSMS pure out of 117 of MS. Our study observed 35.0% (7) OS patients who had transverse myelitis and optic-neuritis with MRI positive. The following studies (African-Brazilian) showed clinical form OSMS reports; Leite et al 15.5% [32], Papaiz-Alvarenga et al 5.6%/31.80% [27], and Lana-Peixoto 12%/24.01% [21] who also suggested similarities with Asian patients of MS. In diagnosing MS, MRI has become key investigation due to fifty to ninety-five percent of positive cases with MRI [34, 35]. In our research, 100% and 75% accuracy has been recorded with spinal and Brain MRI respectively. MRI itself yields eighty percent accuracy [35, 36]. The results of MRI favours strongly but does not diagnoses MS. Due to gamma globulins' abnormal synthesis represented by CSF OB in CSF, an immune-pathological process is strongly implicated [37, 38]. Reports found Asian CSFOB cases ranging from thirty-three to 45% [40, 41] while Caucasians to be stable at 90% [39]. Our study observes five percent positivity in OB. VEP's abnormality were found in 85.0% cases in our studies. MS prevalence in Brazilian studies [27, 32] estimated at 32-years mean age and 8-fold occurrence in females to males which is considerably lower comparing to Western countries. However, RRMS

patients here have higher proportion comparing to Western population.

We found many distinguished patterns of MS in Asia which differentiates Pakistan's MS cases from Western MS cases [33]. Ratio of occurrence is 1:15 in West comparing 1:2 ratios as Female to Male. RRMS patients number was 55.0% comparing to Brazil (91.01%) and South Asia (89.0%). Same wise, in our study number of cerebral cases were also observed lower comparing to other studies.

CONCLUSIONS:

Our study concludes that MS is common in Pakistan with majority of the female cases, as observed in all over the world. Clinical pattern has more similarities with Asian studies than Western studies. OSMS is found higher in reports than reports of Brazil, South Asia, and Japan. CSFOB is found less than other Western and Asian series.

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