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Sexual dysfunction after cervical cancer treatment

Disfunção sexual após tratamento para o câncer do colo do útero

Disfunción sexual después del tratamiento del cáncer cervical

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ABSTRACT

Objective: To describe the sociodemographic and clinical characteristics and those related to the sexual life, and to identify sexual dysfunction in women after cervical cancer treatment. **Method:** Cross-sectional study including women aged ≥18 years and completion of the three-month treatment. Two instruments were used: form with sociodemographic, clinical and sexual life-related information; and the Female Sexual Function Index to assess the sexual function of sexually active participants, with score values ≤26 classified as sexual dysfunction. Descriptive statistics was used to check associations through the Mann-Whitney test and Pearson's chi-square test or Fisher's exact test. **Results:** Out of a total of 46 women, 15 (32.61%) had sexual intercourse after treatment and eight had an indication of sexual dysfunction (score 21.66; standard deviation=7.06). The types of treatment (p=0.03) and of radiotherapy (p=0.01), in addition to the staging of the disease (p=0.02) interfered with the sexual function. The most affected domains of the Female Sexual Function Index were lubrication (p=0.03) and pain (p=0.04). **Conclusion:** Sexual dysfunction was present in women studied and had a negative impact on quality of life.

DESCRIPTORS

Uterine Cervical Neoplasms; Women´s Health; Sexual Behavior; Antineoplastic Protocols; Oncology Nursing.

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INTRODUCTION

Cervical cancer is the fourth most common cancer in the world and the fourth leading cause of death from this disease among women[1]. According to Globocan, in 2018, the estimated number of new cases of cervical cancer was 569,847 and there were 311,365 deaths[1]. In Brazil, estimates for the 2018-2019 biennium point to more than 16,000 new cases of cervical cancer, with a risk of 15.43 cases per 100,000 women, occupying the third position in the national ranking of neoplasms and 6,385 deaths[2]. Among the regions of Brazil, the Northeast and Southeast have the highest projected incidence (6,030 and 4,420, respectively)[2].

The main risk factor for cervical cancer is infection by the Human Papilloma Virus (HPV), acquired mainly through sexual intercourse[3]. HPV is a necessary, but not sufficient, cause for the occurrence of cervical cancer[3]. In addition to HPV, there are other factors associated, namely: smoking, multiparity, prolonged use of oral contraceptives, history of sexually transmitted disease, use of oral contraceptives, early onset of sexual activity, multiplicity of sexual partners, immunosuppression, inadequate intimate hygiene and low socioeconomic status[4-5].

Considered a preventable neoplasm, this is a curable cancer when diagnosed early, as the evolution of precursor lesions until an invasive process (cancer itself) takes between 10 to 20 years. When cancer has already evolved, treatment options are surgery and radiation therapy, with or without chemotherapy. However, the side effects and morbidity caused by these therapies often affect women's sex lives, even several years after the treatment[6-8].

Women affected by cervical cancer commonly experience symptoms after treatment, for example, hypoactive sexual desire, low sexual arousal, difficulty in reaching orgasm and dyspareunia (pain in sexual intercourse), which characterize sexual dysfunction[9]. This is conceptualized as a blockage or inhibition of any phase of the sexual response cycle (desire, arousal, orgasm and resolution)[10] and has a prevalence of around 70% in women who have been treated for cervical cancer[7].

The side effects of treatment impair sexual function and may influence the quality of life of women affected by cancer[11]. In general, the sexual function in cervical cancer survivors decreases significantly after treatment[7], and sexual dysfunction is one of the most distressing symptoms among them. Cancer treatment, including radiation therapy, results in a high degree of vaginal morbidity and persistent sexual dysfunction[12].

In this perspective, there is need for the development of studies examining the sexuality of cervical cancer survivors and how it is affected by the disease and toxicities of treatment. Knowing the effects of these treatments can improve the quality of life of these women and provide subsidies for the clinical practice of health services, with the view to a more comprehensive treatment. The aim of this study was to describe sociodemographic and clinical characteristics and those related to sexual life, and to identify sexual dysfunction in women after treatment for cervical cancer.

METHOD

Type of study

Descriptive, cross-sectional, quantitative study.

Scenario

It was conducted in the Hospital das Clínicas de Pernambuco (Portuguese acronym: HCPE) located in the city of Recife. The HCPE is a referral hospital for cancer treatment, qualified as a High Complexity Care Unit in Oncology (Portuguese acronym: Unacon) with a hematology service.

Population

The study included all women undergoing surgical/chemotherapy/radiotherapy for cervical cancer in follow-up treatment at the oncology and/or gynecology outpatient clinics of the hospital between January 2015 and December 2016, who met the inclusion criteria. Initially, cases were recruited through positive results of biopsies for cervical cancer. Additionally, in order to cover all cases diagnosed in the hospital, a survey was conducted in the following sectors: oncology outpatient clinic, colposcopy and oncology surgery outpatient clinic. In total, 113 women were diagnosed with cervical cancer in 2015-2016 at the HCPE. Of the 113 cases, 20 did not contain any information in the appointment scheduling system of the hospital. An active search was conducted to rescue these 20 cases and the following result was obtained: three deceased women, ten undergoing follow-up treatment in another service and seven were not found. Of the remaining 93 cases, five had only undergone a biopsy at the HCPE, 14 were awaiting treatment for 2017, six were excluded according to the eligibility criteria and 22 were deaths. The final population of the study was composed of 46 women.

Selection criteria

For inclusion, women should meet the following criteria: age greater than or equal to 18 years, similar to the survey conducted with cervical cancer survivors for assessment of their quality of life and sexual function[7]; time of treatment completion of at least three months (expected time for the onset of medium and long-term side effects), which was defined as an eligibility criterion given the start of brachytherapy at least 91 days earlier, as provided by the National Cancer Institute and Cancer Therapy Evaluation Program for the onset of adverse effects in radiotherapy[13]; ability to read, write and speak and willingness to sign the informed consent form. Patients with a previous or current history of other cancers and those undergoing treatment for disease relapse, illiterate patients, with cognitive and/or neurological deficits, and physical limitations that could interfere with sexual function were excluded.

Data Collection

The data collection period was between July 2016 and March 2017, using two instruments. The first was prepared by the authors for the characterization of sociodemographic data (age, family income, years of study, marital status before and after treatment, work situation before and after treatment), clinical (histological type of tumor, staging of the disease, type of treatment performed, time elapsed between the end of treatment and the study) and related to sexual life (onset of sexual activity, number of partners, sexual activity before and after treatment, frequency of sexual relations before and after the treatment). The second instrument was the Female Sexual Function Index (FSFI), "used to assess the sexual function of sexually active participants". Participants were approached while waiting for care at the gynecology or oncology unit of the hospital and invited to participate in the study.

The FSFI is a self-administered questionnaire that should be applied to women who have had sex in the prior four weeks. It consists of 19 items that analyze six domains of sexual function: desire, arousal, lubrication, orgasm, satisfaction and pain[14]. For each FSFI question, there is an answer pattern that "receives a score between 0 and 5 in ascending way according to the presence of the questioned function". "Only in questions about pain, the score is inverted"[14]. "At the end, a total score is presented, resulting from the sum of scores for each domain, multiplied by a factor that makes the influence of each domain on the total score homogeneous"[14].

Data analysis and treatment

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 15.0. In the descriptive analysis, numerical variables were represented by measures of central tendency and dispersion, and qualitative variables were expressed in absolute and relative frequencies. The Kolmogorov-Smirnov test was applied to verify the normality of variables. To check the associations between two variables (bivariate analysis), the Mann Whitney test was used if the outcome was quantitative; and the qualitative explanatory variable and Pearson's chi-square ($\chi 2$) (Fisher's exact when possible) when both variables were qualitative.

Ethical aspects

In the study, guidelines of Resolution no. 466/12 of the National Health Council, which provides for research on human beings, were followed. The study was approved by the Research Ethics Committee of the Health Sciences Center of the Universidade Federal de Pernambuco under Opinion number 1.401.726, approved in 2016. After clarification about the study, consent was obtained to start the collection by signing the Informed Consent Form (ICF).

RESULTS

The study population was of 46 women. The predominant traits were the age group of 30-49 years (n=28, 60.87%), income of up to one minimum wage (n=37, 80.43%), unemployment (n=20, 43.48%) and up to ten years of study (n=33, 71.74%). In addition, they started sexual activity before the age of 18 (n=39, 84.78%), had more than five sexual partners (n=19, 41.30%), 31 (67.39%) of them had sexual activity before treatment and, of these, almost 90% had more than four sexual intercourse per month. Only 15 (32.61%) had sexual intercourse after treatment.

Among the 15 sexually active women after treatment, 11 (73.33%) had more than four intercourse per month and 12 were able to answer the FSFI (had intercourse in the previous four weeks and had cognition to answer the questionnaire). Most of them (n=27, 58.70%) reported that cancer and/or treatment interfered with their sexual life and 34 (73.91%) stated that sexual activity is important in their lives (Table 1).

Table 1 – Sexual history and sexual practice of women undergoing treatment for cervical cancer – Recife, PE, Brazil, 2015-2016.

Sexual history and sexual practice		
Variables	**n**	**%**
Beginning of sexual activity		
<18 years	39	84.78
≥18 years	7	15.22
Number of sexual partners		
One partner	7	15.22
Two to three partners	14	30.43
Four to five partners	6	13.04
More than five partners	19	41.30
Sexual activity before treatment		
Yes	31	67.39
No	15	32.61

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…continuation

Sexual history and sexual practice		
Variables	**n**	**%**
Frequency of sexual intercourse per month before treatment (n=31)		
≤4 intercourse/month	4	12.91
>4 intercourse/month	27	87.09
Currently sexually active		
Yes	15	32.61
No	31	67.39
Frequency of sexual intercourse per month after treatment (n=15)		
≤4 intercourse/month	4	26.67
>4 intercourse/month	11	73.33
Did cancer and/or treatment interfere with sex life?		
Yes	27	58.70
No	19	41.30
Is it important to have sexual activity?		
Yes	34	73.91
No	12	26.09

As for clinical variables, the predominant histological type (n=42, 91.30%) was "squamous cell carcinoma" and in 29 cases (63.04%) the disease was diagnosed in advanced stages. The main treatment performed was non-surgical (chemotherapy/radiotherapy) and most of them underwent radiotherapy (n=35, 76.09%). Teletherapy plus brachytherapy were the most frequent types of radiotherapy (n=24, 68.57%) performed. The time of completion of treatment was between three and nine months in 36 cases (78.26%) (Table 2).

Table 2 – Clinical variables of women undergoing treatment for cervical cancer – Recife, PE, Brazil, 2015-2016.

Clinical variables	n	%
Histological type of tumor		
Squamous cell carcinoma	42	91.30
Adenocarcinoma	3	6.52
Other	1	2.17
Staging		
Advanced disease	29	63.04
Early disease	17	36.96
Treatment performed		
Non-surgical (CT/RT)*	28	60.87
Surgical + adjuvant (CT/RT)*	9	19.57
Surgical	9	19.57
Radiotherapy		
Yes	35	76.09
No	11	23.91
Modality of radiotherapy performed (n=35)		
Teletherapy + brachytherapy	24	68.57
Teletherapy	9	25.71
Brachytherapy	2	5.71

*CT: chemotherapy; RT: radiotherapy.

The treatment interfered with sexual activity (p<0.001). The type of treatment (p=0.03), the type of radiotherapy performed (p=0.01) and the stage of the disease (p=0.02) were associated with whether or not the woman was sexually active after the treatment.

Of the 15 sexually active women after treatment, 12 (two of them had not had sex for more than a month and one had no cognition to answer the questionnaire) answered the FSFI questionnaire. Of these, eight (66.67%) had sexual dysfunction (mean total score of 21.66; SD=7.06) (Table 3).

Table 3 – FSFI scores of sexually active women after treatment for cervical cancer – Recife, PE, Brazil, 2015-2016.

FSFI	Mean (95% CI)	Standard Deviation	Median	Min.	Max.
Desire	3.20(2.52-3.88)	1.07	3.30	1.2	5.4
Arousal	3.38(2.70-4.05)	1.06	3.30	1.8	5.1
Lubrication	3.65(2.68-3.62)	1.53	3.60	1.2	6.0
Orgasm	3.10(2.21-3.99)	1.41	2.60	1.6	6.0
Satisfaction	4.23(3.21-5.26)	1.61	4.60	1.6	6.0
Pain	4.10(3.01-5.19)	1.72	4.40	1.6	6.0
Total score	**21.66(17.17-26.15)**	**7.06**	**21.85**	**10.9**	**32.3**

The domains with higher scores were "pain" (4.10±1.72) and "satisfaction" (4.23±1.61) (Table 3). In Table 4, the domains "lubrication" (p=0.03) and "pain" (p = 0.04) were influenced by the type of treatment. Undergoing radiotherapy also interfered in the "lubrication" domain (p=0.05).

Table 4 – Evaluation of FSFI domains according to some clinical variables of women after treatment for cervical cancer – Recife, PE, Brazil, 2015-2016.

Variables p*	Desire	Arousal	Lubrication	Orgasm	Satisfaction	Pain	Total score
Staging							
Advanced disease	3.36±1.25	3.66±0.94	3.6±1.2	3.44±1.94	4.8±0.85	4.56±0.97	23.42±2.05
Early disease	3.09±1.01	3.18±1.17	3.69±1.83	3.43±1.79	3.83±1.96	3.78±2.12	20.98±9.26
p*	0.94	0.33	0.94	0.75	0.57	0.69	0.69
Treatment performed							
Surgical	3.45±0.76	3.68±1.35	4.88±1.35	4.3±2	4.9±1.95	5.2±1.6	26.4±8.69
Non-surgical (CT/RT)	3.3±1.43	3.3±0.55	4.05±0.76	3.8±2.03	4.8±0.98	4.3±0.89	23.55±2.34
Surgical + Adjuvant (CT/RT)	2.85±1.14	3.15±1.34	2.03±0.67	2.2±0.24	3±1.33	2.8±1.88	16.03±5.02
p*	0.36	0.78	0.03	0.25	0.15	0.04	0.15
Radiotherapy							
Yes	3.08±1.22	3.23±0.95	3.04±1.27	3±1.59	3.9±1.45	3.55±1.58	19.79±5.42
No	3.45±0.76	3.68±1.35	4.88±1.35	4.3±2	4.9±1.95	5.2±1.6	26.4±8.69
p*	0.39	0.55	0.05	0.40	0.17	0.06	0.13

*Mann-Whitney test.

DISCUSSION

The socioeconomic characteristics of women are similar to those found in other studies conducted in hospitals affiliated to the Unified Health System (Brazilian *SUS*): low-income, unemployed women in the age group of greater sexual activity[15]. The early onset of sexual activity (before the age of 18) and the greater number of sexual partners are considered risk factors for HPV infection[5].

Although the study pointed out sexual dysfunction in eight women, this information requires a more detailed investigation because it is an indication. Most women stated that sexual activity is important and admitted the interference of cancer and/or treatment in the sexual life. The results revealed the impact of treatment on sexual activity (p<0.001). The main reasons for women treated for cervical cancer avoiding sex after treatment were fear and bleeding during sexual intercourse[7].

Among the clinical characteristics, carcinoma as the main histological type, the disease diagnosed in advanced stages and consequently, the performance of non-surgical treatment (radiotherapy associated with chemotherapy) reaffirm the profile of economically less favored countries[16]. Brazil and other developing countries are equipped with timely screening (the occasional demand for health services to perform pap smears due to pregnancy, medical consultation or, above all, gynecological complaints) that leads to diagnosis in more advanced stages[17].

Depending on the stage, treatment for cervical cancer ranges from surgery as the single treatment to a combination of radiotherapy, chemotherapy and surgery in specific situations[18-19]. The type of treatment will also depend on personal factors (such as desire for pregnancy and the woman's age) and risk factors associated with the tumor (tumor size, lymphatic invasion, stromal invasion, involvement of surgical margins, lymph node involvement, among others)[20].

Radiotherapy was part of the treatment for most women in the study. The type of treatment and the type of radiotherapy had an impact on sexual activity (p=0.03 and p=0.01, respectively). Women undergoing radiotherapy have more sexual symptoms compared to those treated with surgery and chemotherapy[10-11]. The main vaginal consequences caused by radiation are fibrosis, stenosis, decreased elasticity and depth and mucosal atrophy[7]. These vaginal impacts promote sexual dysfunction because they cause frigidity; lack of lubrication, arousal, orgasm and libido; and dyspareunia[8,21-22].

The indicative of sexual dysfunction was present in most sexually active women after treatment for cervical cancer, since they had an average FSFI score of 21.66. Sexual dysfunction is characterized by FSFI scores below 26[23-24]. In a systematic review, a higher prevalence of sexual dysfunction among gynecological cancers was found[10]. By associating some clinical variables with the FSFI domains, impairments in the treatment of sexual function were observed especially in domains of "lubrication" and "pain".

The lack of lubrication and pain during sexual intercourse are a consequence not only of radiation[9], but also of ovarian failure caused by the three treatment modalities (chemotherapy, radiotherapy and surgery). The ovarian destruction and dysfunction lead to infertility and early menopause (secondary premature ovarian failure)[25-26] that results in decreased levels of estradiol and consequently, decreased sexual arousal, libido, orgasm and genital sensation. These effects combined result in sexual dysfunction[9].

The sexual consequences caused by all therapeutic modalities available for the treatment of cervical cancer will promote short and long term damage[10], and these losses need to be considered in clinical practice, since sexual sequelae significantly affect quality of life[11,27].

Sexual harms need to be discussed and clarified with women before and after treatment. Informed people cope better with side effects. Women should also be provided with alternative measures to relieve discomfort during sexual activities, such as lubricating gel and vaginal ointments based on hyaluronic acid and vitamins (A and E)[28]. The use of vaginal dilators (recommended after vaginal or pelvic radiotherapy to prevent vaginal stenosis) combined with the early start of topical estrogen is also an alternative that may help to minimize the side effects of cervical cancer treatments[7]. In addition, appropriate rehabilitation programs can be developed for cervical cancer survivors with the aim to prevent and reduce vaginal sexual symptoms and concerns about sexual pain, dissatisfaction in the relationship and about body image for the reduction of sexual suffering[29].

The limitation of the study was related to the number of cases, which did not allow a more robust statistical analysis. In Brazil, the literature still lacks research on sexual dysfunction after cervical cancer treatment[30-31]. This fact justifies the relevance of the study and its contribution to the practice of nurses in the care management of these women.

CONCLUSION

The results indicated sexual dysfunction among sexually active women after treatment, with harm mainly to the lubrication domain. However, further research is needed to deepen these findings. The sequelae of treatment can affect the quality of life of women treated for cervical cancer and compromise the relationship with their partners. Women must be helped to face difficulties in sexual activities and stimulated to search for support and alternative therapies that mitigate the side effects of treatment. The use of vaginal dilators, topical estrogen and ointments based on hyaluronic acid and vitamin E has shown effectiveness in reducing harms. The implementation of a gynecological counseling service with a multidisciplinary team is also necessary within institutions that assist gynecological cancer patients, as it could bring positive results and therefore, gains in the quality of life of these women.

RESUMO

Objetivo: Descrever as características sociodemográficas, clínicas e relacionadas à vida sexual e identificar a disfunção sexual em mulheres após o tratamento do câncer do colo do útero. **Método:** Estudo transversal que incluiu mulheres com idade ≥18 anos e conclusão do tratamento de três meses. Foram utilizados dois instrumentos: formulário com informações sociodemográficas, clínicas e relacionadas à vida sexual; e o Índice da Função Sexual Feminina para avaliar a função sexual das participantes sexualmente ativas, sendo valores do escore ≤26 classificados como disfunção sexual. A estatística descritiva foi utilizada para verificar associações através do teste de Mann-Whitney e qui-quadrado de Pearson ou exato de Fisher. **Resultados:** Do total de 46 mulheres, 15 (32,61%) mantiveram relações sexuais após o tratamento e oito tiveram indicativo de disfunção sexual (escore de 21,66; desvio padrão=7,06). Os tipos de tratamento (p=0,03) e de radioterapia (p=0,01), e o estadiamento da doença (p=0,02) interferiram na função sexual. Os domínios do Índice da Função Sexual Feminina mais afetados foram lubrificação (p=0,03) e dor (p=0,04). **Conclusão:** A disfunção sexual esteve presente nas mulheres estudadas com impacto negativo na qualidade de vida.

DESCRITORES
Neoplasias do Colo do Útero; Saúde da Mulher; Comportamento Sexual; Protocolos Antineoplásicos; Enfermagem Oncológica.

RESUMEN
Objetivo: Describir las características sociodemográficas, clínicas y relacionadas con la vida sexual e identificar la disfunción sexual en mujeres después del tratamiento del cáncer cervical. **Método:** Estudio transversal que incluyó mujeres de ≥18 años y la finalización del tratamiento de tres meses. Se utilizaron dos instrumentos: formulario con información sociodemográfica, clínica y relacionada con la vida sexual; y el Índice de Función Sexual Femenina para evaluar la función sexual de las participantes sexualmente activas, con valores de puntuación ≤26 clasificados como disfunción sexual. Se utilizó estadística descriptiva para verificar las asociaciones mediante la prueba de Mann-Whitney y la prueba de chi-cuadrado de Pearson o la prueba exacta de Fisher. **Resultados:** De un total de 46 mujeres, 15 (32.61%) tuvieron relaciones sexuales después del tratamiento y ocho tuvieron una indicación de disfunción sexual (puntaje 21.66; desviación estándar=7.06). Los tipos de tratamiento (p=0.03) y radioterapia (p=0.01), además de la estadificación de la enfermedad (p=0.02), interfirieron con la función sexual. Los dominios del índice de función sexual femenina más afectados fueron la lubricación (p=0.03) y el dolor (p=0.04). **Conclusión:** La disfunción sexual estuvo presente en las mujeres estudiadas, con un impacto negativo en la calidad de vida.

DESCRIPTORES
Neoplasias del Cuello Uterino; Salud de la Mujer; Conducta Sexual; Protocolos Antineoplásicos; Enfermería Oncológica.

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