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Investigation of Factors Related to Sexual Dysfunction in Patients with Multiple Sclerosis

Multipl Skleroz'lu Hastalarda Seksüel Disfonksiyonla İlişkili Faktörlerin Araştırılması

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Summary

Objective: Sexual dysfunction (SD) is an important, but generally underestimated symptom in the course of multiple sclerosis (MS). The aim of this study was to investigate the factors related to SD in MS patients.
Materials and Methods: Twenty-one MS patients with and 21 MS patients without SD were included in this study. Age, SD duration, disease duration, marital status, educational status, bladder and bowel dysfunction, disability, independence, cognitive performances and psychological functioning and sexual function scales have also been assessed.
Results: SD correlated with age (p=0.029), disease duration (p=0.045), bladder dysfunction (X^2=0.011; p=0.012). Positive correlations were found between disease duration and 5-point sexual function scale in SD patient (rs=0.419; p=0.027). However, SD did not correlated with bowel dysfunction (X^2=0.469; p=0.418), disability (p=0.190), level of independence (p=0.146) and cognitive performances (p=0.212). The brain stem involvement was higher in patients with SD (X^2=0.001; p=0.001).
Conclusion: The prevalence of SD increases with the patient age and prolonged disease duration. SD is related to bladder dysfunction and brain stem involvement. However, increased disability does not affect SD. *Turk J Phys Med Rehab 2010;56:130-4.*
Key Words: Multiple sclerosis, sexual dysfunction

Özet

Amaç: Seksüel disfonksiyon (SD), multipl skleroz (MS) seyri sırasında görülen ancak genellikle gözardı edilen bir semptomdur. Bu çalışmanın amacı MS'li hastalarda görülen SD ile ilişkili faktörlerin araştırılmasıdır.
Gereç ve Yöntem: Çalışmaya MS'ye bağlı SD'si bulunan 21 hasta ve bulunmayan 21 hasta dahil edildi. Yaş, SD süresi, hastalık süresi, medeni durum, eğitim durumu, mesane ve barsak disfonksiyonu varlığı, disabilite, konginitif performans, psikolojik fonksiyonlar ve seksüel durum değerlendirildi.
Bulgular: SD varlığı; yaş, hastalık süresi ve mesane disfonksiyonu varlığı ile koreleydi (sırasıyla p=0,029, p=0,045, X^2=0,011; p=0,012). Hastalık süresi ve 5 puanlık seksüel fonksiyon skalası arasında, SD olan hastalarda pozitif korelasyon bulundu (rs=0,419; p=0,027). Buna rağmen SD varlığı ile barsak disfonksiyonu varlığı (X^2=0,469; p=0,418), disabilite düzeyi (p=0,190) ve kognitif performans (p=0,212) düzeyi korele bulunmadı. SD'lu hastalarda beyin sapı tutulumu daha yüksekti (X^2=0,001; p=0,001).
Sonuç: SD sıklığı hasta yaşı ve hastalık süresi artıkça artmaktadır. SD mesane disfonksiyonu ve beyin sapı tutulumu ile ilişkilidir. Ancak disabilite düzeyinin artması SD'nin görülme sıklığında artışa neden olmamaktadır. *Türk Fiz Tıp Rehab Derg 2010;56:130-4.*
Anahtar Kelimeler: Multipl skleroz, seksüel disfonksiyon

Introduction

Multiple sclerosis (MS) is the most common chronic neurologic disease affecting the young population in developed countries (1). As the highest incidence of the disease is seen between 20 and 40 years of age, it is accepted as the disease of young adults (2,3). Although the sexual dysfunction (SD) is an important problem seen in the course of MS, it is generally undervalued and few studies exist on this subject. SD is rarely a symptom at disease onset (4,5). It may occur at any time during the course of MS and develops in

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more than half of the patients with MS (6,7). Long-term studies that evaluated the sexual functions of patients with MS are insufficient (4,8). There are several causes of SD in MS (9,10). However, the clinical features and their causes have not been identified yet (4,10). SD affects the quality of life of patients with chronic disease such as MS. Individual experiences show that the disease leads to physiologic and emotional changes in life style. The change of the roles in the family especially affects the sexual habits of individuals negatively. Unfortunately, discussion with the health workers about the changes in sexual habits are considered as taboo, and conversation with the patient and his/her partner is very difficult. As a result of this, sexual problems are neglected (11-13).

It is thought that SD develops due to axonal loss and demyelinization of the pathways that mediate the sexual functions in the central nervous system. Therefore, the possible non-neurogenic causes of SD in the patients with MS are hormonal imbalance, vascular disorders and structural changes of penis (11). The real prevalence of SD is unknown (5). The highest rate Mattson et al. (12) and Valleroy et al. (9) in whose studies the prevalences were 78% and 75%, respectively. The most common symptoms are erectile dysfunction (ED), ejaculatory dysfunction, decreased libido and orgasmic dysfunction (7). In this study, we aimed to investigate the factors related to sexual dysfunction in patients with MS.

Materials and Methods

Forty-two patients with MS aged between 18 and 60 years were enrolled into the study. The patients had definitive diagnosis of MS according to Mc Donald criteria and they volunteered to participate in the study (14). The patients who had renal, metabolic or endocrine disease, previous history of urogenital surgery, relapse within the last month, past history of psychiatric and psychological disorder and who use antidepresant and/or corticosteroid treatment were excluded. Data on age, marital status, educational status, disease duration, type and duration of SD were collected and general neuromuscular examination of the patients was performed. The subgroups of MS were determined as: relapsing-remitting (RRMS), primary progressive (PPMS), secondary progressive (SPMS) and progressive relapsing (PRMS). The sexual functions of the patients was evaluated by 5-points sexual function scale over. The high points indicate increased sexual dysfunction (15). Urodynamic studies were performed on patients with micturation problems. The cognitive performance, the sypmtoms of depression and the disability levels of the patients were evaluated by the Mini-Mental State Examination (MMSE), the Hamilton Depression Rating Scale (HDRS) and Expanded Disability Status Scale (EDSS), respectively (16-19). The localizations of the plaques on magnetic resonance imaging (MRI) that had been performed within the last year was examined in all patients. The patients were divided into two groups according to their lesion localization: the first group-with cerebral involvement the second group-with cerebral and brainstem involvement. All patients were evaluated for possible bladder and bowel problems.

Statistical Analysis

Statistical analysis were performed by SPSS 11.0 for Windows (Chicago USA). Student-t test and Mann-Whitney U test were used in order to compare averages of two independent groups. In one-way analysis of variance, Kruskal-Wallis one-way analysis of variance which is a nonparametric method, was used. The chi-square test was used to compare the ratios of independent groups and Spearman's rank correlation coefficient, which is one of nonparametric tests, was used in order to measure the linear relationship between two variables. Statistical significance was accepted as $p<0.05$.

Results

The average ages of the patients with and without SD were 38.10±7.60 years and 32.62±8.07 years, respectively (p=0.029). The mean disease duration of the patients with SD was 7.86±4.92 years, it was 4.90›3.03 years in the patients without SD (p=0.045). The average ages of the patient with and without SD at the onset of the disease were 30.33±8.72 years and 27.10±7.35 years, respectively (p=0.216). In the evaluation of marital status, 15 (71.4%) patients with SD were married and 6 (28.6%) were single. Nine (42%) patients without SD were married and 12 (57.1%) single. There was no significant difference between groups in the terms of marital status (X^2=0.061; p=0.065).

Among the patients with SD; 13 (61.9%), 4 (19%), 4 (19%) were graduated from primary school, secondary school and university respectively. In the group without SD 6 (30%), 12 (60%) and 3 (10%) patients were graduated from primary school, secondory school and university respectively. When the groups were compared according to the educational status, it was seen that the patients with SD had lower educational levels than those without SD (X^2=0.027; p=0.024). When evaluating the occupational status of the patients, 9 (42.2%) patients with SD were employed, 12 (57.1%) were unemployed. While 14 (66.7%) patients without SD were employed, 7 (33.3%) were unemployed (X^2=0.121; p=0.126).

When the groups were compared according to the type of MS, it was observed that 12 (57.1%) patients were with RRMS, 4 (19%) with PPMS and 5 (23.8%) were with SPMS in the SD group. RRMS, PPMS, and SPMS were seen in 14 (66.7%), 5 (23.8 %) and 2 (9.5 %) patients without SD, respectively. According to the presence of bladder dysfunction, 17 (81%) patients with SD had bladder dysfunction and 4 (19 %) of had normal bladder function, whereas, bladder dysfunction was determined in 9 (42.9%) patients without SD, while 12 (57,1%) had normal bladder function (X^2=0.011; p=0.012).

A higher rate of neurogenic bladder was found in the patients with SD. When evaluating the bowel function, 6 (28.6%) patients with SD had bowel dysfunction and 15 (71.4%) had normal bowel function, while 4 (19%) patients without SD had bowel dysfunction, 17 (81%) had normal bowel function. (X^2=0.469; p=0.418) (Table 1).

According to the plaque localization on cranial MRI; 10 (47.6%) patients with SD had cerebral localization, 11 (52.4%) had cerebral and brainstem localization. Twenty (95.2%) patients without SD had cerebral localization and only one (4.8%) had cerebral and brainstem localization (X^2=0.001; p=0.001). When assessing the emotional state of the patients, 7 (33.3%) of those with SD had slight depression, one (4.8%) had major depression, 13 (61.9%) had no depression. Three (14.3%) patients without SD had major depression and 18 (85.7%) had no depression. Although depression was seen more commonly in the patients with SD, this difference was not statistically significant (X^2=0.079; p=0.083) (Table 2).

There was no statistically significant difference between the groups regarding the presence of relapses within the last year (X^2=0.89; p=0.26).

The average EDSS scores of the patients with SD and without SD were 4.67±2.63 and 3.29±2.31, respectively (p=0.190). When the groups were examined according to their Mini-Mental test scores, the average MMSE scores of the patients with SD and without SD were 28.57±2.64 and 29.29±1.55, respectively (p=0.212). A negative relationship between disease duration and MMSE scores was detected (rs=-0.466, p=0.002).

Presence of depression according to MS duration was not found to be significantly different between groups (p=0.071). However, it is found to be significant according to SD duration (p=0.037). Depression was found to be more common in patients with longer duration of SD.

Although there was a significant relationship between five-point sexual function scale and duration of ED (rs=0.540: p=0.011), there was no statistically significant association between the age of patients at disease onset and EDSS (rs=-0.177; p=0.442 rs=0.389; p=0.81). The data of the patients with and without SD are compared in Table 3.

Discussion

MS is a neurologic disorder with different courses and manifestations (9). SD is an important condition that affects the social life and quality of life of patients with a chronic disease such as MS (1,7,11,13). In the study by Valleroy et al. (9) it was found that 75% of male patients had sexual problems and the most common symptom was difficulty in erection, 55% of patients had decreased genital sensation, 51% had fatigue, 48% decrease in libido, 44 % difficulties in ejaculation and orgasm, and 37% of had spontaneous erection or night erection.

Although the studies that focus on SD in patients with MS were very limited, 2 major conclusions were drawn: firstly the sexual problems may occur in the early stages of the disease and secondly, the sexual problems are frequently seen in both genders. Difficulties in providing or maintaining erection, partial erection loss during intercourse, decreased orgasm, early ejeculation, decrease in ejeculation flow, muscle spasm, loss of genital sensation or feel of numbness that inhibiting sexual reaction also observed (3).

Lottman et al. (20) stated that SD had developed gradually in most of the patient in their study which consisted 16 patients. However, 3 patients noticed that SD had developed suddenly. Although the patients were not satisfied with their sexual functions, they were satisfied with the sexual intercourse. Most of the patients complained from sexual problems, but only some of them got professional help. In the study of Minderhoud (21), SD was determined in 44% of patients and the most frequent symptom was ED. Similarly, in the study of Mattson et al. (12), the most frequent symptom was ED as observed in our study on patients with MS. The second most frequent symptom was ejaculatory disorder.

Zivadinov et al. (10) performed a study to demonstrate the effects of social factors on SD. The educational and marital statuses of the patients were evaluated, however, no significant association was found between these factors and SD. Similarly, in another study by Valleroy et al. (9), no relationship between educational status and SD was detected. However, Demirkıran et al. (4), reported association between the education status and SD. In our study, the patients with SD had lower educational status, however, SD correlated significantly with marital status and occupational status.

There are controversial findings of studies that investigated the relationship between age and SD in patients with MS which was significant according to some studies (2,4,5,11,20), but to other studies it was not (3,10,21). Although the average age of the patients with SD was higher than that of the patients without SD in our study, the avarage ages in both groups were generally high. Therefore, we think that the relationship between age and SD was due to the disease.

There was a correlation between the average age of the patient at the beginning of the symptoms and SD in the study performed by Zivadinov et al. (10). However, there was no correlation between the average age of the patient in the beginning of their symptoms and SD in our study.

In the studies by Zivadinov (2) and Demirkıran (4), the disease durations in the patients with SD were longer than those in the patients without SD. In other studies performed by Minderhoud (21), Dewis (3) and Zivadinov (10), no correlation between disease duration and SD was observed. In our study, the average disease duration in the patients with SD was 7 years and in those without SD-4 years. We have found correlation between disease duration and SD.

In several studies it was found that the SD symptoms did not change significantly after relapses. However, the prevalence of SD rises with an increase in the disease duration (8,10, 12,22).

Table 1. Bladder, bowel dysfunction and spasticity in the patients with and without sexual dysfunction (SD).

	SD (+)		SD (-)		p value
	n	%	n	%	
Bladder dysfunction	17	81	6	28.6	0.012
Bowel dysfunction	9	42.9	4	19	0.479
Spasticity	10	47.6	6	28.6	0.209

Table 2. Emotional states of the patients with or without sexual dysfunction.

	SD (+)		SD (-)	
	n	%	n	%
Slight depression	7	33.3	0	0.0
Major depression	1	4.8	3	14.3
No depression	13	61.9	18	85.7
*(X^2=0.079; p=0.083).				

Table 3. Characteristics of the patients with or without sexual dysfunction.

	SD (+)	SD (-)	p value
Average of age, years	38.10±7.60	32.62±8.07	0.029
Disease duration, years	7.4±4.8	4.11±3.03	0.045
The average age at the disease onset, years	30.33±8.72	27.10±7.35	0.216
Mean EDSS score	4.67±2.63	3.29±2.31	0.111
MMSE score	28.57±2.64	29.29±155	0.212
*SD: Sexual dysfunction, EDSS: Expanded disability status scale, MMSE: Mini-mental state examination test.			

No relationship between the number of relapses in the last year and SD was observed in our study.

The relationship between SD and type of MS had been shown in several studies. Bakke et al. (23) reported that SD was more frequent in SPMS type. Demirkıran et al. (4) found similar relationship between SD and progressive forms of MS. However, they stated that since these results were yielded from a small group of patients with SPMS and PPMS, they should be interpreted carefully, besides, the progressive nature of the disease was not enough to explain SD. Mattson et al. (12) did not find any significant relationship between SD and any type of MS. Although most of the patients with SD were suffering from RRMS type in our study, such a relationship was not detected.

In two studies, in which the EDSS scores of patients with and without SD were compared, there were significant differences in the EDSS scores of the groups (2,4). However, no significant difference was found in other studies (10,13,21). Demirkıran et al. (4) stated that SD might develop in the absence of severe neurologic deficit in the patients with low disability score and they showed that SD problems were seen more frequently in the patients with severe disability degree. However, it must be kept in mind that the effect of disability on SD was not clear, yet (13). Although the average EDSS of the patients with SD in our study showed medium/severe degree of disability, there was no significant difference between two groups in the terms of EDSS scores.

In a study in which the patients with SD (n=14) and without SD (n=2) were evaluated, the average MMSE scores for the patients with and without SD were 28.2 and 29.3, respectively; therefore, the patients with SD had greater cognitive dysfunctions than those without SD (2). Zorzon (7) determined the average MMSE score as 28.7 in one of his study in which 38 male MS patients, most of whom had symptoms of SD. Demirkıran et al. (4) performed a study to compare the MMSS scores of patients with and without SD. It was found that SD was more frequently present in the patients who had memory and concentration problems. The positive correlation of these problems with decrease in libido and erectile dysfunction supports the probable relationship between the cognitive functions and SD. It must be keep in mind that, MMSE is only a screening test and is not able to evaluate all cognitive problems. Twenty-two male patients with MS were evaluated in another study by Zorzon et al. (24), and a negative correlation was found between the total MMSE scores and SD (24).

In our study, the average MMSE scores for the patients with SD and without SD are 28.57 and 29.2, respectively. Although the MMSE scores for the patients with SD were found to be lower than for those without SD, there was no statistically difference. No differences were found in the MMSE score when the educational status of the patients was considered. When evaluating the studies on the relationship between the disease duration and MMSE scores, it was found that Zivadinov (22), who examined 16 male MS patients could not detect any relationship between MMSE scores and disease duration. However, in our study, negative correlation between the disease duration and MMSE scores was observed. By these result, it may be stated that the increased disease duration may cause greater deterioration in cognitive functions.

There are few studies that evaluated the relationship between the magnetic resonance imaging (MRI) findings in male patients with SD secondary to MS. In one of these studies, cranium and cervical cord were investigated and no relationship was found between the severity of lesions and atrophy on the T1 and T2-weighted MRI in the patients and the severity of SD sypmtoms. In another study, a relationship was detected between the SD symptoms and severity of pontine lesions, demonstrated by T1-weighted imaging (2,4).

Minderhoud et al.(21) claimed that the reason was the presence of small organic lesions. Demirkıran (4) has associated the orgasmic dysfunction with the lesions of white matter in inferior parietal lobe and pontine atrophy. In our study, it was observed that, the cerebral and brainstem lesions were more frequent in the patients with SD. The disadvantage of our study was the absence of spinal cord imagings in the patients.

SD and lower urinary system symptoms are generally seen together in patients with MS (1). In studies evaluating patients with MS, the relationship between sphincteric dysfunction, SD and severity of neurologic impairment have not been investigated, however, it was thought that SD and sphinteric dysfunction orginated from disturbed autonomic control (7,10,12,23).

In the studies that investigated the relationship between SD and bladder/bowel symptoms, a relationship was found between SD and bladder problems (3,8,9). Minderhood (21) and Mattson (12) also detected an association between SD and bladder/bowel dysfunction in their studies. Zivadinov (10) could not detect a significant relationship between SD and bladder/bowel dysfunction in his study on male patients with SD. In our study, the prevalence of neurogenic bladder in the patients with SD was higher, however, there was no significant correlation between SD and bowel dysfunction.

Depression is one of the effective factors for SD and there was a significant relationship between SD and depression (12,13,20). However, in studies of Zivadinov (2,10) evaluating the association between SD and depression no significant correlation is demonstrated. Although depression was seen more frequently in the patients with SD, in our study, there was no statistically significant difference among the groups.

Conclusion

This study in which the factors related to SD in male patients were investigated might be a reference for the future studies. However, long term studies exploring the factors that accompany the sexual function disorders in MS are needed to be performed.

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