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Radiotherapy

Beyond Survival: The Impact of Radiotherapy on the Sexual Quality of Life of Cervical Cancer Patients - The Moroccan Experience

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Abstract **Original Research Article**

Introduction: Pelvic radiotherapy for cervical cancer is associated with genital toxicity that can significantly impair patients' sexual quality of life. We evaluated the extent and nature of these sequelae within a Moroccan cohort to better understand their repercussions. ***Materials and Methods:*** This retrospective study assessed sexual quality of life, measured by the FSFI questionnaire, in 187 patients treated for cervical cancer in 2023 at the National Institute of Oncology in Rabat. Factors associated with sexual dysfunction, such as age, FIGO stage, and genital toxicity, were analyzed. ***Results:*** The mean age of the patients was 53 years. 62% of patients were sexually active post-treatment. The mean FSFI score was 24.1, indicating sexual dysfunction. A negative correlation was observed between disease stage and sexual quality of life ($p<0.05$). Patients with advanced stages had significantly lower FSFI scores. Genital sequelae such as vaginal synechiae, post-coital bleeding, and vaginal dryness were frequent and contributed to the degradation of sexual function. ***Conclusion:*** Our results highlight the need for regular assessment of sexual well-being and comprehensive management to improve the quality of life of patients after treatment.

Keywords: cervical cancer, radiotherapy, quality of life, sexuality, FSFI.

1. INTRODUCTION

Cervical cancer is a global public health problem, particularly prevalent in developing countries where it remains the leading cause of cancer-related death in women [1]. Pelvic radiotherapy, whether administered alone or in combination with chemotherapy, is a cornerstone of treatment for locally advanced stages of the disease. While its efficacy in terms of tumor control is well established, it is frequently associated with local toxicities, particularly in the genital organs, which can have long-lasting psychological and physical repercussions [2].

Patients' sexual quality of life is an often-underestimated dimension in clinical care, despite its fundamental role in overall well-being and self-perception. The side effects of radiotherapy, such as fibrosis and vaginal atrophy, dryness, stenosis, and dyspareunia, can lead to significant psychosexual distress, often unaddressed by both patients and caregivers [3].

Our study was conducted to quantitatively evaluate sexual function in a cohort of Moroccan patients treated for cervical cancer at the National Institute of Oncology (NIO) in Rabat. By evaluating the incidence of genital sequelae and their impact on psychosexual well-being, we aim to highlight the need for a holistic approach to care that includes sexuality, a particularly relevant topic in our cultural and societal context.

2. MATERIALS AND METHODS

2.1. Study Design and Patients

This was a retrospective, single-center study conducted at the National Institute of Oncology in Rabat. We identified and included all patients diagnosed with cervical carcinoma who received external pelvic radiotherapy, with or without brachytherapy, during the year 2023. Exclusion criteria included patients who were

not sexually active before treatment, patients who had undergone a total hysterectomy, or those with early locoregional recurrence.

2.2. Data Collection

Data were extracted anonymously from electronic and paper medical records. The variables collected included socio-demographic characteristics (age), clinical characteristics at diagnosis (FIGO stage, histological type), complete treatment data (external radiotherapy doses, brachytherapy doses and type, concurrent chemotherapy), and late genital toxicities (according to CTCAE v4.0 classification), specifically vaginal dryness, post-coital bleeding, and vaginal synechiae.

2.3. Assessment of Sexual Quality of Life

Sexual quality of life was assessed using the Female Sexual Function Index (FSFI), a 19-item, internationally validated, self-administered questionnaire. The total FSFI score, ranging from 2 to 36, screens for overall sexual dysfunction. A score below 26.55 is generally considered an indicator of sexual dysfunction [2].

2.4. Statistical Analysis

Descriptive analyses were performed for the entire cohort. Continuous variables were presented as mean (±standard deviation) and categorical variables as frequencies (%). Mean comparisons were performed using Student's t-test or analysis of variance (ANOVA) when more than two groups were compared. Associations between clinical factors (age, FIGO stage, toxicity) and the FSFI score were examined using Pearson's correlation tests and linear regression models. A significance level of $p<0.05$ was considered for all analyses.

3. RESULTS

3.1. Characteristics of the Patient Cohort

Of the 187 patients included in the study, the mean age was 53.0 years (± 8.2 years). The clinical and demographic characteristics of the cohort are summarized in Table 1. It is noteworthy that the majority of patients (65%) presented with a locally advanced stage (FIGO IIB-IIIB) at diagnosis, which reflects the regional epidemiology of the disease. At the time of evaluation, 62% of the patients reported being sexually active after their treatment.

Table 1: Clinico-demographic characteristics of the patient cohort

Characteristics	Value
Total number of patients (n)	187
Mean age (years ± Standard deviation)	53,0 ± 8,2
FIGO Stage	
Early stages (IA-IIA)	35 %
Locally advanced stages (IIB-IIIB)	65 %
Sexually active patients post-treatment	62 %

3.2. Evaluation of Sexual Quality of Life and Associated Factors

Among sexually active patients, the mean FSFI score was 24.1 (± 5.7), confirming a high prevalence of sexual dysfunction in our cohort. Detailed domain scores are presented in the data table for Figure 1, highlighting the drop in scores in the lubrication and pain domains. A significant negative correlation was observed between disease stage and the FSFI score ($p<0.01$), with the lowest scores found in patients with the most advanced stages. Furthermore, late genital toxicities were common and strongly associated with a degradation of sexual function, as summarized in **Table 2**.

Table 2: Mean FSFI scores by disease stage and presence of genital sequelae

Factor	Mean FSFI score (± Standard deviation)	p-value
FIGO Stage		
Early stages (IA-IIA)	28,5 ± 4,1	< 0,01
Advanced stages (IIB-IIIB)	22,0 ± 3,8	
Presence of genital sequelae		
No sequelae	26,5 ± 3,2	< 0,05
Vaginal dryness	21,5 ± 4,0	
Vaginal synechiae	20,8 ± 3,9	

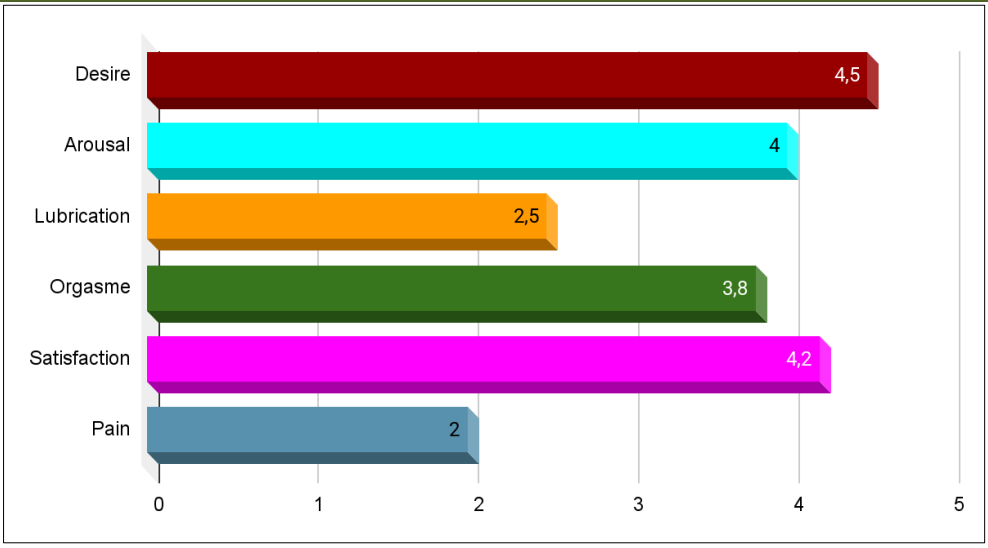

Figure 1: Mean FSFI score by domain

4. DISCUSSION

The results of our study eloquently confirm that pelvic radiotherapy for cervical cancer, while life-saving, has a significant and lasting impact on patients' sexual quality of life [2]. With a mean FSFI score of 24.1, our cohort shows a high prevalence of sexual dysfunction, a finding that echoes data from international literature, particularly from studies conducted in Europe and North America [4, 5]. However, our work is one of the first to quantify this reality in the Moroccan context, where female sexuality is often a delicate and little-discussed topic in healthcare settings.

The analysis of the negative correlation between disease stage and the FSFI score is particularly instructive. Patients with advanced stages (FIGO IIB-IIIB) require more intensive treatments, including higher doses of radiotherapy and often concurrent chemotherapy [6]. The resulting increase in local toxicity (fibrosis, inflammation) directly leads to physical sequelae that compromise sexual function [3, 7]. Our results, showing particularly low scores for lubrication and pain, reinforce this observation, indicating that the direct effects of irradiation on vaginal tissues are major contributors to dysfunction.

The prevalence of genital sequelae (dryness and vaginal synechiae) in our cohort underscores the urgent need to integrate early prevention and management strategies into the care protocol. Currently, these complications are often treated reactively, after symptoms appear. A proactive approach, including patient education on the use of vaginal lubricants and dilators from the end of radiotherapy, could significantly improve their quality of life and prevent the worsening of sequelae, as demonstrated by other studies [8].

This study, while insightful, has limitations. Its retrospective and single-center nature limits the generalizability of its results to the entire country. The lack of a pre-treatment assessment of sexual function prevents us from establishing a baseline and measuring the exact degree of impairment. Future prospective, multi-center studies would be necessary to confirm these results and explore the effectiveness of various clinical interventions.

5. CONCLUSION

The results of our study irrefutably highlight that sexual dysfunction is a major and frequent consequence of radiotherapy for cervical cancer [2, 3]. Patients' sexual well-being must be considered an essential component of oncological care, not a secondary issue.

We strongly recommend integrating sexology consultations and perineal rehabilitation programs into the standard care pathway at the National Institute of Oncology and other oncological centers in the country. A comprehensive approach that assesses and treats both physical and psychological sequelae is indispensable to improve patients' quality of life and allow them to regain a fulfilling life after the disease.

Declaration of Conflicts of Interest

The authors declare no conflicts of interest in relation to this study.

List of Abbreviations

- **FIGO**: International Federation of Gynecology and Obstetrics
- **FSFI**: Female Sexual Function Index
- **NIO**: National Institute of Oncology

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