

*Research Article***Evaluation of Urinary, Sexual, Bowel Functions and Quality of Life after Pelvic Surgery**

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**Abstract**

**Aim of the Study:** To evaluate incidence of urinary, sexual, bowel dysfunctions, and quality of life after rectal or colonic surgery either performed by open or laparoscopic techniques for malignant or benign conditions. **Patients & methods:** Our study included 108 patients obtained from prospective database performed in Ain Shams university hospital and Minia university hospital from January 2012 to January 2016, 69 males and 39 females, mean age was 44.1±10.67 years. **Results:** Age is a predisposing factor for urogenital dysfunctions in males; type of operation doesn't significantly affect urological functions with a trend toward more severe symptoms after APR. In female only APR affect urinary dysfunctions. As regard the sexual functions in males; it improve with time, age; APR; and neo-adjuvant are risk factors for male sexual dysfunctions especially for the ejaculatory and erectile dysfunction although the statistical differences was non-significant. However, only neo-adjuvant CRT was a risk factor for female sexual dysfunctions. This study showed a non-significant difference in male or female urogenital functions, bowel functions nor QOL after laparoscopic or open rectal resection. QOL is found to be affected significantly in females receiving neo-adjuvant CRT as regard secondary end points of general health, emotional wellbeing and social functions. In females, neo-adjuvant CRT and adjuvant CT significantly affect severity of bowel functions. But the type of operation had no significant effect on bowel functions with the lowest score after LAR. Approximately 20% (2 of 8) of male patients and 14% (1 of 7) of females in the APR group had sexual dysfunction. The incidence for urinary affection was 16% and 21.4% for males and females respectively in the APR group. **Conclusion:** age, APR are risk factors for urinary dysfunction in males and age; neo-adjuvant CRT is the risk factors for sexual dysfunction in male patients. Adjuvant chemoradiotherapy is the risk factors of sexual dysfunction for Women. No significant differences in the domain specific scores between the laparoscopic and open rectal resections. Neo-adjuvant CRT is the main risk factor for bowel dysfunctions and bad QOL especially in females.

**Keywords:** Rectum Surgery, Total Mesorectal Excision, Sexual Dysfunction, Urinary Dysfunction, Quality of Life (QoL).

**Introduction**

Before the introduction of TME, the incidence of postoperative urinary and sexual dysfunction was 10-30% and 40-60% respectively. Even with the incorporation of autonomic nerve preserving techniques in TME, urinary and sexual dysfunctions remain recognized complication<sup>[1]</sup>.

Bladder dysfunctions consist of difficult empty and incontinence. Male sexual problems consist of erection dysfunction, absence of ejaculation, retrograde ejaculation. Female sexual as decreased

vaginal secretion, dyspareunia and decreased ability to achieve orgasm<sup>[1]</sup>.

The advances in sphincter –preserving surgery (SPS) allow more patient to avoid permanent stoma. SPS has been used as indicator for surgical quality. However, the functional outcomes after SPS are not well understood<sup>[1]</sup>.

**Patients and methods:**

This study included 108 patient who performed rectal or colonic surgery for malignant or benign conditions, either done open or laparoscopically at Ain-Shams

university hospital and Minia university hospital, and who met the inclusion criteria from January 2012 to January 2016.

### Methods

This study is a retrospective study that assess sexual, urinary, bowel functions and quality of life in patients who underwent rectal or colonic surgery for malignant or benign conditions, either done open or laparoscopically.

Informed consent was obtained from all participants, and the purpose of the study was stated verbally to the subject before asking for his or her consent to participate. Data were kept confidential by replacing names on the questionnaires with a code number; all patients who accepted the study completed validated and specific questionnaires to assessing their problems. All questionnaires were translated in Arabic and the results were analyzed and expressed in English.

According to the retrospective nature of the study, no objective or subjective data regarding the patients' preoperative functional status were available. Males and females patients were analyzed by separate questionnaires for the sexual and urinary function.

### Sample

The patient database was consists of (201) patients, of those (108) patient completed the questionnaires, (30) patients were dead at the time of study conduction, (1) patient refuse to complete the questionnaires, (30) patients were unreachable and (32) patients were excluded either due to development of local recurrence or leak at the time of the study or due to other causes that are mentioned in the exclusion criteria. The final sample was (108) patient, (69) males and (39) females.

### Results

#### Urinary functions

##### Males

The I-PSS analysis reflected there was no statistically significant difference in the overall symptom score as regard the type of operation, the difference was not significant

between any of the groups( p-value= 0.137), but there was a trend toward more severe symptoms in the APR group( mean total score= 8.16+8.18).

##### Women

The UDI analysis reflected there was no statistically significant difference in the overall symptom score as regard the type of operation, the difference was not significant among any of the groups( p-value= 0.111), but there was a trend toward more severe symptoms in the APR group( mean total score= 32.67.80+1710.44).

#### Sexual functions

##### Males

This study showed a non-significant trend towards male sexual dysfunction after APR. No significant differences in the total scores were observed (p-value= 0.140, but the domain specific score for sexual drive tend to be significant worse after APR.

Patients who received long course neo-adjuvant (CRT) reported significantly more problems with the sexual drive and problem assessment and there was a non-significant trend toward worse erectile, ejaculatory functions and overall satisfaction in the previously irradiated patients

##### Females

The overall symptom score revealed positive significant correlation between the total score and the duration relapsed between the time of the operation and the time of the questionnaire (p- value= 0.010).

This study showed a non-significant difference in female sexual function either in the overall or domain-specific scores in any type of operation.

Approximately 20% (2 of 8) of male patients and 14% (1 of 7) of females in the APR group had sexual dysfunction. The incidence for urinary affection was 16% and 21.4% for males and females respectively in the APR group.

#### Bowel functions

In females, neo-adjuvant CRT and adjuvant CT significantly affect severity of bowel

functions (p-value= 0.00, 0.00) respectively. But the type of operation had no significant effect on bowel functions with the lowest score after LAR .

### Quality of life

Although no statistically significant differences were detected in overall symptom scores between any of the groups as regard the type of operation either in males or females with a trend toward poor QOL after APR. There was a significant difference in the secondary end-point Emotional Wellbeing and social functioning in females (p-value= 0.03) with the lowest functions after APR.

QOL is found to be affected significantly in females receiving neo-adjuvant CRT as regard secondary end points of general health, emotional wellbeing and social functions.

This study showed a non-significant difference in male or female urogenital functions, bowel functions nor QOL after laparoscopic or open rectal resection.

### Discussion

The I-PSS analysis reflected there was no statistically significant difference in the overall symptom scores as regard the type of operation, the difference was not significant between any of the groups, but there was a trend toward more severe symptoms in the APR group. This was also the results of [1] that found APR patients had more difficulties compared to patients undergoing LAR, this may be explained by the fact that more nerve damage occurs in patients undergoing an APR. This is particularly true during the perineal phase where the distal branches of the pelvic autonomic nerves are at risk [2]. Lange et al., [3] and [4] found that APR had no worsening effect on both urinary incontinence and bladder emptying at 6-year follow-up.

The higher incidence of erectile dysfunction after abdominoperineal resection suggests a role of the perineal resection in the development of sexual dysfunction. Distal branches of the pelvic autonomic nerves

running toward the penis are possibly at risk of surgical damage during the perineal resection. Furthermore, the altered pelvic floor anatomy after perineal resection caused by the transection of the levator ani muscle and the transverse perineal muscle may influence erectile function. The incidence of SD resulting from a proctocolectomy performed as a result of benign diseases as chronic inflammatory bowel diseases are very low at 1-2%. As surgery can be restricted to the rectum.

In this retrospective study, we focused on the frequency of urogenital dysfunctions after colonic or rectal surgery. Decrease in postoperative functions was for the APR group was reported by 16.7% & 20% of patients for urological and sexual functions respectively. Urinary dysfunction was experienced by 13% of male patients after LAR; while the rate for sexual dysfunction after LAR was 9.0%.

Henderen et al., [5] reported that after surgery for rectal cancer, 43% of sexually active men and 69% of men overall had International Index of Erectile Function (IIEF) scores that were considered abnormal.

Bladder function was similar after laparoscopic and open rectal operations for rectal cancer. Overall sexual function and the subscale scores showed non-significant difference between the laparoscopy and open group. The results of [6] support our results in a randomized clinical trial of laparoscopic versus open technique, [7] this is also in line with previous reports that suggested that urinary function was similar using both the open and minimally invasive techniques [8]. Quah et al., [9] reported the overall rate of postoperative male sexual dysfunction to be 46% in men undergoing laparoscopic resection and 40% in men undergoing open resections. Jayne et al., [10] reported high rates of postoperative bladder dysfunction (30%) after both laparoscopic and open rectal resections, this high incidence of urinary dysfunction was explained by the older age of the patients.

There is little information on female sexual function after rectal cancer surgery. Dyspareunia and loss of vaginal lubrication may be caused by vaginal irritation or fibrosis secondary to surgical trauma or radiation therapy. Many aspects of the neurophysiological basis of female sexuality remain unclear. However, there is every reason to believe that nerve damage which can cause severe dysfunction in male patients would also cause dysfunction in female patients<sup>[17, 18]</sup>.

These results are lower than the results of Havenga et al.,<sup>[19]</sup> who studied 47 women after mesorectal excision for rectal cancer and reported a 46% incidence of dyspareunia, and Henderen et al.,<sup>[19]</sup> who reported that from a cohort of 99 females, 39% of sexually active women who underwent surgery for rectal cancer had Female Sexual Function Index (FSFI) scores that were considered abnormal. In Nesbakken et al.,<sup>[19]</sup> study; three of sex women reported reduction of libido and sexual activity postoperatively by 0%.

### Bowel functions

Our study concluded that Multimodal therapy of low rectal cancer increases The severity of bowel dysfunction in both sexes so that The potential benefits of RT or CRT need to be balanced against the risk of increased bowel dysfunction when determining the appropriate treatment for individual patients with rectal cancer. But the type of operation had no significant effect on bowel functions with the lowest score after LAR and this is in line with previous studies.

In the Dutch colorectal cancer group study, patients who received preoperative pelvic radiotherapy compared to patients who did not receive pelvic radiotherapy reported increased rates of fecal incontinence (62% vs. 38%, respectively;  $P < 0.001$ ), pad wearing as a result of incontinence (06% vs. 33%, respectively;  $P < 0.001$ ), and mucus loss (27% vs. 10%, respectively)<sup>[19]</sup>.

### Quality of life

The type of surgery did not seem to have a significant impact on the QoL in our study

which is in line with some earlier studies that used SF-36 questionnaire<sup>[18, 19]</sup>. After APR; there was a tendency toward worse emotional wellbeing & social functions, but otherwise the differences were not statistically significant which was also reported by<sup>[19]</sup>. This is in contrast to other studies<sup>[19, 20]</sup> where the QoL was not better after HAR than after LAR or APR which may be explained by lower median age population in these studies.

### Conclusion

Approximately 20% of male patients and 14% of females in the APR group had sexual dysfunction. The incidence for urinary affection was 16% and 21.4% for males and females respectively in the APR group. In our study, it was determined that age is risk factors for urinary dysfunction in males and age; neo-adjuvant CRT is the risk factors for sexual dysfunction in male patients. Adjuvant chemoradiotherapy is the risk factors of sexual dysfunction for Women. Neo-adjuvant CRT is the main risk factor for bowel dysfunctions and bad QOL especially in females.

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