



Full Length Research Paper

What is the first clinical manifestation in multiple sclerosis patients?

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Multiple sclerosis is one of the most common neurologic diseases which has a growing prevalence. This disease is common among the young population and causes them sever neurological disability. Early diagnosis and treatment can reduce the number of attacks and their severity in patients and plays an important role in the enhancement of patients' health level and their quality of life. As the primary clinical manifestations of MS are variable and nonspecific, and also different studies statistically have declared different comments about them, so in this study the prevalence of each possible primary clinical manifestation in MS patients of Hamadan is reviewed on the basis of age, sex and the type of clinical manifestation. In this study 500 MS cases who were referred to neurologic clinics and MS institute of Hamadan and had the entrance criteria were studied and a questionnaire including demographic information and most common primary clinical manifestations was completed for each of them. After that, the collected data was analyzed by SPSS 16 software. In this study 394 patient (78.8%) were female and 106 of them (21.2%) were male. The study population had a pic range of 20-40 years old in their age. Mean age in onset of MS was 29.4 ± 8.7 (min age of 11 and max age of 62 years old). The most common primary clinical manifestations of MS were visual symptoms in 31.6%, sensory symptoms in 19.8%, balance symptoms in 16.7%, and motor symptoms in 13.8% of the patients respectively. No significant difference was seen between the prevalence of primary clinical manifestations between males and females. In this study, visual symptoms (optic neuritis and diplopia) were the most common primary clinical manifestations in all age ranges of the study population of MS patients followed by sensory symptoms as the second common primary clinical manifestations. As a conclusion, these results show the necessity of medical team alertness including General Physicians, neurologists and ophthalmologists about early diagnosis of MS. It is recommended to perform studies with more extended population involved in order to have a more reliable comparison between the prevalence of MS clinical manifestations on the basis of their age, sex and location.

Keywords: Multiple Sclerosis, first, clinical manifestation.

INTRODUCTION

The destruction and inflammation of central nervous system characterize demyelinating disorders. Multiple

sclerosis is the most common neurologic diseases and after trauma is the second reason of nervous abnormalities which has an early or middle adult onset. According to studies, Multiple sclerosis is a chronic autoimmune disorder with damage to axons and neurons and oligodendrocytes (Longo et al., 2012; Gharagozli et

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al., 201; Soltanzadeh et al., 2008).

In this disease, immune system attacks to myelin make to naked axons and then slowing nervous conductivity and as a result appearing neurologic symptoms. Incidence In females are three common more than males and that appearance in males is later. The onset of the disease is typical between 20-40 years (Longo et al., 2012; Nessler and Bruck, 2010). Almost 2.5 million people are affected through the world (Longo et al., 2012; Aminoff et al., 2009). In some province of Iran, Prevalence of MS has evaluated which happens 62.56 in each 100000 persons in Hamadan city (Etemadifar et al., 2013). MS initiated suddenly or progressively and symptoms may be severe or slight as individual don't come to physician for a long time (Nessler and Bruck, 2010; Anderson et al., 1999). Signs of MS are very more variable and depend on the severity and location of lesions in CNS. The weakness of limbs may be appearing by a loss of power or efficiency, fatigue and gait disabilities. Weakness arising from lack of physical activity is characteristic of MS. Optic neuritis evolves over reduced visual, blurring of vision or impaired perception of color in center of visual field.

Recent investigations and common articles either cohort studies or case-studies indicated different clinical symptoms that appear as the first clinical manifestation of MS which most important of them including cognitive disorders such as memory abnormalities, Dysarthria, aphasia, disruption to navigation and ocular signs such as blurred vision (optic neuritis), diplopia, floater and motor disturbance like as limb weakness in one or two or all limbs, spasticity, muscular atrophy, cramp, hypotonia, myopathy and sensory disabilities including paresthesia, dysesthesias, numbness, neuralgia, Lhermitte's sign, deep-sensory involvement and balance disturbance for instance ataxia, tremor, dysmetria, vertigo and or autonomic disturbance such as urinary incontinence, constipation, excrement incontinence and sexual disturbance and other clinical abnormalities (Longo et al., 2012; Aminoff et al., 2009; Anderson et al., 1999; Tourbah et al., 1998).

These signs are usually transient and disappear along several days or weeks (Longo et al., 2012). However, exact neurological examination may be indicated to remain some of disturbances. Possibility, there is distance between initial attack and appearance neurological signs. After this course of disease, new signs manifest or previous signs relapse and develop. Relapsing may be results of infection. The patient gradually deteriorate, after over time and several relapsing and fault improving, as a result of weakness, tightness and sensory disturbance, ataxia, vision disturbance and urinary uncontrolled. Diagnosis of MS is not accompanied by any test or single clinical sign (Longo et al., 2012). The variable clinically signs and similar paraclinically findings lead to that the diagnosis of MS do not perform easily and other neurologic and ever

non-neurologic disorders may be make a mistake with the diagnosis of MS and as a diagnosis of MS can cure and follow up. MS is increased from different world regions considerable and continually through past half-century as can be named "disease century". With due attention to MS purpose more young and active people, it can be considered already we encountered with difficulty remedy hygiene.

Investigation of referenced patients with MS suggestion through the first neurological sign are stating/present decreased appearance of weakness, diminished number and severity of relapsing MS attacks by reason of well-timed diagnosis. Therefore, understanding of prevalence and incidence of the first MS clinical demonstration in different inhabitants and early therapy of MS patients can be play undeniable role in management of illness and also improvement of condition hygiene and healthy of affected groups. Taking into consideration of MS prevalence and different statics which was expressed from frequency of the first clinical appearances in a variety of references and articles and not to be accomplished any comprehensive investigation in this field from west of country, for that reason to aid to diagnosis and onset of early therapy and avoidance from interventions and nonessential and expensive paraclinical experiments, we plan to assess frequency of the first clinical appearance of MS in one of provinces of west country.

METHODS AND MATERIALS

This study by procedure of descriptive-definitive was performed on 500 individuals of MS affected people that refer to neurology clinic of Hamadan city or MS society of province during 1393 and have necessary conditions to participate in this study. The diagnosis of MS based on clinical evidences and paraclinical findings including of MRI reports and results of SCF analysis by existing of oligoclonal band and also detection of MS disease determined by McDonald criteria then patients participate in this study. After explanation to patients and taking to inform consent, we used questionnaire form for collecting necessary information regards to aims of study. Information of each patient in related questionnaire was gathered that includes demographics information, sex and age of affecting to MS and the most common clinical signs in firstly attack of disease categorized in seven groups: conditions of cognition, vision, movement, sensory, balancing, autonomic and other clinical sign. Information of frequency of affected individuals based on affected age was categorized in three groups of less of 20 years, 20-40 years and more of 40 years. If the first appearance of disease was not mentioned in questionnaire form, this sign inserts/states in part of other clinical findings and analyzed similarly to other findings. Moreover, about patients expressed blurring of vision as

Table 1.

The first clinical symptoms	Frequency (person/percent)	Frequency of the most common disturbance	Symptoms were experienced simultaneously (at the same time experienced)
Cognition disturbance	21 (4.2%)	Dysarthria, 15(71.5%)	
Visual disturbance	249 (49.8%)	Optic neuritis, (61.8%)	Blurred vision and Diplopia 26 (5.2%)
Motor disturbance	9 (23.8%)	Hemiparesis and paraplegia (31.7%)	
Sensory disturbance		Paresthesia (47.6%) and unfeelingness (41.2%)	12 patients with paresthesia and unfeelingness, also 3 patients with paresthesia and Lhermitte's Sign and one else with Lhermitte's sign and deep-sensory involvement
Balance disturbance	122 (24.4%)	Ataxia (46.2%) and vertigo (40%)	4 patients with tremor and vertigo, 17 patients with ataxia and vertigo, two patients with ataxia and tremor
Autonomic disturbance	36 (7.2%)	Urinary incontinence (29.7%) and disruption in supply urine (24.3%)	Two patients with Bowel disorder and frigidity
Other disturbance	56 (11.2%)	Headache (25%) and fatigue (17%) and facial hemiplegia (17%)	Two patients with pain, fatigue and sleep disorder, three patients with fatigue and hot sensitivity

Table 2.

	Frequency distribution of patients based on gender		Ref
	Female (percent)	Male	
This study (Hamadan)	87.8	21.2	-
Tehran	78.2	21.8	2
Isfahan	77	23	16
Eastern Azerbaijan	73	27	17
Pakistan country	57	43	18

a first clinical appearance, if they have unilateral blurring of vision accompany with color-vision disturbance, depth-vision disturbance and normal funduscopy, they were diagnosed as an optic neurotic. It is important to give explanation to patients slightly and comprehensibly about the most vital and common clinical signs. Patients with an oblivion arising from cortical atrophy may not be remembering the first clinical appearance thus they removed from current study. There for information of 500 questionnaire forms were collected and analyzed by SPSS software version 16 and illustrate extreme conclusions.

RESULTS

In this study based on sexual category, 394 (78.8%) and 106 (21.2%) of participated individuals includes females and males, respectively. Based on age of affecting, It is 79 (15.8%) person with affected age less than 20 years, 376 (75.2%) with 20-40 years and 45 (9%) with more than 40 years. Mean age in onset of MS was 29.4 ± 8.7 (min age of 11 and max age of 62 years).

The patient may be show one or a number of MS clinical symptoms such as disturbances in conditions of

cognition, visual, sensory, motor, balance, autonomic and others that the most incidence was related to visual symptoms with 275(31.6%) of cases and cognition disturbance with 21(2.5%) of cases was the least. (Collectively, 870 persons with signs had been reported). The most common primary clinical manifestations of two genders were visual disturbances with 220 (32.5%) of females and 55 (28.5%) of males. Furthermore, Visual symptoms were the most common primary clinical appearance in each three age groups those incidences include 49 (38.5%) in fewer 20 years, 202 (31.4%) in 20-40 years and 24 (23.5%) in more than 40 years. Statics results of the first clinical symptoms observed in patients were shown in table 1.

DISCUSSION

The aim of this study was assessment of incidence of the first clinical symptoms in multiple sclerosis patients in Hamadan city (one of provinces of the west Iran).

Distribution of frequency of patients in terms of gender was shown in table 2, which compared with other studies. According to consequences, sexual percentage were concordant with earliest studies and all of investigations

Table 3.

	The most common disturbance	Others disturbance respectively	Ref
This study	Visual disturbance (31/6%)	Sensory, Balance, Motor, Autonomic and Cognition disturbance	-
Tehran	Motor Disturbance (43.5%)	Visual, Balance, Sensory, Cranial nerve disturbance and Fatigue.	2
US	Motor Disturbance (59%)	Balance, Sensory, Visual Autonomic	7
France	Visual Disturbance (34%)	Motor, Sensory, Balance, Urine disorders, Facial nerve palsy and Spasm	20
Esfahan	Motor Disturbance	Balance, Visual, Sensory	16
The North of Africa	Motor Disturbance	Visual, Sensory	19

showed more incidence MS in females relative to males. In this study, distribution frequency of patients according to affecting age was consist of 15.8% below 20 years, 75.2 % with 20-40 years and 9 % more than 40 years, also Mean age in onset of MS was 29.4. Results of this study compared with findings of other studies (Gharagozli et al., 2012; Hashemilar et al., 2011; Gouider, 2014) which shown MS affected people was younger.

The distribution incidence of the first or primary clinical appearance exists in table 3 that show the most common disturbance and other abnormalities respectively. Results of this study compared with other articles (Gharagozli et al., 2012; Anderson et al., 1999; Abtahi et al., 2012; Gouider, 2014; Clapin et al., 1998).

The last studies often have prepared frequency of clinical symptoms of MS disease but performed investigations of Tehran and US similar to this study; frequency of the first/primary clinical symptoms was assessed. There for, results of this study can be compared with articles of Tehran and US. In present study, visual disturbance was the most common primary clinical sign of MS disease in Hamadan province whereas motor disturbance was the most common primary clinical manifestation in Tehran and US.

The Distribution of incidence of primary clinical appearance showed that the most common signs in both genders were visual, sensory and balance disturbance, respectively. Moreover, disturbance of cognition of both sexual category have had the least frequency. In study of Tehran there were not differences in frequency of the first clinical sign between both genders that were concordant with present study (Gharagozli et al., 2012). In addition, comparison of finding based on age of onset showed which visual, sensory and motor symptoms were the most common clinical signs in lesser 20 years, visual, sensory and balance in 20-40 years, visual, balance, motor and sensory in more than 40 years.

In this study, Optic neuritis was the most common visual disturbance and after that diplopia exists. The Optic neuritis was expressed as the most common primary visual sign in investigations of Tehran and Esfahan and European, American countries and Russia and The North of Africa (Gharagozli et al., 2012;

Anderson et al., 1999; Ur Rehman, 2013; Gouider, 2014; Clapin et al., 1998; Ashtari et al., 2010). These results indicated more incidence of Optic neuritis in MS patients and also showed proper agreement between the present study and last articles.

Monoparesis, Hemiparesis and Paraparesis were the most common primary motor disturbance which be concordant with findings oh Tehran study (Gharagozli et al., 2012). The most common primary sensory disturbance was Paresthesia and unfeelingness. Performed study of America country showed Paresthesia, unfeelingness and Lhermitte's sign were common primary sensory symptoms. These results expressed Paresthesiais one of main primary sign of MS disease thus these had compatibility with present study (Anderson et al., 1999). The most common primary balance disturbance includes vertigo and ataxia that was agreeable with study of America country (Anderson et al., 1999). Also, Urinary incontinence, constipation was the most common primary autonomic disturbance that is compatible with researches of France, Pakistan and America countries (Anderson et al., 1999; Ur Rehman, 2013; Clapin et al., 1998). A headache, fatigue, facial hemiplegia and pain are composed the most common primary signs in other clinical symptoms category that had these frequency 3%, 2%, 2% and 1.5% respectively. The fatigue had 2% incidence in Tehran study (Gharagozli et al., 2012) and was one of the most common signs in Pakistan country (Ur Rehman, 2013).

According these results, compatibility can be observed between reported frequency signs in this study and other studies. It is important to mention that studies about assessment frequency of other clinical signs as a primary sign of MS disease did not perform thus there is not possibility to compare these finding by other studies.

In present study, the most clinical symptoms as a primary complaint of MS patients were Optic neuritis with incidence 170 cases (19.5 %), diplopia 101 cases (11.6%) and Paresthesia 82 cases (9.4%), respectively. Comparison of these results with other investigations is not possible because any research related to this field has not performed.

CONCLUSIONS

The assessment of MS patients of Hamadan province showed female have more frequency of disease than male and group of 20-40 years has the most much frequency. The visual disturbance has the most common frequency as a primary clinical signs and after that sensory, balance and motor disturbances are following. Also, visual disturbance was the most common sign in all age groups from study. In this study, the most common abnormality was visual disturbance, optic neuritis and diplopia.

Considerably, the vast spectrum Neurological symptoms can appears as the first clinical signs of MS disease, which these symptoms affected by biological, genetics and nutrient factors, as a result assessment of influence of these factors on frequency of the first clinical signs of MS disease would suggest. Also it is proposed to perform comprehensive studies with more statics community to comparison differences of frequency of the first clinical symptoms based on gender, age and geographical region of MS patients.

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