

ORIGINAL RESEARCH

Medicine Science 2017;6(2):351-4

Depression and quality of life in patients with Multiple Sclerosis**Tulay Yildirim, Yuksel Ersoy***Department of Physical Medicine and Rehabilitation, Inonu University, Malatya, Turkey*

Received 09 December 2016; Accepted 20 December 2016

Available online 23.12.2016 with doi: 10.5455/medscience.2016.05.8572

Abstract

The aim of the present study was to determine the relationship between the quality of life and depression by using SF-36 quality of life scale in MS patients. Forty-eight patients who were certainly diagnosed with MS according to McDonald diagnostic criteria in the Neurology Clinic and were admitted to the Physical Therapy and Rehabilitation Outpatient Clinic between the dates of 2013 and 2015, and a total of 43 age and gender matched healthy controls were included in the study. The short form 36 ve The Beck Depression Inventory(BDI) were used to determine the clinical condition of the patients. Depression was detected in 36.3% and 11.9% of the MS patients and control group, respectively ($p<0.05$). In most of the sub-scales of the Quality of Life Scores, the scores of MS patients were found to be significantly lower than control group ($p<0.05$). A significant negative correlation was determined between depression scores and all sub-scales of the Quality of Life Scores following the correlation analyses ($p<0.05$). When three groups were compared, no statistically significant difference was detected in terms of Beck depression scores($p>0.05$). Multiple sclerosis depression is common and affects quality of life negatively. The evaluation of depression should be done with caution and treatment should be given due care in Multiple Sclerosis patients.

Keywords: Multiple sclerosis, depression, quality of life**Introduction**

Multiple sclerosis (MS) is a progressive, inflammatory and demyelinating disease of the central nervous system (CNS) that is seen in young individuals [1]. The primary localizations of demyelinating plaques are cerebral hemisphere, optical nerve, cerebellum, brain stem and spinal cord. Emotional, autonomic and coordination disorders might be observed in association with the localization of CNS involvement [2,3].

The course of disease is generally divided into three types: Relapsing remitting MS (RRMS), primer progressive MS (PPMS) and secondary progressive MS (SPMS). PPMS involve possible micro improvements and enhancing disability as from the onset of disease. If the clinical presentation accepted as RRMS at the onset of the disease shows a progressive course of disease and it follows a recurrent period, diagnose is SPMS [4]. The two-third of the patients diagnosed with RRMS become SPMS following duration of 10 to 15 years [5].

In the early stage, symptoms including fatigue, muscle weakness and emotional dysregulation are seen; spasticity, bladder dysfunction, depression, pain and cognitive dysfunction arise in the late stages of the disease [6,7]. The

quality of life is significantly affected in MS when compared to general population [8].

The assessment of the quality of life in MS patients is performed. It involves either direct neurological disorders, such as general health, social and psychological functions or various healthcare fields not associated with disability, as these fields are considered as more significant indicators than the physical functions disturbing general healthcare condition by the patients [9]. In MS patients, the determination of factors affecting the quality of life might contribute to the treatment plan for increasing the quality of life.

In previous studies, the prevalence of lifelong major depression was reported as 19-54% in patients with MS [10-16]. Depression is the common and curable stage of the MS and it affects the quality of life independently from the disability [17,18].

Recently, although the assessment of the quality of life has become popular gradually in MS, the studies regarding the effect of psychological function on the quality of life is still limited. The aim of the present study was to determine the relationship between the quality of life and depression by using SF-36 quality of life scale in MS patients.

Material and Methods

Forty-eight patients who were certainly diagnosed with MS according to McDonald diagnostic criteria in the Neurology Clinic and were admitted to the Physical

***Corresponding Author:** Tulay Yildirim, Department of Physical Medicine and Rehabilitation, Inonu University, Malatya, Turkey
E-mail: drtulayoner@hotmail.com

Therapy and Rehabilitation Outpatient Clinic between the dates of 2013 and 2015, and a total of 43 age and gender matched healthy controls were included in the study.

Patients with further known neurological, psychiatric and chronic diseases and patient who had an attack within last 3 months and had mini mental test score of <24 were excluded from the study.

The detailed neurologic and systemic examinations were done to all patients and their sociodemographic data were recorded.

The Assessment of Depression

The Beck Depression Inventory (BDI) is a self-report inventory that measures the severity of depression. Each item is scored in between 0 and 3 in the scale that is answered according to the final week. The total score varies in between 0 and 63 [19]. The Turkish version was validated by Hisli [20].

The Assessment of Quality of Life

The SF-36 consists of totally 36 questions grouped into eight sub-scales; physical functioning, physical role limitation, emotional role limitation, body pain, social functioning, mental health, vitality and general health. It involves two components: physical and mental. The

scoring is performed out of 100; the higher scores indicate higher levels of health and lower scores indicate deterioration in health [21].

Statistical analyses

Analyses were performed using SPSS 11.5. Statistical descriptive tests including means, standard deviations (SD) and percentages were used to describe the characteristics of the

sample. Student's t test was used to compare the numeric data between groups, When normality conditions could not be met Mann-Whitney U test were used. In the categorical variables comparison used Ki-square test. For the evaluation of the correlation between variables, according to normality state, Pearson or Spearman test were performed. A p-value of <0.05 was considered statistically significant.

Results

The data from 48 patients with MS and 43 healthy controls were analyzed. Demographic characteristics and clinical features of the patients are summarized in Table 1.

Depression was detected in 36.3% and 11.9% of the MS patients and control group, respectively (p<0.05) (Table 1).

Table 1: Demographic and clinical variables.

Parameters, mean±SD	MS (n=48) mean±SD	Control (n=43) mean±SD	P values
Age (years)	40.7±9.4	38.8±5.7	0.43
Gender F/M	25/23	22/21	0.24
Duration of education (years)	9.2±3.3	8.9± 2.7	0.18
BDI %	36.3	11.9	<0.05
Duration of symptoms (years)	12.2±7.7		
Type of PRPS	37.6		
MS% PPMS	29.1		
SPMS	33.3		
Drugs% immunosuppressive	65.97		
immunomodulator	34.03		

BDI: Beck Depression Inventory, **PRPS**: Relapsing Remitting MS, PPMS: Primary Progressive MS, SPMS: Secondary Progressive MS

In most of the sub-scales of the Quality of Life Scores, the scores of MS patients were found to be significantly lower than control group (p<0.05) (Table 2). A significant negative correlation was determined between depression scores and all sub-scales of the Quality of Life Scores following the correlation analyses (p<0.05).

MS type was investigated in terms of being a depression factor. Of the patients, 18 had MS with relapse and remission, 14 had primary progressive MS and 16 had secondary progressive MS. When three groups were compared, no statistically significant difference was detected in terms of Beck depression scores (p>0.05) (Table3).

Table 2. SF-36 and BDI results in MS and control groups.

Parameters, mean±SD	MS (n: 48) mean±SD	Control (n=43) mean±SD	p
BDI	13.79±9.56	6.93±4.27	<0.05
Physical Function	51.7±15.2	71.5±13.6	<0.05
Social Function	59± 26.9	52.0±24.6	>0.05
Role Limitations Due to Physical Health	43.65±40.9	76.32±3.42	<0.05
Role Limitations Due to Emotional Health	41.8±22.5	31.9±22.4	<0.05
Emotional well-being	54.6±24.3	41.8±23.3	<0.05
Energy/Fatigue	44.4±22.3	40.7±23.9	>0.05
Pain	47.9±21.4	32.1±5.4	<0.05
General Health	40.4±30.3	38.1±18.3	>0.05

SF-36: Short Form Health Survey-36; BDI: Beck Depression Inventory

Table 3: Comparison of Patients with depression score by type of MS.

Variables	PRPS	PPMS	SPMS	Total	p
higher depression score	5 (28.3%)	7 (38.4%)	6 (33.3%)	18 (36%)	0.831
Lower depression score	11 (36.6%)	9 (30.1%)	10 (33.3%)	30 (64%)	
Total	18 (37.6%)	14 (29.1%)	16 (33.3%)	48 (100%)	

PRPS: Relapsing Remitting MS, PPMS: Primary Progressive MS, SPMS: Secondary Progressive MS

Discussion

MS is a chronic disease and affects patients' lives significantly. It decreases the quality of life of patients by damaging emotional well-being, affecting social lives and preventing their daily activities [18]. In the early stages of the disease, most of the patient relatively feel healthy due to lesser limitations. Therefore, it is hard to estimate the quality of life in the early stages of the disease [22]. In patients with MS, the quality of life was evaluated in various studies [23,24]. It has been known well that MS has a dramatic effect on the quality of life and patients with MS has lower scores in comparison to control groups [25].

The SF-36 questionnaire measures the health perception in society or patient groups. It is easy to perform and acceptable for patients, and it has been known that it scans the disease even in the early stages [26]. SF-36 is a good quality of life scale for grouping the severity of chronic medical condition and determining the severity of psychiatric disorder [27].

In the present study, most of the SF-36 sub-scales were significantly low in comparison to the controls. A negative correlation was determined between all scores of depressions and the quality of life sub-scales.

Depression is very common among patients with MS [28] and this condition is accepted a significant problem [29]. The risk of depressive symptoms is 50% in MS [30]. This ratio is four-times higher than the depression risk in general population [31]. Depression might be originated from disease period, and as well as, MS-dependent disability and individuals' reaction to the symptoms [32]. In previous studies, psychological well-being and the quality of life were shown to be decrease in MS patients which was clarified in the advance stages of the disease [23].

In the present study, there was no statistically significant relationship between the Beck depression scores and MS types. In patients with MS, male gender, high disability, unemployment, lesser physical activity and using antidepressants and/or anxiolytic sedative were found to be independently associated with higher depression scores [33].

In most of the individuals, especially in MS patients with depression-associated relapse and more progressive disease types, a positive correlation was observed between mood changes and inflammation [34,35].

The progressive MS types, in case of higher disability levels in comparison to RRMS, were associated to the high levels of depression [36-38].

Conclusion

The awareness should be increased for depression which is a common symptom in patients with MS. All patients with MS should be evaluated in terms of the presence of depression. An effective therapy for depression will enhance the quality of life in patients with MS.

References

1. Compston A, Coles A. Multiple sclerosis. *Lancet*. 2008;372(9648):1502-17.
2. Solaro C, Trabucco E, Messmer Uccelli M. Pain and multiple sclerosis: pathophysiology and treatment. *Curr Neurol Neurosci Rep*. 2013;13(1):320.
3. Newland PK, Naismith RT, Ullione M. The impact of pain and other symptoms on quality of life in women with relapsing-remitting multiple sclerosis. *J Neurosci Nurs*. 2009;41(6):322-8.
4. Pugliatti M, Rosati G, Carton H, Riise T, Drulovic J, Vécsei L, Milanov I. The epidemiology of multiple sclerosis in Europe. *Euro J. Neurol*. 2006;13(7):700-22.
5. Tutuncu M, Tang J, Zeid NA, Kale N, Crusan DJ, Atkinson EJ, Keegan BM. Onset of progressive phase is an age-dependent clinical milestone in multiple sclerosis. *Mult Scler*. 2013;19(2):188-98.
6. Motl RW, McAuley E, Snook EM, Scott JA. Validity of Physical Activity Measures in Ambulatory Individuals with Multiple Sclerosis. *Disabil Rehabil*. 2006;28(18):1151-6.
7. Snook EM, Motl RW. Physical Activity Behaviors in Individuals with Multiple Sclerosis: Roles of Overall and Specific Symptoms, and Self Efficacy. *J Pain Symptom Manage*. 2008;36(19):46-53.
8. Janardhan V, Bakshi R. Quality of life and its relationship to brain lesion and atrophy on magnetic resonance images in 60 patients with multiple sclerosis. *Arch Neurol*. 2000;57(10):1485-91.
9. Rothwell PM. Quality of life in multiple sclerosis. *J Neurol Neurosurg Psychiatry*. 1998;65(4):433.
10. Skokou M, Soubasi E, Gourzis P. Depression in multiple sclerosis: a review of assessment and treatment approaches in adult and pediatric populations. *ISRN Neurol*. 2012;2012:427102.
11. Garfield AC, Lincoln NB. Factors affecting anxiety in multiple sclerosis. *Disabil Rehabil*. 2012;34(24):2047-52.
12. Espinola-Nadurille M, Colin-Piana R, Ramirez-Bermudez J, Lopez-Gomez M, Flores J, Arrambide G, Corona T. Mental disorders in Mexican patients with multiple sclerosis. *Neuropsychiatry Clin*. 2010;22(1):63-9.
13. Galeazzi G, Ferrari S, Giaroli G, Mackinnon A, Merelli E, Motti L, Rigatelli M. Psychiatric disorders and depression in multiple sclerosis

- outpatients: impact of disability and interferon beta therapy. *Neurol. Sci.* 2005;26(4):255-62.
14. Marrie RA, Reingold S, Cohen J, Trojano M, Soelberg Sorensen P, Cutter G, Reider N. The incidence and prevalence of psychiatric disorders in multiple sclerosis: a systematic review. *Mult. Scler.* 2015;21(3):305-17.
 15. Honarmand K, Feinstein A. Validation of the hospital anxiety and depression scale for use with multiple sclerosis patients. *Mult. Scler.* 2009;15(12):1518-24.
 16. Korostil M, Feinstein A. Anxiety disorders and their clinical correlates in multiple sclerosis patients. *Mult. Scler.* 2007;13(1):67-72.
 17. Pittion-Vouyovitch S, Debouverie M, Guillemin F, Vandenberghe N, Anxionnat R, Vespignani H. Fatigue in multiple sclerosis is related to disability, depression and quality of life. *Journal of the Neurological Sciences.* 2006;243(1-2):39-45.
 18. D'alisa S, Miscio G, Baudo S, Simone A, Tesio L, Mauroi A. Depression is the main determinant of quality of life in multiple sclerosis: A classification-regression (CART) study. *Disability and Rehabilitation.* 2006;28(5):307-14.
 19. Beck AT, Ward CH, Mendelson M, Mock J, Erbaugh J. An inventory for measuring depression. *Arch Gen Psychiatry.* 1961;4:561-71.
 20. Hisli N. Validity and reliability of Beck Depression Inventory for Turkish university students. *J Psychol.* 1989;7:3-13.
 21. Keller SD, Ware JE Jr, Bentler PM, et al. Use of structural equation modeling to test the construct validity of the SF-36 health survey in ten countries: results from the IQOLA project. *International quality of life assessment. J Clin Epidemiol.* 1998;51(11):1179-88.
 22. Janssens AC, van Doorn PA, de Boer JB, van der Meché FG, Passchier J, Hintzen RQ. Impact of recently diagnosed multiple sclerosis on quality of life, anxiety, depression and distress of patients and partners. *Acta Neurol Scand.* 2003;108(6):389-95.
 23. Nicholl CR, Lincoln NB, Francis VM, Stephan TF. Assessing quality of life in people with multiple sclerosis. *Disability and Rehab.* 2001;23(14):597-603.
 24. O'Connor P, Lee L, Ng PT, Narayana P. Determinants of overall quality of life in secondary progressive MS: a longitudinal study. *Neurology.* 2001;57(5):889-91.
 25. Nortvedt MW, Riise T, Myhr KM, Nyland HI. Quality of life in multiple sclerosis. Measuring the disease effects more broadly. *Neurology.* 1999; 53(5):1098-103.
 26. Pati F, Cacopardo M, Palermo F, Ciancio MR, Lopes R, Restivo D, Reggio A. Health-related quality of life and depression in an Italian sample of multiple sclerosis patients. *Journal of the Neurological Sciences.* 2003;211(1-2):55-6
 27. McHorney CA, Ware JJ, Raczek AE. The MOS 36-Item Short Form Health Survey (SF-36): II. Psychometric and clinical tests of validity in measuring physical and mental health constructs. *Medical Care.* 1993;31(3):247-63.
 28. Dalgas U, Stenager E, Sloth M. The effect of exercise on depressive symptoms in multiple sclerosis based on a meta-analysis and critical review of the literature *Eur J Neurol.* 2015;22(3):443-34.
 29. Gay MC, Vrignaud P, Garitte C, Meunier C. Predictors of depression in multiple sclerosis patients. *Acta Neurol. Scand.* 2010;121 (3):161-70.
 30. Chwastiak L, Ehde DM, Gibbons LE, Sullivan M, Bowen JD, Kraft GH. Depressive symptoms and severity of illness in multiple sclerosis: epidemiological study of a large community sample. *Am. J. Psychiatry.* 2002;159(11):1862-8.
 31. Ayuso-Mateos, Jose Luis, Vázquez-Barquero, Jose Luis, Dowrick, Christopher, Lehtinen, Ville, Odd Steffen, Dalgard, Patricia, Casey, Graham, Dunn. Depressive disorders in Europe: prevalence figures from the ODIN study. *Br. J. Psychiatry.* 2001;79(4):308-16.
 32. Sadovnik AD. Depression and multiple sclerosis. *Neurology.* 1996;46(3):628-32.
 33. Simpson S, Tan H, Otahal P, Taylor B, Ponsonby A-L, Lucas RM, Blizzard L, Valery PC, Lechner-Scott J, Shaw C, Williams D, van der Mei I. Anxiety, depression and fatigue at 5-year review following CNS demyelination. *Acta Neurol Scand.* 2016;134(6):403-13.
 34. Moore P, Hirst C, Harding KE, Clarkson H, Pickersgill TP, Robertson NP. Multiple sclerosis relapses and depression. *J Psychosom Res.* 2012;73(4):272-6.
 35. Jones KH, Ford DV, Jones PA, John A, Middleton RM, Lockhart-Jones H, Osborne LA, Noble JG. A large-scale study of anxiety and depression in people with Multiple Sclerosis: a survey via the web portal of the UK MS Register. *PLoS One.* 2012;7(7):419-10.
 36. Dennis M, Baillon S, Brugha T, Lindesay J, Stewart R, Meltzer H. The influence of limitation in activity of daily living and physical health on suicidal ideation: results from a population survey of Great Britain. *Psychiatric Epidemiol.* 2009;44 (8):608-13.
 37. Sarısoy G, Terzi M, Gümüş K, Pazvantoğlu O. Psychiatric symptoms in patients with multiple sclerosis. *Gen. Hosp. Psychiatry.* 2013;35(2):134-40.
 38. Turner AP, Williams RM, Bowen JD, Kivlahan DR, Haselkorn JK. Suicidal Ideation in Multiple Sclerosis. *Arch. Phys. Med. Rehabil.* 2006;87(8):1073-8.