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Influence of chemotherapy on women's sexuality

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Abstract

This study was aimed to assess the influence of chemotherapy on women's sexuality. **Design:** A descriptive study. **Setting:** The study was conducted at Radiation Oncology & Nuclear Medicine Center - Ain Shams Hospitals. **Sample:** The subjects for the study were (106) women who had a cancer diagnosis and received chemotherapy**. Data collection tools:** Structured interviewing questionnaire sheet and Female Sexual Function Index. **Result:** more than half of the sample are at age categories (36-45), near half of them had breast cancer, near half of them underwent chemotherapy for more than 6months, more than half of them not had sex, and the majority of them had Sexual dysfunction related to chemotherapy. Moreover, there was statistically significant relation between FSFI and chemotherapy duration. **Conclusion:** significant sexual dysfunction in women after treatment with chemotherapy**. Recommendation:** providing guidelines, programs and counseling regarding sexual health is becoming mandatory in the oncology units in order to improve sexual life of women with cancer and under chemotherapy.

Key words: Cancer, Chemotherapy, Sexual Dysfunction, Female Sexual Function Index (FSFI)**.**

Introduction

Cancer is a disease which occurs when changes in a group of normal cells within the body lead to uncontrolled growth causing a lump called a tumor; this is true of all cancers except leukemia (cancer of the blood). If left untreated, tumors can grow and spread into the surrounding normal tissue, or to other parts of the body via the bloodstream and lymphatic systems, and can affect the digestive, nervous and circulatory systems [**National cancer institute, 2013**]. Cancer occurrence could be associated with various environmental, social, cultural, life-styles, hormonal and genetic factors. In addition smoking, reduced physical activity and consumption of highly processed and calorie-rich food are the major causes of cancer [**Javed S., Ali M., Sadia S., et al., 2011].**

Cancer can be treated by surgery, chemotherapy, radiation therapy, hormonal therapy, & targeted therapy. The choice of therapy depends upon the location and grade of the tumor and the stage of the disease, as well as the general state of the patient status [**Jafri S. and Mills G., 2011**].

Chemotherapy is the use of anti-cancer drugs to treat cancer. It can stop the growth of a tumor and kill cancer cells that have spread to other parts of the body. Chemotherapy may also be used to reduce the risk of recurrence, and to shrink the size of a tumor to reduce cancer-related symptoms [**American Cancer Society, 2016**]. Chemotherapy works on active cells; cancer active cells and healthy active cells. Side effects happen when

chemotherapy damages healthy cells such as fatigue, nausea, hair loss, vomiting, neutropenia, sexual dysfunction and even death may also occur in severe cases [**Christian N., 2015**].

Chemotherapy can cause a variety of sexual changes. Some patients experience changes in all areas (desire, arousal, orgasm, & resolution), but others experience none. The most common sexual change for cancer patients is an overall loss of desire. For women, vaginal dryness and pain with sexual activity are frequent. Most women are still able to have an orgasm even if cancer treatment interferes with vaginal lubrication. It is common for patients to need more time or stimulation to reach orgasm [**Jyoti D. Patel, 2015**].

Sex is a motive force bringing a man and a woman into intimate contact. Sexuality is a central aspect of being human throughout life and encompasses sex, gender identities and roles, sexual orientation, eroticism, pleasure, intimacy, and reproduction. Sexuality is experienced and expressed in thoughts, fantasies, desires, beliefs, attitudes, values, behaviors, practices, roles and relationships. Sexuality is influenced by the interaction of biological, psychological, social, economic, political, cultural, ethical, legal, historical, religious, and spiritual factors. Desire, arousal, and orgasm are the three principle stages of the sexual response cycle [**Sathyanarana T. and Anil Kumar, 2015**].

Receiving a cancer diagnosis and experiencing the effects of antineoplastic therapies can have a devastating effect on a person's emotional, physical, and psychological well-being and a significant negative effect on sexual desire and function.

Oncology nurses are the ideal healthcare professionals to assess the sexual health status of their patients and to intervene to sensitively address sexuality issues. Using communication tools can help nurses gain confidence in their abilities to address sexuality concerns in an effective and comfortable manner and to provide patients with useful information and insights [**Kaplan M. and Pacelli R., 2011**].

Justification of the study

A great number of women have a history of cancer, and the number is expected to increase with time. This has prompted an appreciation of the quality of life for survivors. Women treated for cancer identify gynecologic issues as a major concern for both general health and the negative impact on sexual function that follow the cancer diagnosis and subsequent treatment. In Egypt, according to Radiation Oncology & Nuclear Medicine Center - Ain Shams University in 2014, women who have a cancer diagnosis and treated with chemotherapy are estimated 1062 cases. Hence the researcher want to examine the influence of chemotherapy on women's sexuality, and discuss some of the major sexual health issues of women who have a cancer diagnosis and been subsequently treated.

Aim of the study

The aim of this study was to assess the influence of chemotherapy on women's sexuality.

Research question

What is the influence of chemotherapy on women's sexuality?

Methodology

Research design:

A descriptive study design was used.

Subjects (sampling):

A purposive sample of 106 women who have a cancer diagnosis and received chemotherapy with the following criteria: married, educated, at reproductive

age, received at least chemotherapy for 3 months.

Tools of the data collection:

Two types of tools were used for data collection and conduction of the study. These consisted of: Structured interviewing questionnaire sheet and female sexual function index.

I. Structured interviewing questionnaire sheet.

This sheet was developed by the investigator to collect data about the subjects in the following areas: age, educational level, employment status, medical diagnosis, date when it was started treatment, who care for them during treatment, and partner support.

II. Female Sexual Function Index (FSFI).

It is a standardized designed formulated tool developed by **(Rosen et al, 2000)**. It is psychometrically sound, easy to administer, and has demonstrated ability to discriminate between clinical and non-clinical population. The questionnaire described was designed and validated for assessment of female sexual function and quality of life in clinical trials for epidemiological studies. The FSFI was developed for the specific purpose of assessing domains of sexual functioning (e.g. sexual arousal, orgasm, satisfaction and pain) in clinical trials. It is not a measure of sexual experience, knowledge, attitudes, or interpersonal functioning in women. It was not designed for use as a diagnostic instrument and should not be used as a substitute for a complete sex history in clinical evaluation. It was mainly constructed to assess the six factors of female sexual functions:

1- Sexual desire included 2 items.

2- Sexual excitement included 4 items.

3- Sexual lubrication included 4 items.

4- Sexual orgasm included 3 items.

5- Sexual satisfaction included 3 items.

6- Sexual pain included 3 items.

The scoring system:

Score ranges for items 3-14 and 1-19 are 0-5 and for items 1, 2, 15, 16 are 1-5. The composite score is determined by the sum of domains multiplied by the domain factor. The full scale score range is from 2 to 36 with higher scores associated with a lesser degree of sexual dysfunction. The 6 domain scores belonging to the FSFI are summed to obtain the overall score. The rule of thumb for the overall result is that scores below 25.2 are classed as indicating female sexual dysfunction (FSD).

Ethical considerations

Prior study conduction, approval was obtained from the scientific research and ethics committee of the Faculty of Nursing, Ain-Shams University. The researcher clarified the aim of the study to the women who received chemotherapy to be included in the study. They were assured that anonymity and confidentiality would be guaranteed, and were informed about their right to refuse or withdraw from the study at any time. The study procedures do not entail any harmful effects on participants. An oral consent was obtained from each woman prior to participate in the study.

Pilot Study

A pilot study was carried out on 10 women under chemotherapy from the study subjects to test the clarity, applicability, feasibility & relevance of the tools used and to determine the needed time for the application of the study tools. The women who were included in the pilot

study were included to the sample because no modification was done after conducting pilot study.

Field work

After securing the official approvals for conducting the study, the researcher met the women who have cancer and received chemotherapy to collect the data through 4 months in a period from the beginning of April 2016, until beginning of July 2016.

Oral informed consent was obtained from each participant. Then the tools required to fill was given to participant. The researcher reassure that the joining is voluntary and the participant has the right to join or withdraw at any time, beside that all information is confidential and the name is anonymous.

The study was done during the morning shift, three days per week. The researcher attended at the outpatient clinic from 10.00 a.m. to 1.00 p.m., 3 days / week (Sundays, Mondays and Tuesdays). The researcher started data collection by introducing himself to the participant. A description of the purpose of the study was given.

Data collected were done through interviewing with participant at outpatient clinic. Each interview lasted for 20-30 minutes, depending on the response of interview.

Limitation of the study

No special place was available for adequate privacy with women during interview, frequent interruption & rowdiness in outpatient clinic, time spent with each woman to complete the tools was long and (5 women) refused to be included in the study due to the sensitivity of the study & lack of sexual culture.

Administrative design

To carry out this study, an official permission obtained from scientific research and ethics committee of the Faculty of Nursing, Ain-Shams University and Administration of Radiation Oncology & Nuclear Medicine Center - Ain Shams hospitals.

Statistical design

The collected data were organized, categorized, tabulated and statistically analyzed using the statistical package for social science (SPSS) version (18) to assess the influence of chemotherapy on women's sexuality. Data were presented in tables and graphs. The statistical analysis included; percentage (%), the arithmetic mean ($\overline{X}$), standard deviation (SD), chi-square (X2), and Pearson correlation (R).

The observed differences and associations were considered as follows:

P. > 0.05 insignificance

P. ≤ 0.05 significance difference

P. ≤ 0.01 moderate significance difference

P. ≤ 0.001 highly significance difference

$\overline{X}$, SD, for quantitative data: as age, duration of treatment

Frequency and percentage for qualitative data: as educational level, residence, partner support.

Test of association: Chi-square test was used.

Results

Table (1): frequency distribution of demographic data of the studied sample (n=106)

Item	No.	%
Age Categories		
(18-25)	12	11.3
(26-35)	37	34.9
(36-45)	57	**53.8**
Mean± SD	35.63± 6.92	
Education		
University	33	31.1
Intermediate	55	**51.9**
Read & write	18	17
Residence		
Urban	76	**71.7**
Rural	30	28.3
Occupation		
House wife	79	**74.5**
Employee	27	25.5

This table shows that, more than half of the sample (53.8%) are at age categories (36-45) with a mean age of 35.63± 6.92, more than half of them (51.9%) are intermediate education, nearly to three quarters of them (71.7%) are living in urban, and nearly to three quarters of them (74.5%) are house wife.

Table (2): distributions of medical history characteristics of the studied sample (n=106)

Item	No	%
Cancer type		
Breast cancer	42	**39.6**
Ovarian cancer	6	5.7
Cervical cancer	8	7.5
Uterine cancer	10	9.4
Other	40	37.7
Chemotherapy duration		
3 months	21	19.8
(3-6) months	37	34.9
More than 6 months	48	**45.3**

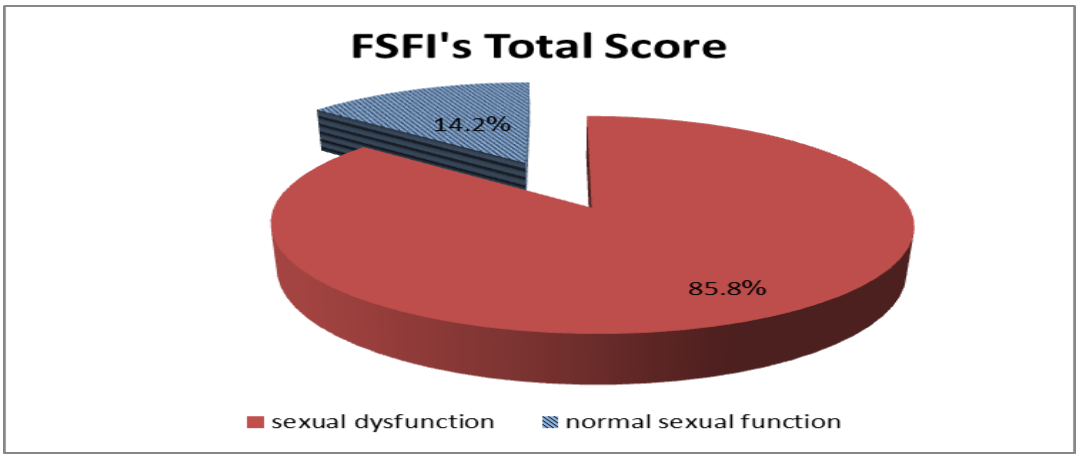
This table shows that, nearly to half of the sample (45.3%) underwent chemotherapy for more than 6months, while (39.6%) of the studied sample had breast cancer, (9.4%) of them had uterine cancer, (7.5%) of them had cervical cancer, and (5.7%) of them had ovarian cancer.

Table (3): distributions of support system characteristics of the studied sample (n= 106)

Item	No	%
Care provider		
Husband	55	**51.9**
Others	51	48.1
Husband emotional support		
Yes	68	**64.2**
No	38	35.8
Sexual intercourse		
No	73	**68.9**
Yes	12	11.3
Yes (to satisfy husband only)	21	19.8

This table shows that, more than half of the sample (51.9%) received care from her husband, while more than half of the sample (64.2%) received emotional support from husband and nearly to three-quarters of the sample (68.9%) not have sex.

Figure (1): Percentage distributions of FSFI's total score of the sample studied



This figure shows that, (85.8%) of the studied sample had sexual dysfunction, while (14.2%) of them had normal sexual function

Table (4): Correlation between FSFI's total score and chemotherapy duration of the sample studied

Chemotherapy duration	FSFI's total score	
	Pearson Correlation	p- value
	-.347	0.000

This table shows that, there was a negative significant correlation between chemotherapy duration and FSFI (p- value < 0.000)**.**

Discussion

The aim of this study was to assess the influence of chemotherapy on women's sexuality through using Female Sexual Function Index. This aim was significantly answered through the present study question which was: what is the influence of chemotherapy on women's sexuality?

In relation to age categories of the studied sample, the present study finding revealed that more than half of the sample was at age categories (36-45) with a mean age of 35.6 ±6.92; this may be due to Ageing as a fundamental factor for the development of cancer, the incidence of cancer rises dramatically with age, most likely due to a buildup of risks for specific cancers that increase with age. This finding matches with **Bakht, (2010)** who mentioned that (82%) of the sample were at age group (35-50 years). And on the same line with **Mohamed, (2012)** who studied psychological pattern of women with breast cancer in Egypt and mentioned that most of the sample were at age group (24-66 years) with a mean age of 43.6 years.

Concerning cancer type of the studied sample, the present study revealed that nearly to half of the sample had breast cancer; this finding may be due to many factors as using contraceptive hormonal methods and hormone replacement therapy that linked to increase risk of breast cancer, obesity which causes hormonal imbalance, food and vegetables contaminated with chemicals and hormonal substances which change hormonal balance in woman's body, and deodorants which originally linked to breast cancer and lymphoma. This result was not agreed with **Esam, (2015)** who studied cancer in Sudan-burden, &distribution and reported that (25.1%) of the sample had breast cancer and a study conducted by **Shalini; et al., (2015)** who reported that Breast cancer ranked first among females accounting for (27.4%) of all newly diagnosed female cancers.

Concerning treatment duration, the present study revealed that nearly to half of the sample undergoing chemotherapy for more than 6months. This finding matching with **Nezmali, Anoosheh, and Mohammadi, (2011)** who studied experiences of Syrian women with breast cancer regarding chemotherapy and reported that (55.6%) of the studied sample had chemotherapy courses for eight times.

Regarding sexual coitus of the studied sample, the present study revealed that nearly to three - quarters of the sample not had sexual activity; this finding may be due to chemotherapy side effects on sexual activity as fatigue, vaginal dryness, and low sexual desire. This finding was at the same line with **Gulcihan & Ali, (2013)** who conduct a research about Sexual Functions of Turkish Women with Gynecologic Cancer during the Chemotherapy Process and mentioned that Chemotherapy treatment affected sexuality negatively, and half of the sample had experienced no sexual intercourse at all. In contrary, a study conducted by **Gretchen, (2011)** who studied sexual satisfaction among young cancer survivors during the first 5 years following diagnosis stated that (73%) of the studied sample have sex.

Concerning female sexual function characteristics of studied sample, the result of the present study revealed that the majority of the sample had sexual dysfunction; most of them had desire dysfunction, lubrication dysfunction, arousal dysfunction, orgasm dysfunction, satisfaction dysfunction and sexual pain. This finding was in agreement with previous research conducted by **Iris, (2015)** revealed that women currently receiving cancer treatment reported significantly lower desire, arousal, lubrication, satisfaction, and pain than women not receiving treatment. Also these results are supported by **Mandana; et al., (2015)** who indicated that sexual dysfunction is prevalent and prominent in Iranian women with breast cancer and

showed that vaginal dryness and pain were higher than that of the health women.

Concerning system support, the present study revealed that there was a statistically significant relation between FSFI's total score and husband emotional support; This result is supported by **Nash, (2011)** who found that spousal support decrease distress and enhance sexual activity in women with breast cancer.

Concerning relation between chemotherapy duration and FSFI's total score, the present study revealed that there was a statistically significant relation between FSFI's total score and chemotherapy duration. This finding is in agreement with **Jose; et al., (2012)** who reported that women who underwent long duration of chemotherapy were more affected in all domains of sexual function than short one.

Concerning correlation between FSFI's total score and chemotherapy duration, the present study revealed that there was a negative significant correlation between chemotherapy duration and FSFI (p-value < 0.000); this finding showed that women underwent chemotherapy had a sexual dysfunction and sexual function of them continue to decrease and worse with long treatment duration. This result was on the same line with **Saboula and Shahin, (2015)** who found that, chemotherapy had a negative effect on many aspects of women's sexuality.

Conclusion

Chemotherapy affects the female sexual functions and not only sexual desire, but also other important aspects of sexual function, such as lubrication, satisfaction, orgasm, arousal and pain are affected.

Recommendation

The following points were recommended:

1.Developing a training program, booklets, and guidelines for nurses in oncology units regarding caring of sexual health of women under chemotherapy for continuous updating their knowledge.

2.Establish a counseling area supported with nursing protocol in oncology units.

3.Further researches regarding impact of chemotherapy on women's sexuality on large sample in order to generalize the results.

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