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Multiple Sclerosis and Female Sexual Dysfunction: Impact of Disease Severity and Duration

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Despite a lot of studies of sexual dysfunction there are still no consistent data about the prevalence and characteristics of sexual dysfunction among women with MS, especially it terms of multiple sclerosis severity and duration.
The objective: **was to determine the prevalence of various SD symptoms among female MS patients, depending on the age and severity of the disease, and evaluate SD impact on quality of life.**
Materials and methods**. The study population includes 116 female patients with MS (McDonald's criteria, 2010). Health – related quality of life was measured by the Multiple Sclerosis Quality of Life Questionnaire (MSQOL-54). Sexual dysfunction was assessed with the Sexual Function Index for Women with Multiple Sclerosis Questionnaire.**
Results**. A direct average correlation between satisfaction with sexual life and relationships; sexual activity and arousal; discomfort and pain during sexual intercourse; direct impact of multiple sclerosis on sexual life and total quality of life, physical health component, mental health component was established (p<0,05). The prevalence of sexual dysfunction increases with the age and disease duration.**
Conclusions**. Our data confirm that SD is common symptom in women with MS and significantly affect their quality of life.**
Key words: *multiple sclerosis, female sexual dysfunction.*

Розсіяний склероз та сексуальна дисфункція жінки: вплив тяжкості і тривалості захворювання

О.І. Негрич, В.І. Пирогова

Незважаючи на велику увагу дослідників до вивчення сексуальної дисфункції (СД), досі не отримано репрезентативних даних щодо поширеності та особливостей СД у жінок із розсіяним склерозом (РС), особливо стосовно тяжкості та тривалості захворювання.
Мета дослідження: визначення поширеності різних симптомів СД у пацієнток із РС залежно від віку та тяжкості захворювання та оцінювання впливу СД на якість життя цих жінок.
Матеріали та методи. У дослідження було включено 116 пацієнток із РС (критерії McDonald's, 2010). Якість життя, пов'язану зі здоров'ям, визначали за Анкетою оцінювання якості життя при розсіяному склерозі (MSQOL-54). Статеву дисфункцію оцінювали за допомогою Індексу сексуальних функцій для жінок із РС.
Результати. Установлено пряму середню кореляцію між задоволеністю статевим життям та сексуальною активністю, лібідо; дискомфортом і болем під час статевого акту. Доведено прямий вплив РС на якість статевого життя та загальну якість життя, фізичне та психічне здоров'я (p<0,05). Визначено, що поширеність СД зростає з віком та тривалістю захворювання.
Заключення. Сексуальна дисфункція є поширеним порушенням у жінок із розсіяним склерозом і суттєво впливає на їхню якість життя.
Ключові слова: *розсіяний склероз, сексуальна дисфункція.*

Рассеянный склероз и сексуальная дисфункция женщины: влияние тяжести и продолжительности заболевания

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Несмотря на большое внимание исследователей к изучению сексуальной дисфункции (СД), до сих пор не получено репрезентативных данных по распространенности и особенностям СД у женщин с рассеянным склерозом (РС), особенно что касается тяжести и продолжительности заболевания.
Цель исследования: определение распространенности разных симптомов СД у пациенток с РС в зависимости от возраста и тяжести заболевания и оценка влияния СД на качество жизни этих женщин.
Материалы и методы. В исследование включены 116 пациенток с РС (критерии McDonald's, 2010). Качество жизни, связанное со здоровьем, определяли по Анкете оценки качества жизни при рассеянном склерозе (MSQOL-54). Половую дисфункцию оценивали с помощью индекса сексуальных функций для женщин с РС.
Результаты. Установлена прямая средняя корреляция между удовлетворенностью половой жизнью и сексуальной активностью, либидо; дискомфортом и болью во время полового акта. Доказано прямое влияние РС на качество половой жизни и общее качество жизни, физическое и психическое здоровье (p<0,05). Определено, что распространенность СД растет с возрастом и продолжительностью заболевания.
Заключение. Сексуальная дисфункция является распространенным нарушением у женщин с рассеянным склерозом и существенно влияет на их качество жизни.
Ключевые слова: *рассеянный склероз, сексуальная дисфункция.*

Multiple sclerosis (MS) is a chronic, progressive neurological disorder resulting from autoimmune inflammatory demyelination in the central nervous system and one of the most common causes of disability in young people worldwide [1, 2]. The first episode of MS can occur at any age, but usually it affects people of 20–40 years [3]. Women suffer twice more often as men (the ratio ranges from 1.1 to 3.0 in different regions [4].

Sexual dysfunction (SD) is a common symptom of MS, and a lot of studies indicate that the 40–80% women with MS have intimate disorders [5, 6]. Data on the prevalence of SD are significantly different. These inconcistences in results may be related to different screening tools and slightly different characteristics of the study groups [7]. Sexual dysfunction often remains underreported and underdiagnosed: only 2,2–5,7% of women discuss their sexual problems with doctors or are diagnosed with SD [5, 7–9].

Table 1

Distribution of women by disease severity (EDSS score)

Disease severity	All, n=116		18–28 years, n=32		29–38 years, n=49		39–49 years, n=35		P1	P2	P3
	n	P [95% CI], %	n	P [95% CI], %	n	P [95% CI], %	n	P [95% CI], %	χ^2	χ^2	χ^2
mild	70	60,35 [51,32–69,03]	27	84,38 [70,00–94,66]	30	61,22 [47,32–74,25]	13	37,14 [22,13–53,56]	4,98**	15,50**	4,74**
moderate	39	33,62 [25,34–42,44]	5	15,62 [5,34–30,00]	16	32,65 [20,37–46,29]	18	51,43 [35,09–67,61]	2,92	9,51**	2,99
severe	7	6,03 [2,45–11,07]	0	0,00	3	6,12 [1,21–14,46]	4	11,43 [3,18–23,87]	2,03	3,89**	0,75

Note: *P_1 – validity data for the difference of indicators of age groups 18–28 years and 29–38 years;
*P_2 – data on the significance of the difference between the indicators of the age groups 18-28 years and 39–49 years;
*P_3 – data on the significance of the difference between the age groups of 29–38 years and 39–49 years;
** – $p<0,05$.

The etiology and pathogenesis of sexual dysfunction are complex, including musculoskeletal disorders (spasticity, muscle weakness), autonomic dysfunction (impaired bowel, bladder, and genital organs), pain, cognitive disorders (fatigue, memory impairment, depression) to which be added side effects of drugs, and all of which directly or indirectly affect sexual function [8, 10–12]. According to the leading cause, sexual dysfunction is divided into primary, secondary and tertiary [13]. Primary SD develops due to neurological damage in the central nervous system, resulting in direct impairment of sexual responses and feelings. Primary SD in women includes anorgasmia and decreased sensation. Secondary SD results from indirect impact on sexual responses, unrelated to specific nerve pathways to the genitals, including fatigue, muscle tightness, spasticity or weakness and bladder or bowel dysfunction. Tertiary SD relates to psychosocial issues associated with body image, emotional challenges and cultural influences, depression and adverse effect of drugs [6, 13–16].

Despite a lot of studies of sexual dysfunction there are still no consistent data about the prevalence and characteristics of sexual dysfunction among women with MS, especially it terms of multiple sclerosis severity and duration.

The objective: was to determine the prevalence of various SD symptoms among female MS patients, depending on the age and severity of the disease, and evaluate SD impact on quality of life.

MATERIALS AND METHODS

In this clinic-based study we admitted 116 female patients who were being seen routinely in follow-up at the Neurology Department of Lviv Regional Clinical Hospital. Inclusion criteria were definite MS according to the 2010 McDonald criteria [17] and age between 18 and 49 years. Exclusion criterion was the absence of sexual life. The control group consisted of 40 healthy women who were comparable to the study group in age, social status, place of residence .

The local Danylo Halytsky Lviv National Medical University Ethics Committee approved the research proposals for the study. Written informed constent was obtained from all participants. All participants were divided into three age groups: 18–28, 29–38, 39–49 respectively.

Health – related quality of life was measured by a disease-specific instrument the Multiple Sclerosis Quality of Life-54 (MSQOL54) [18]. This questionnaire includes one of the most widely used quality of life measures, the SF-36 [19], as a basic core and additional 18 items that are specific to MS. Scoring was performed using the Likert method by averaging items within the scales followed by linear transformation of raw scores into 0–100 scales. Higher values indicated better functioning and well-being. Sexual dysfunction was assessed with the Sexual Function Index for Women with Multiple Sclerosis Questionnaire (SFIMS) that includes 30 questions: availability of a sexual partner, number of sexual partners, the remaining 28 questions address four aspects of sexual function of women with MS: satisfaction with sex life and relationships (SSR); sexual activity and arousal (SAA); discomfort and pain during intercourse (DPI); the direct impact of multiple sclerosis on sex life (DMS).

Women from the control group completed the questionnaire «Sexual Function Index in Women with Multiple Sclerosis», except for the section on Multiple Sclerosis. Statistical processing of the results was performed using the Statistica 6.0 computer program (StatSoft, Inc.).

RESULTS AND DISCUSSION

The distribution of women according to the severity of MS was performed according to the Expanded Diseability Status Scale (Kurtzke EDSS) [19]: mild course (0–3 points), moderate (3,5–5,5 points), severe (6 and more points). It was found that in general, more than half of all women studied had a mild disease course (60,35 [51,32–69,03]%), a third – moderate (33,62 [25,34–42,44]%) and 6,03 [2,45–11,07]% had a severe course of MS (Table 1).

In the age group of 29–38 years more than half of women have a mild course of MS (61,22 [47,32–74,25]%, p1, p3=0,03), a third – of moderate severity (32,65 [20,37–46,29]%) and three women (6,12 [1,21–14,46]%) have severe disease with MS. Only a third of women in the older age group of 39–49 years had a mild course (37,14 [22,13–53,56]%, p2=0,001, p3=0,03), about half – of moderate severity (51,43 [35,09–67,61]%, p2=0,002) and every tenth woman in this age group had a severe course of MS (11,43 [3,18–23,87]%, p2=0,05).

Analysis of the severity of the incidence of MS depending on the duration showed that the longer this pathology, the more difficult its course. In particular, in cases of disease duration up to 5 years, no cases of severe MS were reported, and mild cases were prevalent: 68,75% (up to 1 year) and 64,29% of cases (1–5 years). Whereas with the duration of the disease from 5 to 10 years, 5,13% patients have a severe course of MS, and with experience of more than 10 years – in 15,15%, mild disease – only one third of the women studied (39,39%). The assessment of the severity and duration of the disease by age groups once again confirms the growing worsening of the pathology of MS with age. Thus, in the younger age group of 18–28 years out of 32 women, 27 (84,37%) have mild disease with a predominant duration of up to 5 years (19 women) or up to 10 years (10 women). Whereas in the 39–49 age group, only 11 women out of 35 (31,43%) have a mild course, and 7 (20,0%) have a duration of up to 5 years, as most women in this group have a longer course and disease severity. For example, one in five women (18,75 [4,06–40,80]%) aged 39–49 years with a history of MS for more than 10 years has a severe course of this pathology, while those aged 29–38 years – every seventh (14,29 [1,57–36,58]%).

According to the results of the SFIMS questionnaire, the sexual function index (ISF) was calculated, the magnitude of which was assessed by the presence and degree of sexual

Table 2

Sexual dysfunction in MS and control groups (M±SD, %)

Age groups	SD components	M±SD (grade, %)	
		Study group	Control group
All	ISF	78,48±11,90	
	SSR	71,51±14,39*	78,37±10,39*
	SAA	73,49±16,15*	78,72±10,65*
	DPI	89,56±13,94	93,23±11,12
	DMS	75,39±15,54	-
18–28 years	ISF	79,90±11,04	
	SAA	72,02±13,63	74,24±23,21
	SAA	72,28±15,79	78,26±19,32
	DPI	87,25±16,97	86,67±11,55
	DMS	74,51±15,68	-
29–38 years	ISF	80,45±11,44	
	SSR	72,61±14,79*	79,71±8,94*
	SAA	78,42±13,59	82,92±6,81
	DPI	90,49±13,49	93,85±9,80
	DMS	78,17±13,89	-
39–49 years	ISF	74,49±12,61	
	SSR	69,45±14,57*	77,98±9,16*
	SAA	66,91±17,83*	75,14±11,03*
	DPI	89,60±12,78	93,96±12,31
	DMS	71,81±17,46	-

Note: * – P<0,05.

Table 3

Indicators of correlation between ISF and MSQOL54 questionnaires in the general group of women with MS

Indicators	PHC	MHC	MSQOL-54
ISF	0,669*	0,484*	0,522*
SSR	0,517*	0,422*	0,404*
SAA	0,667*	0,464*	0,547*
DPI	0,413*	0,394*	0,356*
DMS	0,460*	0,322*	0,332*

Note: * – P<0,01.

Table 4

Correlation indicators between ISF and MSQOL-54 in the age group 18-28 years of women with MS

Indicators	PHC	MHC	MSQOL-54
ISF	0.861*	0.742*	0.663*
SSR	0.528*	0.580*	0.377
SAA	0.810*	0.728*	0.665*
DPI	0.513*	0.313	0.514*
DMS	0.496*	0.317	0.351

Note: * – P<0,04.

Table 5

Correlation indicators between ISF and MSQOL-54 in the age group 29-38 years of women with MS

Indicators	PHC	MHC	MSQOL-54
ISF	0.554*	0.491*	0.415*
SSR	0.547*	0.492*	0.462*
SAA	0.540*	0.473*	0.367*
DPI	0.408*	0.392*	0.418*
DMS	0.438*	0.362*	0.252

Note: * – P<0,05.

Table 6

Correlation between ISF and MSQOL-54 in the 39-49 age group of women with MS

Indicators	PHC	MHC	MSQOL-54
ISF	0.697*	0.321	0.314
SSR	0.529*	0.084	0.356
SAA	0.697*	0.468*	0.395
DPI	0.409	0.415	0.321
DMS	0.650*	0.374	0.432*

Note: * – P<0,05.

Table 7

Sexual dysfunction and MSQOL-54 correlation (R) in women, depending on the severity of MS (EDSS)

Indicators	PHC	MHC	MSQOL-54
Mild MS			
ISF	0.773*	0.614*	0.519*
SSR	0.583*	0.486*	0.429*
SAA	0.802*	0.683*	0.538*
DPI	0.526*	0.383*	0.459*
DMS	0.502*	0.375*	0.311*
Moderate MS			
ISF	0.405	0.325	0.390
SSR	0.289	0.207	0.299
SAA	0.290	0.305	0.386
DPI	0.451	0.420	0.315
DMS	0.216	0.223	0.153
Severe MS			
ISF	1.000*	0.105	0.949*
SSR	0.949*	0.105	1.000*
SAA	0.949*	0.316	0.889
DPI	0.775	0.775	0.544
DMS	0.462	0.410	0.553

Note: * – P<0,05.

dysfunction: 80% or more – satisfactory sexual function, 60–79% – mild dysfunction (I degree), 40–59% – moderate dysfunction (grade II), 20–39% – severe dysfunction (grade III), 19% or less – very severe dysfunction (grade IV) (Table 2).

It is found that in 43,97% of women with MS, the degree of ISF was less than 80%. The average overall sexual function index was 78,48±11,90% (from 43,66% to 96,48%), which corresponded to mild sexual dysfunction (grade I). Satisfactory sexual function occurred only in the age group of 29–39 years – 80,45±11,44%.

In three of the four aspects of sexual function in women in the study group, the mean values corresponded to the degree of mild sexual dysfunction (<80%), except for the aspect of «discomfort and pain during sexual intercourse», which in all age groups had a value of satisfactory sexual function (>80%). In the age group 39–49 years, the lowest degree of all SD indicators compared to other age groups (p<0,05), indicating a decrease in sexual function

with age. In the control group, sexual function indicators such as satisfaction with sexual life and relationships, as well as sexual activity and arousal were higher than in women with MS (p<0,05).

To determine the impact of sexual dysfunction on quality of life, we examined the correlation between the two questionnaires. The results of the correlation analysis between the Sexual Function Index (ISF) in general and its four separate aspects with MSQOL54 questionnaire (total quality of life, physical health component (PHC), mental health component (MHC)) showed a significant relationship between these components in women with MS (Table 3).

A direct average correlation between sexual function index (including its four components: satisfaction with sexual life and relationships; sexual activity and arousal; discomfort and pain during sexual intercourse; direct impact of multiple sclerosis on sexual life) and total quality of life, physical health component, mental health component was established (p<0,01).

Assessing the correlation between the above indicators in women of the 18–18 age group, it is found that if a direct relationship between PHC and all ISF indicators is proven, then the MHC has a proven direct relationship with the ISF as a whole, satisfaction sexual life and relationships and sexual activity and arousal (p<0,02). The quality of life index for women of this age has a strong association with ISF in general, sexual activity and arousal, and sexual discomfort and pain (p<0,04) (Table 4).

In women 29–38 years of age, virtually all indicators of these questionnaires show correlated relationships, except for one (no link between quality of life and the direct impact of multiple sclerosis on sex life - R=0,252; p=0,108) (Table5).

In women aged 39–49, on the contrary, only one link between quality of life and the ISF component of the «direct impact of multiple sclerosis on sex life» (R=0,432» p=0,035) was proven (Table 6).

Mental health scores in this age group have a direct relationship with sexual activity and arousal only (R=0,468; p=0,028). Medium strengths were found to have direct correlations between physical health scores with virtually all components of ISF (except for sexual discomfort and pain, p>0,05) in women aged 39–49 years.

Assessment of the presence of correlation relationships between the surveyed indicators of the questionnaires, depending on the severity of MS disease confirmed their presence (Table 7).

In particular, with mild EDSS severity, a correlation between all components of the surveyed questionnaires (p<0,05) was demonstrated. In a severe degree, there is a direct strong correlation between physical health indicators and the ISF as a whole and its two components: satisfaction with sexual life and relationships; sexual activity and arousal (R=0,95–0,99; p<0,05). And also between quality of life and ISF as a whole and the component of satisfaction with sex life (R=0,95–0,99; p<0,05).

CONCLUSIONS

Our data confirm that SD is common in the MS population, associated with decreased satisfaction with sexual function. Sexual function impairments strongly correlate with overall quality of life, as well as its physical and mental components (MSQOL54, PHC and MHC). Sexual dysfunction prevalence is higher in the older age group (39–49 years), indicating a decrease in sexual function with age Every MS patient should be screened for sexual function disorders during routine counceling . Sexual problems have proven to impair patients' quality of life and should not be ignored. Knowledge of the existence and prevalence of the problem, management options significantly increase the chances for patients seeking professional help.

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