

Seyed Mohammad Masood
Hojjati (MD)^{*1}
Seyyed Ali Hojjati (MD)²
Mobina Baes (MD)³
Ali Bijani (MD)⁴

1- Department of Neurology, Babol
University of Medical Sciences,
Babol, Iran.

2- Shahid Beheshti University of
Medical Sciences, Tehran, Iran.

3- Babol University of Medical
Sciences, Babol, Iran.

4. Non- Communicable Pediatric
Diseases Research Center, Babol
University of Medical Sciences,
Babol, Iran.

*** Correspondence:**

Seyed Mohammad Masood Hojjati,
Department of Neurology, Babol
University of Medical Sciences,
Babol, Iran.

E-mail: dr.hojjati@yahoo.com
Tel: 0098 111 2238284
Fax: 0098 111 2238284

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Relation between EDSS and monosymptomatic or polysymptomatic onset in clinical manifestations of multiple sclerosis in Babol, northern Iran

Abstract

Background: Polysymptomatic or monosymptomatic patients of multiple sclerosis (MS) at the onset of the disease may influence the natural course of the disease. The purpose of this study was to determine the prognostic effect of the expanded disability status scale (EDSS) of patients with MS with polysymptomatic or monosymptomatic onset of the disease.

Methods: From 2001 to 2011, 263 patients with definitive diagnosis of MS were investigated in Shahid Beheshti Teaching Hospital in Babol, Iran. These patients were assessed regarding mono-or poly symptoms at the beginning of their disease. MRI of brain and spinal cord was done for all cases. These cases were evaluated every three months interval. EDSS of each patient at the beginning of their disease and then yearly were evaluated and registered.

Results: One hundred sixty-one subjects (61.2%) were monosymptomatic and 102 (38.8%) were polysymptomatic at the onset of their disease. The mean age of patients with monosymptomatic onset was 26.81 ± 84 while in polysymptomatic was 26.35 ± 7.7 years ($P=0.656$). Sex, place of residence and marriage status between these two groups were equal. The mean EDSS in monosymptomatic and polysymptomatic patients were 1.37 ± 0.64 and 2.16 ± 0.714 , respectively ($P=0.0001$). After the initiation of treatment, reduction of EDSS was seen in both groups but after the reduction in the first year, an increase of EDSS was seen in both groups. But there was no significant difference in the increase of EDSS in both groups.

Conclusion: The results showed that the mean EDSS in monosymptomatic was lower than the polysymptomatic patients before treatment, but after treatment, this value does not differ in the increase of EDSS.

Keywords: Multiple sclerosis, Monosymptomatic, Polysymptomatic.

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Multiple sclerosis (MS) is a chronic inflammatory demyelinating disease of the CNS of unknown cause. The disease typically begins between the ages of 20 and 40 (1). The disease is the most common inflammation and demyelination on the central nervous system (CNS) with unknown origin (2). The natural history of the disease is variable and most of the patients had complete or incomplete remission with recurrent relapses. Some patients have low clinical symptoms but most of the patients have progressive and have disability due to incomplete recovery or relapses (1). The disease is one of the most common reasons of disability in the young people (2).

Many factors including sex, age at the onset of the disease, involvement of the neurologic system at the beginning of the disease, the number of relapses during the early years and interval of relapses may influence in the prognosis of the disease (2-13). Early and appropriate treatment can change the natural course of the disease (1). The patients with polysymptomatic or monosymptomatic at the onset of the disease may have prognostic outcomes. The purpose of this study was to determine the prognostic effects and alterations of expanded disability status scale (EDSS) in MS patients with polysymptomatic onset versus monosymptomatic onset.

Methods

From 2001 to 2011, all MS patients admitted at the Department of Neurology in Shahid Beheshti Hospital, in Babol, North of Iran were evaluated. Our department serves more than 2000000 residents living in the central and the western part of Mazandaran. The diagnosis of the MS was established by MacDonald criteria (14). MRI of brain and spine was performed for all cases and they were followed up at every three month interval. Those who had diseases or genetical debilitating disorders and those who have not referred for reexamination were excluded from the study. The purpose of this study was to determine the prognostic effects and alterations of expanded disability status scale (EDSS) in MS patients with polysymptomatic onset versus monosymptomatic onset. At the beginning of the study, the monosymptomatic and the polysymptomatic onset of the disease were evaluated. For the evaluation of disability, we used Kurtzke Expanded Disability Status Scale (EDSS) which is the international measurement for disability in patients with MS (15). EDSS for every patient was calculated every year and the data were recorded. Several functional systems of the patient such as vision, motion, cerebellar function, sphincteric function and ambulation without aid or rest were measured based on EDSS protocol. The data were collected and analyzed. T-test and ANOVA repeated measures were used for the quantitative variables and chi-square test for the categorical variables in these two groups.

Results

Two hundred sixty three patients were evaluated with the mean duration of 4.08 ± 1.24 years. In 161 (61.2%) patients,

the initiation of the clinical manifestation was monosymptomatic and in 102 (38.8%) were polysymptomatic. The distribution of sex and place of residence and marriage status is shown in table 1. The mean age of patients with monosymptom was 26.81 ± 8.4 and in polysymptom was 26.35 ± 7.7 years ($P=0.656$).

In two patients of each group, there was familial history of MS. The mean EDSS in these two groups were 1.37 ± 0.637 and 2.16 ± 0.714 , respectively ($P=0.0001$) at the onset of their disease. After initiation of treatment, reduction of EDSS was seen in both groups, but after the reduction in the first year, an increase of EDSS was seen in both groups. But there was no significant difference in the increase of EDSS in both groups (figure 1).

Table 1. Demographic findings in patients with MS

Variable	Mono symptomatic N (%)	Poli symptomatic N (%)	Pvalue
Gender			0.252
Male	50 (31)	25 (24.5)	
Female	111 (59)	77 (75.5)	
Residency			0.846
Urban	88 (54.7)	57 (55.9)	
Rural	73 (45.3)	45 (44.1)	
Marriage status			0.126
Single	38 (23.6)	31 (31)	
Marriage before illness	107 (66.5)	65 (65)	
Marriage after illness	16 (9.9)	4 (4)	

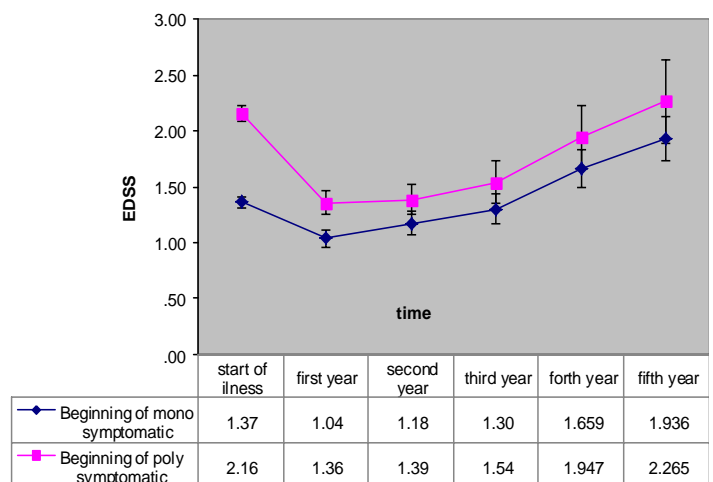


Figure 1. Following up EDSS in MS patient with mono and poly symptomatic onset

Discussion

In this study, we found that the rate of disability and progression of the disease based on EDSS score in monosymptomatic and polysymptomatic patients were equal. EDSS in monosymptomatic group was lower in the first year compared with polysymptomatic group. But after one year, EDSS had similar reduction in both groups. After one year EDSS gradually increased and finally after 5 years there were not any differences in the increase of EDSS in both groups.

Pinhas- Hamiel et al. in 2001 in young patients with MS showed no differences regarding progression of the disease in both monosymptomatic and polysymptomatic patients. They showed that early diagnosis and initiation of treatment may influence on the prognosis of the disease like the finding of our study (16). Also, in another study they reported that 72 patients who developed MS up to age of 21 years found this in juvenile MS, the progression of the disease was not associated with monosymptomatic or polysymptomatic like the result of our study (17). West et al. in 2006 reported that the rate of improvement in demyelinating event maybe was related to monosymptomatic or polysymptomatic and the gap of the development of the second event maybe predictive factor for predicting the subsequent disability and lack of complete improvement of IDE and the beginning of multisymptoms may had bad prognosis, a finding that was different from the results of our study (18). They evaluated the amount of remission from the first episode and duration of time till the second episode. But in our study, the number of symptoms at the onset of the disease (monosymptomatic or polysymptomatic) was assessed. Leray et al. in 2007 in France reported that polysymptomatic patients at the onset of disease had poor prognosis compared to the monosymptomatic patients at the onset of the disease. Their study included MS patients whose diseases started from 1976 to 2004 (range 1-28 years) (19).

The reason of the difference of our finding with the result of their study may be due to the regimen of therapy that was present in 1970s and 1980s and the absence of interferon compounds in those periods. On the other hand, the discovery of MRI and its generation might have influenced in the early diagnosis and initiation of therapy.

Achiron and Barak in 2000 reported the effect of factors that influence of the progression of probable MS to definite MS. They studied 163 patients for 13-84 months (median 42 months). They found that impairment in the movement

system was the most important factor in becoming probable MS to definite MS. They also noted that high EDSS at the onset of the disease as well as beginning of polysymptoms were associated with rapid progression of the disease (20). The factor associated with progression of probable MS to definite MS was not the purpose of our study. We included those who had definite MS.

So, the reason for the difference of our study with the above work is maybe due to these facts. Mikaeloff et al. in 2004 studied 296 children who were followed up for the average of 2.9 years and suffered from acute CNS inflammatory demyelination, they found that the initiation of polysymptomatic was associated with poor prognosis and they found that in 57% of them, the diagnosis of MS was definite (21).

But our study included the patients with definite MS and the duration of study was longer and included all age ranges. In conclusion, the result of our study with 263 cases with the diagnosis of MS in all age groups showed that the rate of progression of EDSS was not associated with mono or polysymptomatic onset.

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