Research Article

Frequency of Sexual Dysfunction in Relation to Disease Activity in Female Rheumatoid Arthritis Patients

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Abstract

Background: Rheumatoid Arthritis is a chronic autoimmune disease that affects all aspects of life including sexual function.

Objectives: To identify the frequency of sexual dysfunction and its relationship with activity of disease in female rheumatoid arthritis patients.

Methodology: It was a cross-sectional study. A total 93 female rheumatoid arthritis patients were recruited by convenient sampling from rheumatology clinic of Shaikh Zayed Hospital, Lahore. Female Sexual Function Index (FSFI) used to label sexual dysfunction and the Disease Activity Score (DAS-28) was used to assess the activity of disease. Independent sample t-test was used to compare means among groups with and without sexual dysfunction. Spearman correlation coefficient was used to see the association of FSFI with DAS-28 and confounding variables. Linear regression was applied to see the effect of DAS-28 in the presence of age and duration of disease. FSFI score was compared among three groups of disease activity based on severity by one-way ANOVA. P-value of ≤ 0.05 was considered significant.

Results: Survey evidence of sexual dysfunction was found in 54.8% of rheumatoid arthritis cases. The age, duration of disease and DAS-28 score were significantly different among the two groups based on sexual dysfunction status. These three factors were significantly associated with FSFI with correlations of -0.484, -0.453 and -0.231. Mean FSFI score found significantly lower in group with the moderate activity as compared to remission and low activity group with p-values of 0.011 and 0.013.

Conclusion: The sexual dysfunction is associated with activity of disease along with age and duration of rheumatoid arthritis.

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Introduction

Rheumatoid Arthritis is a systemic autoimmune illness characterized by inflammation and progressive synovial joints damage that affects 0.5-1.0% of the population worldwide.[1] It leads to morbidity and in due course has profound impact on socioeconomic, psychological and sexual aspects of a patient's life.[2] Sexual health is one of the major determinants of general health and quality of life.[3] World Health Organization defined sexual health as "A state of physical, mental, emotional and social well-being in relation to sexuality. To have a good sexual health is not only absence of sexual diseases, but also associated with self-esteem, intimate relationships and general quality of life".[4] The International Classification of Functioning, Disability and Health defined and included two components of sexual health in two separate and different areas: sexual function and intimate relationships.[5] Rheumatoid arthritis had impact on both areas of sexual function. The International Consensues Development Conference on Female Sexual Dysfunction defined female sexual dysfunction (FSD) as a "Persistent or recurring decline in sexual arousal, inability or difficulty to achieve an orgasm and dyspareunia which lead to personal distress and relationship difficulties".[6]

Sexual Health is a neglected part of quality of life in rheumatoid arthritis patients that is not routinely addressed by physicians. Coskun et al reported FSD in 68% rheumatoid arthritis patients, it affects all domains of sexual functions (desire, arousal, lubrication, orgasm and satisfaction) and high disease activity has a negative impact on sexual function.[7] Another study found 62% of female rheumatoid arthritis patients had some loss of sexual desire and 48% had total loss of sexual desire. Female rheumatoid arthritis patients who had high degree of morning stiffness also experienced more sexual dysfunction.[8]

Sexual health problems are not routinely addressed by rheumatologists despite a high prevalence. This is the first study to the best of our knowledge conducted in Pakistan to highlight this important but neglected issue. The objectives of this study were to determine the frequency of sexual dysfunction and its relationship with activity of disease in female rheumatoid arthritis patients. Findings of this study may be useful for future reference and implementation of interventions.

Methods

This was a cross sectional study with a total of 93 female patients already diagnosed with rheumatoid arthritis recruited through convenient sampling from October 2018 to November 2018 till the completion of required sample size from the rheumatology outpatient department of Shaikh Zayed Hospital, Lahore. After approval from Hospital Ethics Committee and taking informed written consent from all patients, patients were selected based on the inclusion and exclusion criteria. Inclusion criteria were all married female aged 18-45 years already diagnosed with rheumatoid arthritis according to the 2010 diagnostic criteria of The American College of Rheumatology / European League against Rheumatism[9] and in a sexual relationship with their partner. The exclusion criteria were that the patient was known to have any other chronic diseases (diabetes, hypertension, ischemic heart diseases, any other gynecological problem, psychiatric illness or taking medications for these, Sjogren's syndrome or any other connective tissue disorder). The sample size of 93 patients calculated by using 95% confidence level, 10% margin of error with expected frequency of sexual health problem of 60% among rheumatoid arthritis patients.

The questionnaire was comprised of three parts including two measurement tools used to assess the outcome measures. The first part included demographic information, the second part to evaluate sexual dysfunction and third part to assess disease activity. FSD was determine by using the standard Female Sexual Function Index (FSFI) questionnaire by Rosen et al10. The Urdu version of FSFI (FSFI-U) is reliable and valid for use in population of Pakistan.[11] The FSFI-U was filled by patients in a separate room to maintain privacy and those patients who did not have basic education were helped by a doctor. This 19-item brief multidimensional questionnaire has been developed for assessing the important dimensions of female sexual function over the last four weeks. All the main domains of sexual function integrated in this questionnaire: sexual desire, arousal, lubrication, orgasm, satisfaction and pain. A lower score indicates more severe sexual dysfunction in female. A FSFI score $\leq$ 26.55 classified as FSD. Activity of disease was measured by using the Disease Activity Score in 28 joints (DAS-28).[12] It is

calculated by using a simple formula and based on the number of tender and swollen synovial joints (0-28), erythrocyte sedimentation rate (ESR) and the patient global health assessment (from 0=best to 10=worst). The interpretation of the score is: remission is considered if the score is in between 0 and <2.6, low disease activity considered if score is in between 2.6 to <3.2, moderate activity score is between 3.2 and ≤5.1 and high disease activity if score more than 5.1.

Data was entered and analyzed by using SPSS 20.0. Data described for age, Body Mass Index (BMI), DAS-28, and FSFI by using mean+ SD. To see the association of FSFI with other variables, data for FSFI was correlated with age, BMI, duration of disease, education years and DAS-28 by using Spearman rank correlation. Regression analysis was performed to see the effect of disease activity (DAS-28) on sexual health (FSFI) by considering age and duration of disease as confounding variables. For comparison of FSFI scores among different disease activity levels by using one-way ANOVA was used. P-value <0.05 was considered significant.

Results

Among 93 female rheumatoid arthritis patients included in the study 34(36.6%) were in disease remission phase, 33(35.5%) had low disease activity and the remaining 26 (27.9%) patients had moderate disease activity. Majority of the patients (58.1%) were suffering from rheumatoid arthritis for less than 5 years and only 2.2% for more than 10 years. Education level was uniformly distributed with 16.1% uneducated, and same in under matric, while 12(12.9%) had graduated. There were 28(30.1%) who had healthy BMI, 48(51.6%) were overweight and 17(18.3%) were obese. Sexual dysfunction was present in 51(54.8%) of the patients.

The average age of patients with sexual dysfunction was significantly higher. Similarly, the duration of illness was significantly higher by almost 1.7 years and disease activity score by 0.46. The education and body mass index was not found to be different between those with and without sexual dysfunction. The sub factors of sexual dysfunction including desire, arousal, lubrication, orgasm, satisfaction and discomfort scores were found to be significantly lower in all sexually dysfunctional females as compared to the other group. (Table.1)

The correlation of FSFI score with age and duration of arthritis was moderately negative and that with disease activity score was weakly negative. The correlation of FSFI scores with BMI and education years were not significant with p-values 0.222 and 0.408 respectively. (Table.2)

The comparison of FSFI score among three categories of rheumatoid arthritis disease activity was made by using ANOVA. It was observed that the moderate activity group had the lowest mean score of 22.42± 3.10 which was significantly lower compared to remission and low activity group with p-values of 0.013 and 0.011 respectively, while the difference between remission and low activity group was not significant with p-value of 0.996. (Table.3)

Finally the linear regression analysis was performed to see the effect of DAS score on FSFI in the presence of age and duration of disease as confounding variables. It was clear that the duration of illness and disease activity score were both significant contributors towards sexual dysfunction with p-values of 0.022 and 0.002. The age had a p-value of 0.088, which can also be considered a contributor. The FSFI score is reduced by 1.48 for unit increase in DAS and 0.465 by duration of illness. (Table.4)

Table 1: *Different Quantitative Measures and Comparison between Two Groups by Sexual Dysfunction Status*

	Female sexual dysfunction				P-value
	Yes		No		
	Mean	SD	Mean	SD	
Age of patient	36.92	4.55	32.55	4.13	< 0.001
BMI kg/m2	26.88	4.53	26.77	3.18	0.890
Years of education	8.73	4.49	9.17	4.53	0.639
Duration of illness in years	5.04	2.38	3.33	1.63	<0.001
Disease Activity score	3.11	0.73	2.65	0.53	0.001
Sexual arousal score (30)	15.37	2.76	21.26	1.31	<0.001
Lubrication score (20)	13.22	1.75	15.43	1.02	<0.001
Orgasm score (15)	8.84	1.36	11.38	1.01	<0.001
Satisfaction score (15)	9.33	1.38	12.33	.75	<0.001
Discomfort score (15)	11.45	1.33	13.33	1.03	<0.001

Lower scores present problem severity

Table 2: *Correlation of Female Sexual Dysfunction score with Age, BMI, Year of Education, Duration of Illness, Disease Activity Score*

Factor	Spearman r	p-value
Age (years)	-0.484**	<0.001
BMI kg/m2	-0.128	0.222
Years of education	0.087	0.408
Duration of illness (years)	-0.453**	<0.001
Disease Activity score	-0.231**	0.026

Table 3: *Female Sexual Dysfunction Score Comparison Among Three Disease Activity Groups*

Disease activity level	FSF Index score		P-value by ANOVA
	Mean	SD	
Remission[a]	24.97	3.53	
Low[a, b]	25.04	3.36	0.005
Moderate [c]	22.42	3.10	

Note: Sharing a superscript means there is no significant difference between the two groups at 5% level of significance

Table 4: *Regression Analysis Presenting Effect of Disease Activity Score on Female Sex Dysfunction Score in Presence of Age, BMI, Education, and Duration of Disease. (R^2 Adjusted = 0.278)*

	Unstandardized Coefficients		T	Sig.
	B	Std. Error		
(Constant)	36.087	2.936	12.219	<0.001
Age of patient	-0.158	0.092	-1.725	0.088
Duration of illness in years	-0.465	0.199	-2.331	0.022
Disease Activity score	-1.481	0.459	-3.225	0.002

Discussion

Rheumatoid arthritis had a negative impact on patient's sexual health and affects all domains of sexual health. The study objectives were to determine the frequency of sexual dysfunction and its relation to activity of disease in female rheumatoid arthritis patients.

In this study, 93 female rheumatoid arthritis patients participated. The findings of this study revealed that 54.8% patients had sexual dysfunction. The scores in all sub-domains of sexual function (sexual desire, arousal, lubrication, orgasm, satisfaction and discomfort) were found to be significantly lower in all sexually dysfunctional females. In contrast to these results, there was a much higher prevalence of FSD (80%) reported by Maasoumi R et al in a study conducted in Iran.[13] This higher prevalence might be because the mean duration of illness in the majority of the patients in that study was more than 12 years which also had a negative impact on sexual dysfunction. This study also showed that rheumatoid arthritis significantly affected all components of sexual function. Hari A et al also reported a 76% prevalence of sexual dysfunction in Moroccan rheumatoid arthritis women that affect all domains of FSFI with significantly lower scores as compared to the control group except for pain.[14] It has to be taken in to account that patients in our study were relatively young (<40 years old) compared to the above studies as the problem with sexual health increases with increasing age. Lin et al reported 66.8% and 48.2% crude and age standardized prevalence of FSD in Chinese patients[15]. Results of a meta analysis that included 5 studies conducted in three different countries using the same questionnaire of FSFI and having a healthy control group reported sexual dysfunction in 79.67% rheumatoid arthritis patients with significantly lower scores in all domains of FSFI.[16] Saadat et al reported significantly lower scores in all domains of FSFI apart from for sexual desire.[17]

The average age of the patient and duration of illness in our study were found to be statistically significant different with negative correlation in FSD patients. The education and body mass index (BMI) were not found statistically significant in both groups. Dorner TE et al reported similar results for age, duration of illness and education.[18] Costa TF et al reported that increasing age of patients significantly affected all domains of FSFI but found no association with increasing years of education and BMI in groups with and without FSD.[19]

This study also found a significant positive correlation of high disease activity with FSD among rheumatoid arthritis patients. This is because low or no disease activity had a positive impact on patient's life and relationship. Similar results were reported in previous studies.[14,15,20,21] Yilmaz et al reported disease activity as one of the major determinants of sexual dysfunction in female rheumatoid arthritis patients as the study found a strong negative correlation between high disease activity and sexual dysfunction.[22] In contrast to above results, Aras et al reported no relationship with disease activity and sexual dysfunction.[23] Costa et al also reported no association between FSD and disease activity.[19] Gaber et al reported that rheumatoid arthritis patients with sexual

dysfunction had higher erythrocyte sedimentation rate (ESR) and higher disease activity score compared to patients with low or moderate disease activity.[24] As with high disease activity body stiffness increases along with more number of joints affected that leads to restricted joints movement and difficulty in acquiring required position. Puchner et al reported that disease activity had no influence on FSD.[25] This might be because the majority of patients who participated in that study were in remission.

There are several limitations of this study. Sample size is small so the results may not reflect the general population. This is a cross sectional study which is less valuable than prospective cohort studies. Other confounding factors not assessed in this study were depression and anxiety that could have an impact on sexual function.

Conclusion

Sexual dysfunction is associated with disease activity score along with age and duration of rheumatoid arthritis. This is the first local study regarding frequency of sexual dysfunction in female rheumatoid arthritis patients using FSFI-U. The results of this study highlight that sexual dysfunction in female rheumatoid arthritis patients is more prevalent and a less clinically addressed problem in our population. This study helps in improving an holistic approach toward patients. Rheumatoid arthritis patients require a multidisciplinary approach in management that should include a physiotherapist, psychiatrist/ psychologist, sexual health expert and rehabilitation team in addition to the rheumatologist. There is also a need to increase social and family support to cope with the disease.

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