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Effect of Mental Status, Mobility and Depression Levels on Daily Life Activities of People with Multiple Sclerosis

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Abstract

The aim of the study was to investigate the effect of mobility, mental status and depression levels to the daily life activities of people with multiple sclerosis (MS) and to examine the relationship between these parameters.

22 patients with multiple sclerosis were included in the study (17 female, 5 male). The mean age of the cases are 45,40 ± 8,18 years (min-max: 32-60). 14 of the patients were Relapsing Remitting type MS, two of them were Primer Progressive type MS and 6 of them were Secondary Progressive type MS patients. The daily life activities of the patients were assessed by Functional Independence Measure (FIM). Rivermead Mobility Index (RMI) was used to evaluate mobility levels of patients. Mental levels were assessed with Standardized Mini Mental State Examination (SMMSE) and Beck Depression Scale (BDS) was used to evaluate the depression levels.

The results of the study showed that; there was a significant correlation between FIM and RMI ($p < 0.05$). There was a significant correlation between SMMSE and BDS ($p < 0.05$). While there was no significant correlation between FIM and BDS and also between FIM and SMMSE ($p > 0.05$).

There are many factors that affect daily life activities of people with MS. For this reason, it is important to evaluate the different factors which affect these people for designing the rehabilitation program.

Key words: Daily life activities, Depression, Mobility, Multiple Sclerosis

Introduction

Multiple Sclerosis (MS) is an autoimmune disease that is caused by inflammation and demyelination in the central nervous system. It has a neurodegenerative nature, accompanied by attacks of unknown cause (1,2). The mean age of the disease is 30 and diagnosis of the disease is frequently determined between 15-50 years of age. However, the disease is defined as rare before 15 years of age and after 50 years of

age (3,4). The risk of disease is higher in women than in men and more common in people white race than in other people races (5,6). More than 2.5 million MS patients have been reported all over the world and this rate has been reported as 35000 in our country (6,7). Although the etiology of MS is not known exactly, studies have shown that genetic factors affect the development of the disease as well as environmental factors (8).

There are many findings which are motor, visual, somatosensory, psychiatric and cognitive disorders due to the involvement zone in the central nervous system (9). Nerve conduction damage, motor dysfunction, muscle loss, sensory disturbances and balance disorders are the most common symptoms of MS. Symptoms initially appear as attacks, but they affect the daily life activities of the patients with the progression of the disease (10). Activities of daily living (ADL) are categorized as environmental safety, communication, eating, drinking, emptying, personal cleaning and moving (11).

Patients are in need of others because MS causes different levels of disability in many activities. Therefore, the independence of individuals can be restricted (12,13). The level of independence in activities of daily living is related to the individual's compliance to physical, mental and social activities. The purpose of this study is to investigate the effect of mobility, mental status and depression levels to their daily living activities of people with MS and to determine the relationship between them.

Methods

This study was carried out between May 2018 and June 2018 by applying individual interviews and assessment scales on 22 volunteer MS patients (17 female, 5 male) at the Multiple Sclerosis Association of Turkey and Darülaceze.

The mean age of the cases is 45,40 ± 8,18 (min-max: 32-60) years. 14 patients were Relapsing Remitting type MS, 2 of them were Primer Progressive type MS and 6 of them were secondary progressive type MS patients.

The criteria for inclusion of patients in the study are:

-To be 18 years and over
-To be at least 1 year with MS
-To be in remission period
-To be able to read and write

In our study, the Functional Independence Measure (FIM) was used to determine the level of daily living activities of the patients. The Rivermead Mobility Index (RMI) was used to assess mobility level, the Standardised Mini-Mental State Examination (SMMSE)was used to determine the mental level, and the Beck Depression Scale (BDS) to evaluate the depression level. Every patient completed the questions on the same day without help.

Functional Independence Measure (FIM)

The Functional Independence Measure (FIM) is used to evaluate motor and cognitive functions. Functional Independence Measure include six parts that are self-care, sphincter control, transfer, mobility, communication and social perception skills. Each activity is assessed using a 7-point scale based on the level of independence. The final total score is generated and the scores of the individuals range from 18 to 126. 18 points indicate that the individual is totally addicted, and 126 points are completely independent (14,15).

FIM was developed by Hamilton et al. in 1987 and the Turkish adaptation of the scale was provided by Küçükdeveci et al. (16,17).

Rivermead Mobility Index (RMI)

The Rivermead Mobility Index (RMI) is a test that is used to measure mobility. The Rivermead Mobility index consists of 14 questions and 1 observation. The patient receives 1 point for every "yes" response for activities he/she can perform. The scores of the individuals range from 0 to 15. The development, validity and reliability of RMI were provided by Collen et al. (1991) and the Turkish validity and reliability of the index was provided by Akın and Emiroğlu (18)

Standardised Mini-Mental State Examination (SMMSE)

Standardised Mini-Mental State Examination (SMMSE) is the most widely used test for evaluation of cognitive function. This test consists of 5 main parts. 10 points for orientation, 3 points for recording memory, 5 points for caution and calculation, 3 points for recall, 9 points for language, and the highest score of the test is 30 points (19). The validity and reliability of this test in the Turkish population was determined by the Department of Psychiatry, Istanbul University Cerrahpaşa Medical School (20).

Beck Depression Scale (BDS)

The Beck Depression Scale (BDS) is a questionnaire consisting of 21 questions, each one has four options for quantifying the depressive symptoms and depression perceived by the patient. Each item is numbered 0-3. The total score of the scale varies from 0 to 63 as a result of the evaluation. Turkish validity and reliability study of BDS was performed by Hisli (1988) (21).

Statistical Analysis

SPSS 15.0 package programme was used for the evaluation of data. Mean and Standard Deviation (SD) were calculated for continuous variables. Descriptive statistics for descrete variables were presented by min-max values and with percentages. Spearman Correlation Coefficient was used to find the relationship between continuous variables. Kruskal-Wallis test was performed for describing differences in sample means. The hypothesis were two-tailed and $p \leq 0.05$ was excepted as significant.

Results

According to Spearman Correlation analysis results, there was a negative significant correlation between BDS and SMMSE score ($p < 0.05$). While there was no relationship between BDS and SMMSE scores with FIM, a significant relationship was found between RMI and FIM ($p < 0.05$). There was no significant relationship between BDS and RMI. There was a negative significant correlation between severity of MS and FIM and RMI results. According to the results of the non-parametric Kruskal-Wallis test, a significant difference was found in FIM test for women and men in favor of women ($p < 0.05$).

Discussion

Our study was planned to investigate the effect of mobility, mental status and depression levels to their daily living activities of people with MS and to examine the relationship between them.

Motor, sensory disturbances and mental changes associated with the disease restrict the individual's functional ability in daily life in individuals with MS (22,23). There are many standardized assessment scales used to determine the functional level. All these evaluations can be used in many patient groups (24,25).

Many of these methods have been performed on many patients. Granger, Cotter and their colleagues compared functional assessment tests in MS patients and found that FIM test included social communication, social interaction, problem solving, and memory, as well as assessing daily life activities, and also measured the overall life performance of the individual. As a result, they argued that the FIM test was more useful in MS than in other tests (26).

The most common test used to determine the level of mobility in neurological disorders is RMI (27). We found a significant relationship between RMI and FIM in our study and found that lower extremity functions are linearly related to daily life activity skills. Problems with lower extremity are more complex in MS patients.

Emre et al found that 13 of 23 MS patients had moderate / high depression in their study. In addition, it was reported that cognitive disorders in MS patients may affect the level of depression and they pointed out the importance of cognitive evaluation in MS patients as well as depression evaluation (28). In our study, a significant relationship between SMMSE was determined cognitive level of patients, and BDS was determined depression level, indicates that cognitive level is related to depression level.

A significant association was found between severity of MS and FIM and RMI test results in our study. This has shown that MS type can affect the results of daily living activities and mobility levels**.**

Fasczewski et al emphasized that the level of physical activity is associated with the symptoms of MS disease similar to our study (29).

As a result, tests which measure functional independence levels are indicators of many aspects of the person's functions. These assessments of functional levels are important for rehabilitation to monitor the changes recorded during treatment better. When the literature is searched, there are many publications examine the levels of independence in patients with multiple sclerosis, but we believe that there must be more studies including the relationship between depression level, mobility level and cognitive function outcomes. More patients should be done to reach more comprehensive results.

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