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ORIGINAL ARTICLE

Prospective study of sexual dysfunction after proctectomy for rectal cancer

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KEYWORDS
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Summary *Background:* Although rectal cancer is a common malignancy and has an improved cure rate in response to oncological treatment, research on rectal-cancer survivors' sexual function remains limited.
Objective: The aim of this prospective study is to assess sexual dysfunction after rectal cancer surgery.
Patients and methods: Patients undergoing curative rectal cancer surgery were included in the study. Sexual function before and 6 months after the operation was measured using the validated questionnaires. Primary outcome was to determine the rates of Sexual dysfunction after rectal cancer surgery. Furthermore, the factors which can have an impact on sexual function after radical treatment have been assessed.
Results: A total of 187 patients [117 (63%) men and 70 (37%) women] with rectal cancer who underwent radical resection were included in the study. Sexual function has significantly decreased after surgery. Among male patients, sexual dysfunction increased from the baseline 4% (n = 5) up to 41% (n = 48) after the operation. Among female patients, sexual dysfunction increased from the baseline 53% (n = 37) up to 77% (n = 54) after the operation. A significant lower rate of laparoscopic surgery has been found in both males and females who reported sexual dysfunction after surgery. The patients who have locally advanced disease and those who received postoperative chemotherapy or radiotherapy have higher rates of sexual dysfunction.
Conclusion: This study, showed that sexual dysfunction is common in patients with rectal cancer after radical treatment. However, patients who underwent laparoscopic surgery have lower rates of sexual dysfunction than those who underwent open surgery.

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1. Introduction

The main treatment goals for rectal cancer are oncological cure and overall survival.[1] Treatment includes rectal resection and radio/chemotherapy in about 50% of all cases.[2] One of the most important advances in the treatment of rectal cancer is the concept of total mesorectal excision (TME), because it greatly reduces local recurrence.[1]

With improved oncological results, functional results such as sexual function become increasingly important.[3] However, the incidence of sexual dysfunction (SD) varies and depends on the surgical technique and extent of resection. Reported values range from 18 to 50%.[4] A reason for variation lies in the assessment of sexual function, which has been inconsistent in most studies. The techniques differ greatly and include interviews, clinical tests and nonvalidated questionnaires.[5,6] Many patients experience deterioration in sexual function, consisting of erectile dysfunction (ED) in men and vaginal dryness and dyspareunia in women, after rectal cancer treatment.[3] Reduced sexual function is associated with lower quality of life in cancer survivors.[7] In a previous study, we have shown that rectal cancer survivors had a high rate of SD, which was seldom treated.[8] However, that study was retrospective, and no information was known about sexual (dys)function before the treatment of cancer, which limited the determination of the effect of the treatment on functioning or on the ability to correct for baseline functioning. Therefore, we think that prospective studies with an assessment point prior to surgical treatment are needed. Furthermore, factors such as age, gender, adjuvant therapy and type of surgery can also have an impact on sexual function, but studies measuring this effect in a prospective way remain limited. Therefore, this study aimed to assess the evolution of sexual functions over time after the treatment of rectal cancer.

2. Methods

2.1. Study design & setting

The study was planned as a prospective, single-arm cohort study. All cases of rectal cancer that involved surgery with curative intent at a university hospital were eligible to be included in the study. The Research Ethics Committee of Marmara University approved the study, and all patients signed a written informed consent form before their participation in the study.

2.2. Inclusion and exclusion criteria

Patients with rectal cancer who underwent a radical resection for any stage of rectal (with or without [neo] adjuvant therapy) were included. Patients who have benign rectal lesions, did not follow up, no sexual activity, previous rectal surgery and those who refused to complete the functional questionnaire were excluded from the study.

2.3. Surgical technique

TME was carried out for midrectal and low rectal cancer, whereas partial mesorectal excision removing 5 cm of mesorectum below the lower border of the rectal tumors was performed for high rectal tumors. In cases of neoadjuvant treatment surgery was performed 6–8 weeks after the end of radiotherapy.

2.4. Assessment of sexual function

Evaluation was carried out before surgery (at the admission to the hospital for surgery), considered as the baseline status and 6 months after surgery by validated questionnaires, including the International Index of Erectile Function (IIEF-5), and the Index of Female Sexual Function (IFSF).

Validated self-reported psychometric questionnaires, such as IIEF and the IFSF, helped us to assess the impact of a specific treatment modality by evaluating different sexual function domains.[9,10] Each IIEF item is scored on a 5-point ordinal scale, where lower values represent poorer sexual function. An abbreviated version of the IIEF, designated as the IIEF-5, has been developed and validated as a diagnostic tool for ED.[11] This index explores erectile function via 5 domains, including maintenance ability, erection confidence, maintenance frequency, erection firmness, and intercourse satisfaction. According to the IIEF-5, ED can be classified into five severity levels, ranging from none (22–25), to mild (17–21), mild-to-moderate (12–16), moderate (8–11), and severe (5–7).

The IFSF, a 9-item questionnaire, has been developed as a brief, multidimensional self-reporting instrument for assessing the key dimensions of sexual function in women.[10] Specific domains analyzed in the IFSF included quality of sexual intercourse, desire, overall satisfaction with sexual function, orgasm, lubrication, and clitoral sensation. Specific questions analyzed included the degree of lubrication, the ability to achieve orgasm, and the degree of clitoral sensation, with responses graded on a scale of 1 (almost never or never) to 5 (almost always or always).[10] A score of 0 indicated no attempt at intercourse. According to the IFSF, SD in women can be classified into four levels, ranging from none ($\geq$35) to mild (26–35), moderate (16–25) and severe ($\leq$15) in the Turkish female population.[12] The objective of this study was to assess the sexual function before and at 6 months after surgery for the men and women separately. For assessment of the factors that may have an impact on the development of SD after surgery, we have divided both male and female patients into two subgroups according to their SD scores. Participants who reported no problems or mild problems were categorized as not having sexual problems, while patients who reported moderate or severe problems were categorized as having sexual problems. The two groups were compared with each other.

2.5. Clinical data

Information on age, gender, histological diagnosis, surgical procedure, type of surgery (open vs laparoscopy), co-

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