Study of Type A and B Behavior Patterns in Patients with Multiple Sclerosis in an Iranian Population

Vahid Shaygannejad, Sedigheh Rezaei Dehnavi[1], Fereshteh Ashtari, Somayeh Karimi[1], Leila Dehghani[2], Rokhsareh Meamar[2], Zahra Tolou-Ghamari[2]

Department of Neurology, Isfahan Neurosciences Research Centre, Faculty of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran, [1]Department of Counseling and Psychology, Payame Noor University, Tehran, Iran, [2]Isfahan Neurosciences Research Centre, Faculty of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran

Correspondence to:
Dr. Zahra Tolou-Ghamari,
Isfahan Neurosciences Research
Centre, Isfahan University of
Medical Sciences, Isfahan, Iran.
E-mail: toloeghamari@pharm.mui.ac.ir

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ABSTRACT

Background: In adults, throughout life, uniqueness maintains the equivalent; but, it might be tailored in the track of neurological disarrays. As in the partition of cognitive function associated with multiple sclerosis (MS), numerous studies have been performed, but there are very few reports in this area of behavior. The aim of this study was to investigate the prevalence of personality types A and B in relation to individuals' behaviors with MS and type A behavior with demographic characteristics and the level of disability.

Methods: A cross-sectional descriptive study was performed between September 2010 and March 2011 on 50 patients who were referred to MS clinic (located at the Kashani hospital), Isfahan Neurosciences Research Centre (INRC). The subjects were evaluated using Friedman and Rosenman questioner and the Expanded Disability Status Scale (EDSS). The data were analyzed by SPSS software (version 17) based on Chi-square test and independent T-test.

Results: Of the subjects, 65% were of personality type A and 35% were of personality type B (X2: 3.5, $P < 0.05$). There were no significant differences in individuals with type A behavior in relation to gender and marital status. In connection to EDSS (EDSS < 4.5 or EDSS > 4.5), patients with higher EDSS score, i.e., individuals with EDSS > 4.5 mostly had type A behavior pattern.

Conclusions: People with type A behavior pattern are reported to have more stress, nervousness, and anxiety. In this study, MS patients had more characteristics of type A than type B behavior. This behavior was increased in individuals with EDSS score >4.5.

Keywords: Behavior, behavior patterns, Iranian, multiple sclerosis, type A

INTRODUCTION

Multiple sclerosis (MS) is the most persistent, widespread neurological turmoil that is categorized as localized disease that myelin sheath (lipid that surrounds nerve fibers) is spoiled and irritated. The covering provided by the myelin sheath, action

potentials can travel more quickly along myelinated axons than along un-myelinated axons. The injured or destroyed myelin cause problems in nerve communication or generally blocks them. Side effects of this condition includes damage to eye nerves, paralytic spastic limbs, ataxia, tremor, difficulty in controlling sphincters, impotence, disability, aphasia, epilepsy and depression. MS initiation occurs generally between the age of 20 and 40 years, with a male:female ratio of 3:1 or 4:1. The disease in some patients has unpredictable chronic clinical course, i.e., sometimes with relapsing or progressive phase that could lead to disability. The prevalence of MS differs greatly around the nation. Due to inter- and intra-individual variability, the models of disease occurrence, its' power, circumstances, and outcome are complicated and unpredictable. The prevalence is distinguished by major discrepancy, which is mediated by hereditary, environmental, and demographic factors.[1-9] In Isfahan/Iran, an increase in prevalence and incidence figures (73.3; 9.1:2004-2005 vs. 43.8; 3.64:2003-2010 per 100000) was reported. It has been mentioned that Isfahan could be considered as the area with the maximum incidence of MS in Asia and Oceania.[7,10] In adults, throughout existence, the personality remains the same; but it might be modified in the course of neurological disorders. Although many studies have been performed in the division of cognitive function related to MS, there are only diminutive records in the part of personality. In fact, MS patients are faced with a serious disorder that could affect their daily operation and life. Previous publication suggested that ambiguous interface between psychological and physical factors could lead patients toward unpredictable syndrome period. The most important of these factors is related to the type A behavior, for which only a small number of research exists. The pattern related to type A behavior can be determined as dictatorship, agitation, tolerate uncertainty, ambitious, high energy, competitive, anxious, rashness, precipitous, and aggression; this pattern was first described by cardiologists Friedman and Rosenman. Based on clinical observations, they reported that patients with heart disease expressed more stress, alertness, and aggression as compared to normal subjects.[11-20] To attain their objective and plans with the greatest development in lowest time, individuals with type A behavior form a constant and repeated odious and refuse to accept their condition. To achieve such a demand, it is essential for them to abandon against stuff and people. Researchers are always in a hurry to achieve results and are impatient within inter-personal relationship. Within diverse stages of work, they demonstrate anxiety and thrill. Their performance is a combination of right and left hemispheric power. They are rigid, devastated, undeniable, take risk, and are aggressive wherever assessed.[21,22] Type A behavior continuously suffer from being unable to manage situation and people; this might be the ground to a considerable pressure and accompany mental and physical illness.[23] Due to stimulation of sympatic nerve, the pressure on other vital organs could be increased. Mental and emotional health has an important collision on physical health. Previous publication reported that, in answer to pressure, there is a close correlation between the immune system and neurotransmitters. In fact, steady pressure can put a person in a regular condition of fight-or-flight response.[24] Additional stress is one of the majority widespread consequences that type A handle. There are reports and observation related to increased stress and anxiety in MS patients.[25] However, in the phase of pressure, it is relatively possible that symptoms do not come into view, but an attack and deterioration can be seen later. At this stage, the body's response to the production of stress hormones seems to return to the normal phase. Several studies have reported that, in MS patients, there is an increasing sign of delayed response to stress.[26] Previous publication reported that psychological features such as individuality style or reappearance of signs could affect MS patients.[27] Even though the type A behavior could be a significant aspect distressing the central nervous system, this peculiarity in MS patients has been rarely studied. Considering the psychological characteristics of MS patients, it is expected that type A behavior could be seen more in this population. Previous publication reported that there is a significant correlation between type A and type B behaviors in MS patients. They reported 63% and 37% of MS patients with type A and B behaviors, respectively.[28,29]

The aim of this study was to investigate type A behavior in MS patients in relation to variables of gender, age, and disability.

METHODS

A cross-sectional descriptive study on 50 patients who visited Multiple Sclerosis Clinic (Kashani Hospital, Isfahan Neurosciences Research Centre, INRC) was carried out between September 2010 and March 2011. Patients' selection was based on their agreement to participate in this study. The patients having the following criteria were selected: (1) Diagnosed by a neurologist based on systemic examination and laboratory findings such as magnetic resonance imaging (MRI) and (2) no other neurological and psychiatric disorders. The tools used in this study to inspect the behavior of type A personality was based on Friedman and Rosenman questionnaire that has 25 questions. The answers to this questionnaire were required in yes or no format. The credit for majority of patients has been reported as 0.7-0.8. Patients who received a score of ≥ 13 or <13 were considered as type A and type B, respectively.[27] Expanded Disability Status Scale (EDSS) is the most common measurement tool to evaluate the extent of disability, which is scored from 0 to 10 by a neurologist. At this scale, higher score indicates a higher degree of disability. EDSS for each individual patient in this study were extracted from patients' files. Data collected in this study was analyzed based on Chi-square test and independent *t*-test using SPPSS software (version 17).

RESULTS

The age range of the patients was 20-45 years. Of the patients, 64% were of age <35 years and 36% were of >35 years. Sequentially, in respect to marital status, 67% was married and 33% were single. According to expanded disability status scale, 88% had EDSS < 4.5 and 12% had EDSS > 4.5. Table 1 shows the distribution of types A and B personality.

Of the total patients studied, 65% and 35% of patients were of type A and type B personality, respectively. Table 2 shows the mean scores of personality type A behavior pattern and its' association with the EDSS score, marital status, and sex. The results of comparison related to different groups are given in this table.

As shown in Table 2, there was no correlation between gender and marital status in MS patients with type A personality. However, according to EDSS score (EDSS < 4.5 or EDSS, $P > 4.5$) patients with type A behavior pattern showed significant differences.

DISCUSSION

The overall plan of this investigation was evaluation of type A behavior pattern in MS patients. Of total population studied, 65% were of personality type A and 35% were of type B behavior. With increasing EDSS score, patients showed more type A behavior pattern. The results of this study could be discussed from two directions: (1) MS is one of the most common disabling neurological disorders that affect a large number of people every year. It seems that the etiology of MS involves destruction of autoimmune and then an attack to central nervous system that could lead to appearances of neurological symptoms. In the past hundred year, studies have shown that stress could be one of the potential factors in the onset and progression of MS. Previous publication reported that stress could be one of the frustrating factors in MS.[30,31] Strong evidence shows that stress and other psychological factors could affect functions of immune system. Anxiety and chronic anxiety disorders is common in MS patients.[32] Additional stress and anxiety could be caused by patients' concern for treatment fees, future of children, marriage, reduced job performance, low communication and social skills, disease obsession, and fright of deteriorating.[33] Also, part of it could be due to personality traits such as boasting a type A personality. People with type A behavior pattern reported more stress, nervousness, and anxiety. The surroundings of these manifestations could make symptoms worse. In another point of view, within patients with MS an increase in type A behavior with increasing severity of disability, could be considered as a coping response to the conditions created by stress. MS

Table 1: Distribution of types A and B personality in patients with multiple sclerosis

Behavior pattern (personality)	Number of patients	%
A	32	65
B	18	35

Table 2: A comparison of the mean scores for the pattern type A variables in patients with multiple sclerosis

Variables	Number	Mean	Standard deviation (SD)	T value	Degree of freedom	*P*
Gender						
Female	40	14.11	4.5	0.18	47	0.8
Male	10	14.42	5.3			
Marital status						
Single	16	14.75	4.8	0.39	47	0.7
Married	34	14.18	4.4			
EDSS score						
<4.5	44	13.83	4.6	2.21	47	0.03
>4.5	6	18.16	3.3			

EDSS=Expanded disability status scale

can affect many areas of performance that could be described as reducing physical performance and leading patients to incapability. Disease could also affect education and employment status, familial and sexual function, friends, and daily activities.[34] Developing disorder and increasing disability have a vast collapse on patients' sense of life, community, and social functions.[35] In addition, feeling ambiguity due to lack of control on daily health and imprecise future increases.[36,37] When a person is faced with a situation wherein he has no control over himself, the person needs to increase the effort to maintain or obtain control. This circumstance shows itself as an increased motivation to progress, increased competition, and aggressive behaviors.

CONCLUSIONS

As the personality could be modified in the course of neurological disorders, the result of this preliminary study confirmed that in the 65% of the patients type A behavior (such as agitation, ambitious, anxious, rashness, aggression) have been observed. With escalating EDSS score of >4.5, patients showed more type A behavior pattern. Therefore, people with MS who have an increased in their level of disability may consider a coping strategy with little control over conditions related to type A behavior pattern. The limitations of this study were the lack of a control group. Furthermore, patients who participated in this research in terms of disability were mild to moderate. Therefore, a comparison between personality types of patients (with neurological and psychiatric disorders) and healthy controls could be suggested in future studies. Also, differences in personality within MS subgroups and in patients with severe disability

could be suggested. Moreover, whereas MS patients sometimes show little awareness, it is suggested that, in future studies, views of relatives and others related to patients' condition before and after disease could be explored.

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