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The Assessment of Sexual Dysfunction in Male Patients with Multiple Sclerosis

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ABSTRACT

Introduction: To investigate the effects of multiple sclerosis (MS) on male sexuality.

Methods: While 61 men with MS were included into the study group, 60 healthy men constituted the control group in the study. In MS patients, such parameters as functional status and depression levels were assessed with the Expanded Disability Status Scala (EDSS) and the Beck Depression Scale (BDS), other parameters such as pain levels, sexual function and quality of life (QoL) were evaluated with the Visual Analog Scala (VAS), the International Index of Erectile Function (IIEF) and the short form-36 (SF-36), respectively.

Results: Patients with MS were classified as 45 with EDSS <5.5 and 19 with EDSS >5.5. Mean VAS and BDI scores patients with MS were found statistically significantly higher, compared with those of the controls ($p<0.05$). Mean IIEF and all sub-group scores of SF-36 of patients with MS were found to be statistically significantly lower, compared with those of the control group ($p<0.05$). Mean EDSS in patients with MS was 2.75±2.42. While there was a positive correlation between IIEF scores of patients with MS, and mean mental and physical components of SF-36, a negative correlation was found between IIEF scores in MS patients, and age, disease duration, number of attacks, number of marital years and scores of EDSS, VAS and BDI ($p<0.00$). When BDI ≥17 was accepted as the threshold for depression, the depression was detected in 62.5% of patients with MS and 11.7% of the controls ($p<0.001$).

Conclusion: Sexual functions are affected negatively in male patients with MS and seem to be associated with increased disability, pain and accompanying depression. Therefore, male patients with MS should also be evaluated with regard to sexual function, as well as disability during their follow-ups.

Keywords: Multiple sclerosis, sexual dysfunction, chronic disease, male gender, pain, depression, quality of life

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INTRODUCTION

Multiple sclerosis (MS) is a chronic, inflammatory and demyelinating disease of the central nervous system. It is caused by autoimmune and inflammatory reactions and is characterised by episodic and neurological dysfunctions (1). MS frequently develops in young adults aged 20–40 years. Symptoms of MS are usually complex and considerably affect the quality of life (QoL) of patients (2).

Reportedly, MS is one of the most common causes of progressive neurological disability in young adults. MS is commonly associated with spasticity, tremor, myasthenia, sensory disorders, depression, cognitive problems, bladder and bowel dysfunction and sexual dysfunction (SD), which severely affect the QoL of affected patients (3, 4).

Although SD is frequently observed in patients with MS and has a serious impact on QoL, it has usually not been examined (5). Therefore, it is essential to have a good understanding of SD, which is secondary to MS. This study aimed to investigate SD levels in male patients with MS and the associated factors.

METHODS

In total, 64 sexually active, male patients with a definitive diagnosis of MS according to the McDonald (6) diagnostic criteria were enrolled in the study group. The control group comprised 60 healthy men. Six patients with MS who did not agree to participate in the study and answer questions were excluded. Moreover, patients with the following conditions were excluded from the study:

1. History of chronic diseases
2. History of antidepressant, anticonvulsant and anxiolytic drug use
3. Chronic alcohol abuse
4. History of major psychiatric disorders
5. History of inflammatory diseases such as ankylosing spondylitis and rheumatoid arthritis
6. Hand, knee and hip joint limitations
7. Those at the time of attack and the history of attacks within the last six mounths
8. Urinary catheter use
9. Urinary and faecal incontinence

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This study was approved by the Ethics Committee of Selçuk University Medical Faculty Deanery. The patients who agreed to participate were briefed regarding the study and their informed consent was obtained. Following the collection of patient histories, physical examinations were performed. Functional statuses, depression levels, pain levels, sexual functions and QoL of patients were assessed using the Expanded Disability Status Scale (EDSS), Beck Depression Inventory (BDI), Visual Analogue Scale (VAS), International Index of Erectile Function (IIEF) and Short Form (SF)-36, respectively. Depression levels and sexual functions of men in the control group were assessed using BDI and IIEF, respectively. Based on their EDSS scores, patients with MS were classified into two groups: those with EDSS score<5.5 and those with EDSSscore >5.5.

EDSS

EDSS is used to determine the level of neurological disability and functional capacities of patients with MS. It evaluates the functions of eight functional systems of the central nervous system (pyramidal, cerebral, brain stem, vision, bladder and bowel, sensory and cerebral). Each of these systems is scored based on its dysfunction level. Limitations faced in daily life are included to these functional system scores to generate the EDSS score, which ranges from 0–10 (7).

BDI

BDI is a valid and reliable method for measuring depressive symptoms and is recommended for screening depression in patients with MS as it is a short method and precludes confusion with neurological symptoms. It comprises of 21 items that are related to depressive symptoms such as pessimism, sense of failure, dissatisfaction, feelings of guilt, restlessness, fatigue, poor appetite, indecision, sleep disorders and social withdrawal. Each item is rated from 0 to 3, with the total score ranging between 0 and 63. In our study, BDIscore ≥17 set as the depression threshold. In the Turkish validity and reliability study performed by Hisli et al. (8), BDI score ≥17 was associated withdepression; 0–10 was associated with no depression and 11–17, 18–23 and 24–29 were associated with mild, moderate and severe depression, respectively (8).

SF-36 QoL Scale

SF-36 comprises eight different domains: physical functioning, social functioning, role limitations due to physical problems, role limitations due to emotional problems, mental health, vitality, bodily pain and general health.In this survey, each domain is scored, coded and converted to a scale ranging from 0 (the worst health status) to 100 (the best health status). Using the results from the resultant sub-scales, physical and mental component scores are calculated. Additionally, SF-36 comprises of two summary scales: physical and mental component scales (9). The total score of the scale is not calculated.

IIEF

IIEF used in this study was the Turkish version of IIEF. It assesses five issues related to SD in male patients. Additionally, it adequately represents patients' ability to attain and maintain an erection sufficient for sexual activity, for satisfaction and to assess the reliability of a particular therapy. The erectile function domain comprising of six questions is a proven reliable measure for classifying the severity of erectile dysfunction (ED) as mild, moderate or severe. The ED domain score is classified as severe (6–10), moderate (11–16), mild (17–25) and no ED (26–30) (10, 11).

RESULTS

All participants enrolled in the study and control groups were married. Both the groups were similar in terms of age, body mass index (BMI), marriage duration and family structure (p>0.05) (Table 1). The control group had significantly higher monthly income and employment rates than the study group. This significant difference was linked to the fact that the patients with MSin the study group with EDSS score >5.5 were unemployed. For patients with MS, the mean disease duration was 8.62±7.16 years, mean number of attacks was 6.90±5.98, mean EDSS score was 2.75±2.42 and mean VAS score was 5.68±2 (Table 1). Although the mean IIEF score of patients with MS was lower than that of men in the control group, their BDI scores were higher (p<0.001) (Table 1).

Table 1. Sociodemographic data of the study and control groups

	MS patients (n=64)	Controls (n=60)	p
Age	37.23±8.81	37.53±6.36	0.828
Marriage duration	13.59±9.79	12.55±7.01	0.494
Number of children	2.34±1.61	2.08±0.97	0.277
BMI	27.09±0.35	27.14±4.89	0.947
Monthly income	436.54±310.62 $	820.87±506.18 $	0.000
BDI score	24.35±15.99	7.96±7.230	0.000
VAS score	5.68±2.55	1.46±1.65	0.000
IIEF Score	43.32±17.69	60.81±5.91	0.000
Number of attacks	6.90±5.98	-	
Disease duration	8.62±7.16	-	
EDSS score	2.75±2.42	-	

BMI: body mass index, BDI: Beck Depression Inventory, VAS: Visual Analogue Scale, EDSS: Expanded Disability Status Scale, IIEF: International Index of Erectile Function

Table 2. Statistical analyses of the study and control groups in terms of quality of life (SF-36,QoL Scale scores)

	MS patients (n=64)	Controls (n=60)	p
SF-36 Physical function	57.61±38.41	90.00±10.69	0.000
SF-36 Role limitations due to physical problems	46.48±45.83	90.83±22.53	0.000
SF-36 Role limitations due to emotional prob-lems	53.64±46.24	87.77±49.41	0.000
SF-36 Vitality	43.59±24.22	67.79±15.95	0.000
SF-36 Mental health	45.93±19.69	64.40±15.03	0.000
SF-36 Social functioning	48.04±27.92	72.33±14.53	0.000
SF-36 Bodily pain	58.51±30.54	80.50±14.19	0.000
SF-36 General health	54.06±9.07	45.58±9.87	0.000
SF-36 Physical component	54.16±26.50	76.72±9.29	0.000
SF- 36Mentalcomponent	47.80±27.37	72.91±13.40	0.000

Table 3. Correlation of the IIEF score with parameters in the study group

	r	p
SF-36 mental component	0.860	0.000
SF-36 physical component	0.826	0.000
BDI	-0.919	0.000
Age	-0.632	0.000
Years of marriage	-0.675	0.000
Disease duration	-0.762	0.000
Number of attacks	-0.687	0.000
VAS score	-0.750	0.000
EDSS score	-0.874	0.000

BDI: Beck Depression Inventory, VAS: Visual Analogue Scale, EDSS: Expanded Disability Status Scale

Of all patients with MS, 45 were grouped in the EDSS score <5.5 group and 19 in the EDSSscore >5.5 group. In the study group, the mean VAS score was 4.60±2.01 for the EDSSscore <5.5 group and 8.26±1.69 for the EDSSscore >5.5 group, with statistical significant difference between the two study groups (p<0.05) (Table 1).

The SF-36 average physical and mental component scores and all sub-group average scores in the study group were lower than those in the control group (p<0.001) (Table 2).

In patients with MS, negative correlation was observed between the IIEF score and the BDI score, age, marriage duration, disease duration, number of attacks, VAS score and EDSS score (r= −0.919, p<0.001; r= −0.632, p<0.001; r= −0.675, p<0.001; r= −762, p<0.001; r= −687, p<0.001; r= −750, p<0.001; r= −874, p<0.001, respectively) and a positive correlation was observed between the SF-36 mental and physical component scores (r=860, p<0.001; r=826, p<0.001) (Table 3).

The BDI scores, VAS scores, disease durations and number of attacks were higher in the EDSS score > 5.5 group than those in the EDSS score <5.5 group. However, the IIEF scores, SF-36 average physical and mental component scores and all sub-group average scores of the EDSS score > 5.5 group were lower than those of the EDSSscore <5.5 group (p<0.001) (Table 4).

Using the set threshold of BDI score ≥17 for depression, depression was detected in 62.5% of the patients with MS and 11.7% of men in the control group (p<0.001). The total IIEF score of patients with MS with BDI score ≥17 was statistically significantly lower than that of patients with MS with BDI score <17 (p<0.001) (Table 5).

Table 4. Statistical analysis of the two study groups based on EDSS scores

	EDSS score <5.5 (n=45)	EDSS score >5.5 (n=19)	p
BMI	26.85±3.02	27.68±2.43	0.294
Number of children	1.84±1.41	3.52±1.46	0.000
Monthly income	1287.89±954.83	905.26±326.12	0.094
Disease duration	5.33±4.45	16.42±6.31	0.000
VAS	4.60±2.01	8.26±1.69	0.000
EDSS score	1.34±1.08	6.10±0.90	0.000
IIEF score	51.86±11.37	23.10±12.89	0.000
BDI score	16.53±11.01	42.89±9.11	0.000
SF-Physical function	77.45±25.68	10.63±15.43	0.000
SF-Role limitations due to physical problems	66.11±40.99	0.00	0.000
SF-Role limitations due to emotional problems	73.33±38.66	7.01±23.77	0.000
SF-Vitality	54.33±19.73	18.15±11.45	0.000
SF-Emotional wellbeing	53.42±18.43	28.21±7.48	0.000
SF-Social functioning	61.11±21.02	17.10±14.55	0.000
SF-Bodily pain	70.66±24.86	29.73±22.60	0.000
SF-General health	52.33±9.74	58.15±5.58	0.018
SF-Physical Component	66.64±20.99	24.63±8.42	0.000
SF-Mental Component	60.55±21.39	17.62±11.69	0.000

Table 5. Comparison of clinical characteristics of depressive and non-depressive patients with MS

	Depression+ (n=40)	Depression- (n=24)	p
IIEF	33.37±14.35	59.91±7.00	0.000
SF-36 Physical Component	39.87±20.54	77.99±16.13	0.000
SF-36 Mental Component	31.64±19.84	74.73±13.21	0.000
BDI score	34.30±11.41	7.79±4.65	0.000
VAS score	6.95±1.98	3.58±1.93	0.000
EDSS score	4.0125 2.19115	0.66±0.78	0.000
Number of children	2.95±1.43	1.33±1.40	0.000
Marriage duration	17.92±9.45	6.37±4.90	0.000
Monthly income	982.63±370.21	1493.75±1228.67	0.017
Disease duration	11.57±7.04	3.70±4.01	0.000

BDI: Beck Depression Inventory, VAS: Visual Analogue Scale, EDSS: Expanded Disability Status Scale, IIEF: International Index of Erectile Function

DISCUSSION

Reportedly, MS occurs as a result of genetic, environmental and infectious factors. An underlying autoimmune mechanism is the most widely accepted hypothesis for the pathogenesis of MS (12). Immune cells in the central nervous system induce damage the myelin sheath and axons, resulting in loss of various neurological functions (13).

Chronic diseases are often linked to SD. SD, a complication associated with MS, is a chronic condition that is still overlooked and not reported (14). However, till date, many patients with MS consider their sexual problems as a taboo to discuss. Similarly, SD in patients with MS is usually overlooked and not sufficiently questioned by health professionals. In a recent study involving 137 patients with MS, Lew-Starowicz et al. (5) reported that physicians inquired only 2.2% of the patients regarding their sexual functions. Therefore, having a good understanding of SD is essential as it is secondary to MS (14).

The integrity of the sexual response cycle is essential for sexual response and function, and any damage in this cycle results in SD (15). MS has a negative effect on the sexuality in both men and women (16). In previous studies, the rate of SD in patients with MS was 60%–91% in men and 52%–77% in women (17, 18). In healthy men, the sexual response cycle comprises libido, erection, ejaculation and orgasm (19). Male patients with MS usually complain of ED (50%–75%), ejaculatory dysfunction and/or orgasmic dysfunction (50%), decreased libido (39%) and anorgasmia (37%) (16).

In patients with MS, SD may develop in three forms: primary, secondary and tertiary (20). Primary SD is a direct result of MS-associated neurological changes. Secondary SD comprises physical changes associated with MS, thus indirectly affecting sexual response. Drugsthat are used to treat fatigue, attention and concentration disorders, difficulties in mobility, coordination disorders, stiffness, bladder and bowel dysfunctions, myasthenia, leg spasms, tremor, pain and MS (steroids, amantadine, anticholinergics and antidepressants) are among the medicines that have the most common side effects. Tertiary SD results from cultural, social, emotional and psychological effects of MS. Depression, anxiety, irritability, decreased self-esteem, distortion in body image perception, decline in the sense of attractiveness, the fear of being sexually rejected, difficulties in relationship with partner, the fear of dependence, performance anxiety, changes in intra-familial roles and similar effects can be listed as causes of tertiary SD (2, 21, 22).

A number of studies have linkedSDin patients with MS with disease duration, depression, disability level, bladder/bowel functions, age, sensory and motor functions of lower limbs, magnetic resonance lesion load and cognitive problems (23-25).

A study on patients with MS (26) reported a correlation between disease duration and SD, whereas another study (27) found no such correlation. This may be explained by the fact that the autonomous nervous system is involved in the early stages of MS. Indeed, patients in the early stages of MS have been reported to have high rates of SD even in the absence of neurological abnormalities (23).

Psychological factors constitute another important cause of SD in patients with MS (28). Reportedly, depression is the most common psychiatric disorder in patients with MS, with an incidence higher than any other chronic disorders (29).

Assessments made using different measurements reported that the incidence of depression ranged from 27% to 54% (30). In this study, theincidence of depression inthe studywas62.5%, which is significantly higher thanthat in the control group.

Laurent et al. (31) reported a relationship between depression and SD in patients with MS. Similarly, a significant negative correlation was observed between BDI and SD scores in our study. In the present study, IIEF scores declined as BDI scores increased in the study group. In addition, IIEF scores of patients with MS with BDIscore ≥17 were statistically and significantly lower than those of patients with MS with BDIscore <17 ($p<0.05$). Therefore, we believe that the treatment of the depression accompanying MS can positively affect SD in these patients.

However, studies investigating the relationship between disability and SD in men had contradictory results. Some studies reported a correlation between EDSS score and SD, whereasother studies reported no such correlation (32, 33). In our study, a significant negative correlation was observed between IIEF and EDSS scores and the number of attacks in patients with MS ($p<0.05$). SD in our patients with MS increased with an increase in the disabilitylevel. In our study, SD levels, as measured using IIEF scores, were lower in the study group than those in the control group. In addition, the study group with EDSSscore <5.5 had higher IIEF scores than that with EDSSscore >5.5, suggesting that the disability level (functional level) of male patients with MS is one of the most important determinants of SD. Accordingly, we believe that efforts implemented to counter MS may positivelyinfluence SD in these patients.

Certain supporting therapies such as those involving the use of urinary catheters may impact the sexual life of patients with MS (34). However, patients using urinary catheters were not included in our study.

Recent studies indicate a significant deterioration of the QoL of patients with MS. Koçer et al. (35) reported significantly lower sub-scores for QoLscale for patients with MS. The QoL of patients with MS declines, preventing the attainment of emotional wellbeing. In our study, the SF-36 average physical and mental component scores and all sub-group average scores were lower in the study group than those in the control group ($p<0.05$).

Reportedly, 42% of patients with MS develop major pain, resulting in considerable limitations, whereas 20% suffer from minor pain (36). Pain in chronic diseases may result in reduced sexual desire, sexual satisfaction and the number and duration of sexual intercourse. A study demonstrated that high pain levels in rheumatoid arthritis, a chronic disease, adversely affect sexual functions (37). Consistent with these results, we observed that as the pain level increased in patients with MS, their sexual functions (measured using total IIEF scores)decreased. In this study, the VAS scores were significantly higher in the study group than those in the control group ($p<0.05$), and a negative correlation was observed between the VAS and IIEF scores ($r= -0.687$).

Thus, we believe that controlling the pain accompanying MS may positivelyinfluence SD.

This study has certain limitations. First, only male patients from one health centre were included. For better results, patients of both sexes from multiple centres should be included in future studies. In addition, certain drugs used by the patients during their treatments (steroids, amantadines, anticholinergics, antidepressants, anxiolytics and proton pump inhibitors) are known to affect their sexual function. In this study, no distinction was made among the enrolled patients regarding the use of these drugs other than antidepressants and anxiolytics. Furthermore, the effects of pyramidal and sensory findings on SD were not examined.

In conclusion, SD is a frequent problem in male patients with MS and appears to be closely associated with accompanying depression, disability, QoL and pain level. For this reason, male patients with MS should be additionally evaluated in terms of SD during follow-up visits; if they are found to suffer from SD, its causes should be identified, followed by an appropriate treatment. In addition, patients and their spouses should be briefed regarding the disease and possible accompanying sexual problems.

Ethics Committee Approval: Ethical approval was obtained from the Ethics Committee of Selçuk University Medical Faculty Deanery.

Informed Consent: Written consents were obtained from the participants.

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