Sexual Function in Women with Multiple Sclerosis

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Abstract- Multiple sclerosis (MS) is an inflammatory disease of central nervous system (CNS) and sexual dysfunction (SD) is one of the most common disabilities of MS women. The aim of this study was to determine sexual function of women with MS (multiple sclerosis). One hundred definite MS patients MS patients and fifty age-matched healthy controls were enrolled. Demographic data (sex, age), duration of the disease and disease pattern extracted from patient's files and Kurtzke Expanded Disability Status Scale (EDSS) recorded for each patient by an expert neurologist. Participants were asked to answer the valid and reliable Persian version of Beck depression inventory (BDI) and Female Sexual Function Index (FSFI) questionnaires. The total FSFI score and subscale scores differed significantly between the MS patients and the controls. There was a significant negative correlation between EDSS and FSFI scores (rho=-0.44, $P<0.001$) and significant positive correlation between EDSS and BDI (rho=0.36, $P<0.001$) in patients. Mean BDI and all subscales of FSFI differed significantly between patients with total FSFI score higher and lower than 26.55. Sexual dysfunction should be considered in women with multiple sclerosis.

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Keywords: Multiple sclerosis; Female Sexual Function Index (FSFI); Persian; Depression

Introduction

Multiple sclerosis (MS) is an inflammatory disease of central nervous system (CNS) characterized by CNS demyelination and affects physical as well as intellectual aspects of patient's lives (1,2). Sexual dysfunction (SD) is one of the disabilities of women who suffer from MS which is common in such cases in comparison with healthy ones. (57% vs. 43%) (3,4). Previous studies showed that MS patients suffer from different aspects of sexual function such as loss of orgasm, loss of libido, an increase in spasticity during sexual activity, and decreased vaginal lubrication (5,6). Different factors such as sensory dysfunction, psychological problems, side effects of medications, and disease complications like urinary and bowel symptoms have been considered as possible causes of SD in MS cases (7-9).

On the other hand, the state of different hormones including 17 beta estradiol, testosterone, progesterone, and prolactin can have a role in female sexual function. Imbalance of endogenous hormones could affect sexual well-being and could make different problems such as decreased desire and libido; lack of sexual arousal; vaginal dryness; decreased frequency of sexual activity; painful intercourse; diminished sexual responsiveness; difficulty achieving orgasm; and decreased genital sensation. Lombardi *et al.* evaluated 54 women with MS and found abnormal hormonal alterations in 37% of patients. In addition, 57% of cases manifested at least one aspect of SD (3).

In recent years, the number of MS patients increased significantly in Iran (10) but there is no information about their sexual well being. The goal of this study was to determine sexual function Index of Iranian MS patients.

Materials and Methods

In this cross-sectional study, one hundred MS patients who referred to MS clinic of Sina Hospital

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(affiliated to Tehran University of Medical Sciences) and fifty age-matched healthy controls were enrolled.

The inclusion criteria were definite MS according to MC Donald criteria, and participation in sexual intercourse at least once within 4 weeks prior to the study. The exclusion criteria were corticosteroids therapy within last 4 weeks, and active MS.

All cases were asked to fill the informed consent forms. The study had been approved by local ethics committee.

Demographic data (sex, age), duration of the disease, disease course [Relapsing Remitting (RR), Primary Progressive (PP), Secondary Progressive (SP), Progressive Relapsing (PR)], and types of medications were extracted from patients medical files.

After neurological examination, Kurtzke Expanded Disability Status Scale (EDSS) was assessed.

Participants were asked to answer the valid and reliable Persian version of Beck depression inventory (BDI) and valid FSFI questionnaires.

FSFI is a19-item self-report instrument to measure female sexual function providing scores on six domains of sexual function as well as a total score. These domains include: desire (2 items, questions 1&2), arousal (4 items, questions 3, 4, 5 and 6), lubrication (4 items, questions 7, 8, 9 and 10), orgasm (3 items, questions 11, 12 and 13), satisfaction (3 items, questions 14, 15 and 16), and pain (3 items, questions 17, 18, 19) (11). The addition of the nineteen items provides the total FSFI score.

The BDI consists of 21 questions which are answered by the participants according to their feelings over the last week. Each item is scored from 0 to 3 to determine the participant's degree of depression. Individuals with total scores between0 and 9 are not recognized as depressed, scores between 10 and 18 are indicative of mild to moderate depression, scores between 19 and 29 indicate moderate to severe depression, and scores between 30 and 63 are defined as severe depression (12).

All data were analyzed using SPSS software version 18.0 (SPSS Inc., Chicago, IL, USA).

Student's t-test and Fisher's exact tests were used to compare continuous and categorical variables. Correlation coefficient (Spearman or Pearson) calculated to assess association between variables. Multiple linear regression analyses with FSFI score as dependent variable and the scores of BDI, age and duration of disease as independent variables conducted to assess their relevance for sexual function.

P-value less than 0.05 was considered as significant.

Result

One hundred married patients (mean age= 32.8 ± 7.6 years) and fifty healthy controls (mean age= 31.8 ± 8.4 years) participated in this study.

Mean education level, duration of the disease, and median EDSS were 13.0 ± 3.1 (years), 5.0 ± 4.8 (years), and 1, respectively. The most common type of MS was relapsing-remitting (RR) (95%) followed by secondary progressive (SP) (5%).

Mean total sexual score and the scores of subscales were significantly different between patients and healthy controls (Table 1).

Table 1. Mean BDI, total sexual score and its subscales in patients and controls

	Patients	Healthy controls	*P*-value
BDI	17.7 ± 10.1	7.9 ± 6.8	<0.001
Total sex score	23.2 ± 7.1	26.8 ± 5.2	0.002
Desire	3.5 ± 1.1	3.9 ± 1.3	0.04
Arousal	3.6 ± 1.3	4.2 ± 1.2	0.01
Lubrication	4.0 ± 1.5	4.9 ± 1.1	0.001
Orgasm	3.6 ± 1.4	4.4 ± 1.2	0.003
Satisfaction	4.2 ± 1.3	4.7 ± 1.0	0.01
Pain	4.0 ± 1.7	4.7 ± 1.2	0.003

There was a significant negative correlation between BDI and total sexual score and its subscales in patients (Table 2).

Table 2. Correlation coefficients between BDI and total sexual score and its subscales

	Correlation coefficient	*P*-value
Total sexual	-0.42	<0.001
Desire	-0.46	<0.001
Arousal	-0.46	<0.001
Lubrication	-0.27	<0.001
Orgasm	-0.32	<0.001
Satisfaction	-0.32	<0.001
Pain	-0.35	<0.001

We also found significant negative correlation between EDSS and FSFI scores (rho=-0.44, $P<0.001$) and significant positive correlation between EDSS and BDI (rho=0.36, $P<0.001$).

Sixty six patients (66%) had sexual dysfunction (FSFI<26.55).

Mean BDI and all subscales of FSFI differed significantly between patients with total FSFI score

higher and lower than 26.55 (Table3).

Table 3. different scores in patients with and without sexual dysfunction

	Cases with FSFI <26.55 N=71	Cases with FSFI > 26.55 N=29	*P*-value
BDI	19.8 ± 10.2	12.5 ± 7.7	0.001
Desire	3.1 ± 0.9	4.5 ± 0.8	<0.001
Arousal	3.1 ± 1.2	4.7 ± 0.7	<0.001
Lubrication	3.5 ± 1.5	5.2 ± 0.7	<0.001
Orgasm	3.1 ± 1.3	5.0 ± 0.7	<0.001
Satisfaction	3.1 ± 1.3	5.0 ± 0.7	<0.001
Pain	3.4 ± 1.7	5.4 ± 0.6	<0.001
Total score	20.1 ± 6.0	30.3 ± 2.0	<0.001

Table 4. Linear regression model for variables predicting FSIS

	B	SE	Odds ratio	95% CI	*P*-value
BDI	-0.06	0.03	0.93	0.88-0.99	0.04
Age	-0.009	0.04	0.99	0.96-1.07	0.8
Disease duration	-0.1	0.09	0.8	0.71-1.05	0.1

Discussion

This study was the first study to evaluate sexual function in Iranian MS cases.

Sixty six cases in this study had sexual dysfunction while this rate was higher than the rate Lombardi *et al.* reported. In their study, 57% of enrolled MS patients reported SD (3). Sexual dysfunction of MS women at reproductive age can be influenced by different factors such as psychological factors, sensory dysfunction, complications of treatments, and sex hormones. In a large study evaluating MS patients, 33% reported loss of orgasm, 27% loss of libido, and 12% an increase in spasticity during sexual activity (5). According to another study 36% of the enrolled MS cases reported decreased vaginal lubrication during their sex (6).

Our results confirmed that the mean total FSFI score and the scores of its subscales differ significantly between patients and controls. It can show that MS patients have problems in sexual function. One of the factors that could affect sexual dysfunction in MS patients is the psychological problems such as depression. As MS patients suffer from depression more than general population, (2), we can expect higher SD in these patients than healthy controls.

Mean BDI score in this study was significantly higher in patients than in controls and it was the only predictor of FSFI score in our study. We also found significant negative correlations between BDI score and total sexual score and its subscales in patients. In another study, 25%-75% of individuals with depression who were not under treatment reported low sexual desire (13).

Previous studies demonstrated higher prevalence of libido loss in depressed individuals in comparison with age-matched controls (14-16).

Depression can also affect the arousal part of sexual behavior. In ELIXIR study, 76% of depressed participants reported problems with arousal, 24% of whom reported erectile or lubrication problems (17). As our findings and Lombardi *et al.* findings show, mean scores of arousal and lubrication subscales differ significantly between patients and healthy controls, which were negatively correlated with BDI score (3).

Like Lombardi *et al*. findings, our findings show that the mean total FSFI score and its subscales scores were significantly different in patients with and without sexual dysfunction (FSFI scoreless and more than 26.55). Disease severity (EDSS) was also higher in patients with lower FSFI scores; there was a significantly negative correlation between EDSS and FSFI. Furthermore, there was a positive correlation between EDSS and BDI, which can show that disease severity influences mood and sexual aspect of MS patients.

Persian version of FSFI questionnaire is a valid and reliable instrument for evaluating sexual function in MS patients.

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