

Quality of Life in Patients with Continent Urinary Diversion after Radical Cystectomy in Upper Egypt

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ABSTRACT

Background: Quality of life (QOL) assessment after radical cystectomy (RC) and urinary diversion (UD) is a crucial element of a fully evaluated patient-reported outcomes and gauging the impact and success of the diversion surgery. There has been long-standing interest in health-related quality of life (HRQOL) evaluation and research among patients who receive UD.

Objective: To compare ureterocolic versus orthotopic neobladder (ONB) urinary diversions in terms of their QOL.

Patient and method: This retrospective, multicenter study included 128 patients with muscle invasive bladder cancer (MIBC) who underwent RC and UD through the period from January 2011 to June 2016. The patients were divided into two groups: (ONB) 78 patients and ureterosigmoidostomy group 50 patients. HRQOL was evaluated with Functional Assessment of Cancer Therapy–Bladder Cancer (FACT-BL) Questionnaire, while Sexual Health Inventory for Men (SHIM) Questionnaire was used to assess the erectile function of males.

Results: The mean patients' age was 54.0 ± 7.9 years old in the ONB group and 57 ± 8.5 years old in ureterosigmoidostomy group. Patients in the ONB group were younger than those in the ureterosigmoidostomy group. There were differences in the physical, social and functional well-being that were significantly higher in patients in the ONB. Regarding the sexual function, there were significant differences between patients who underwent nerve sparing RC and non-nerve sparing RC.

Conclusions: Findings suggest that patients with an ONB have marginal QOL advantages over ureterosigmoidostomy.

Keywords: Radical cystectomy, urinary diversion, QOL.

INTRODUCTION

In 2018, there were about 550,000 new cases of bladder cancer (BC) worldwide, and bladder cancer accounted about 200,000 deaths⁽¹⁾. In Egypt, BC has the highest incidence rate in the world. An incidence of 37.1 per 100,000 males is almost two times higher than that in western communities⁽²⁾. The National Cancer Institute (NCI) reported that, it constitutes 30.3% of all cancers, 16% of male cancers, and 14.3% of female cancers⁽³⁾. The choice of UD technique depends on multiple factors as patient's age, co-morbidity, continence status, renal function, surgical margin and surgical experience⁽⁴⁾.

Radical cystectomy (RC) with pelvic lymph node dissection represents the gold standard treatment of muscle invasive bladder cancer (MIBC)⁽⁵⁾. Whereas alternative treatments are reserved for patients with earlier stage non muscle invasive bladder cancer (NMIBC), extensive co-morbid conditions or poor performance status⁽⁶⁾. There are multiple questionnaires available to measure QOL. These questionnaires can be general or disease-specific. Bladder specific questionnaires include Functional Assessment of Cancer Therapy for patients with Bladder Cancer (FACT-BL), European Organization for Research and Treatment of Cancer Core Quality of Life

Questionnaire (EORTC-QLQ)-30 and Bladder Cancer Index (BCI) questionnaires⁽⁷⁾.

AIM OF THE WORK

To compare ureterocolic versus orthotopic neobladder (ONB) urinary diversions in terms of their QOL.

PATIENT AND METHODS

This is retrospective study included 128 patients (90 men (70%) and 38 women (30%)) with MIBC who underwent RC and UD through the period from January 2011 to June 2016 and came for routine follow up. The patients had been followed up for an average period of 3 years. The study sample was not limited by gender, age, disease stage, or previous treatments. Institutional ethical approval for the study was obtained in accordance to the Declaration of ethical committee in the Faculty of Medicine, Al-Azhar University. The patients were divided into two groups: orthotopic ileal neobladder group (ONB) 78 (61%) patients and ureterosigmoidostomy group 50 (39%) patients.

Data were retrospectively collected from the clinical records regarding the demographic profile, body mass index (BMI), neoadjuvant chemotherapy, preoperative co-morbidities,

postoperative histopathology, pathological tumor stage (according to TNM staging system, 2009).

Selection of patients:

Patients were excluded if they were indicated for palliative cystectomy, had a psychiatric disorder, a history of alcohol or substance abuse, cognitive morbidity (i.e. dementia, Alzheimer's disease), additional oncological disease, refusal to participate in this study and incomplete follow-up data.

Quality of Life and sexual function assessment:

The studied patients received two types of questionnaire, Functional Assessment of Cancer Therapy–Bladder Cancer (FACT-BL) to determine their quality of life (QOL) and Sexual Health Inventory for Men (SHIM) Questionnaire to assess the erectile function in males.

The FACT-BL is a validated tool that includes the 27-item FACT-General (G) questionnaire, which is divided into 4 domains: physical, social, emotional and functional well-being and 12 additional urology-specific items (10 items regarding the urinary, gastrointestinal, sexual symptoms, and 2 questions for patients with urostomy appliances). All items were scored on a Likert scale of 0-4, with higher scores indicating better HRQOL.

Sexual Health Inventory for Men (SHIM) was used to assess the recovery of sexual function in men after RC. The cutoff scores for normal erectile function were 22-25 with lower scores categorized as mild, moderate and severe erectile dysfunction (ED).

Ethical approval:

The study was approved by the Ethics Board of Al-Azhar University and an informed written consent was taken from each participant in the study.

The nature of the study was explained to all participants and a consent form was obtained before enrollment into the study.

Statistical analysis

The data were tested for normality by the Anderson-Darling test and for homogeneity variances prior to further statistical analysis. Categorical variables were described by the number and percent (N, %), where continuous variables described by the mean \pm standard deviation (Mean \pm SD). Chi-square test and Fisher exact test were used to compare between categorical variables, while continuous variables by t-test. P value equal to lower than 0.05 was considered statistically significant. All analyses were performed with the IBM SPSS 20.0 software.

RESULTS

The mean patients' age was 54.0 ± 7.9 years old in the ONB group and 57 ± 8.5 years old in ureterosigmoidostomy group. Patients in the ONB group were significantly younger than those in the ureterosigmoidostomy group (P.value 0.001). There was no significant difference between both groups in terms of sex, co-morbidities, pathological tumor stage and postoperative complications (Table 1).

There were higher significant differences in the physical, social/family, functional and additional concerns in patients in the ONB group. Only emotional well-being was insignificantly different (Table 2). As regards the urinary symptoms scale scores, there was no significant difference in urinary incontinence between the two groups. Also, there was significant difference between the two groups in the GIT symptoms scale scores including diarrhea and good appetite that were significantly higher in patients in the ONB group. There was no significant difference in control of bowel between the two groups (Table 3 and figure 1). Regarding the sexual function, there were significant differences between patients who underwent nerve sparing RC (27 patients) and non-nerve sparing RC (63 patient) with low degree of erectile dysfunction (ED) in nerve sparing group (Table 4 and figure 2). There was no significant difference in the degree of ED between the two types of UD (Table 5 and figure 3).

Table (1): Patient’s data, tumor characteristics

Variable	ONB (n=78)	Ureterosigmoidostomy (n=50)	P. value
Age:	54.0 ± 7.9	57 ± 8.5	0.001**
Sex:			
Male	58(74%)	32(64%)	0.062
Female	20(26%)	18 (36%)	
BMI	21.5 ± 1.6	20.6 ± 1.5	0.283
Neoadjuvant chemotherapy	14	10	0.188
Preoperative co-morbidity grade using ACE 27 index:			
None	20	5	0.098
Mild	34	28	
Moderate	14	16	
Severe	10	1	
Histopathology:			
TCC	60	35	0.187
SCC	18	15	
Pathological tumor stage:			
Organ confined ≤ pT2	60	38	0.112
Non organ confined: pT3-pT4a	18	12	0.101
Lymph node-positive: pN+	10	11	0.999

Table (2): FACT-BL scores in the ONB and ureterocolic group

Variable	ONB		P. value	Ureterocolic		P. value
	≤ two years	> two years		≤ two years	> two years	
Physical well-being	19.9 ± 5.7	12.8 ± 2.4	<0.001**	24.2 ± 3.6	21.1 ± 2.6	<0.001**
Family well-being	22.1 ± 3.7	16.6 ± 2.5	<0.001**	23.8 ± 2.7	21.2 ± 2.9	<0.001**
Emotional well-being	22.7 ± 1.6	21 ± 1	<0.081	23.6 ± 0.9	23.2 ± 1.7	0.062
Functional well-being	20.1 ± 5.1	13.2 ± 2.7	<0.001**	23.3 ± 3.9	19 ± 2.1	<0.001**
Additional concerns	30.3 ± 6.1	18.4 ± 2.9	<0.001**	37.9 ± 4.1	27 ± 3	<0.001**
FACT-BL	115.5 ± 20.5	81.9 ± 9.3	<0.001**	132.9 ± 12.5	110.9 ± 8.5	<0.001**

Table (3): FACT-BL scores between both groups as regards GIT symptoms

Variable	≤ two years		P. value	> two years		P. value
	ONB	ureterocolic		ONB	ureterocolic	
Control of bowel	3.59 ± 1.14	3.68 ± 1.11	0.006**	3.8 ± 0.41	3.88 ± 0.48	0.019**
Diarrhea	3.15 ± 1.14	3.92 ± 0.28	0.001**	3.8 ± 0.46	4 ± 0	0.012**
Good appetite	3.21 ± 0.66	2.16 ± 0.37	0.001**	3.55 ± 0.55	3.12 ± 0.48	0.001**

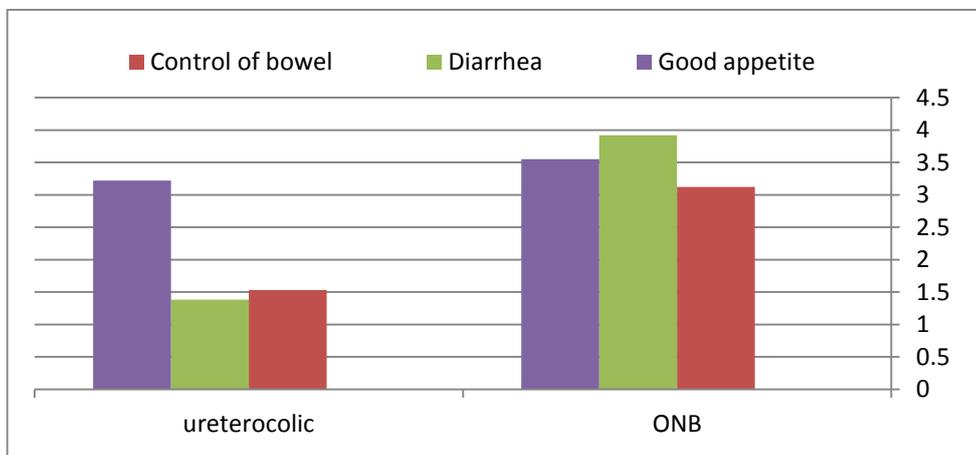


Figure (1): FACT-BL scores between both groups as regards GIT symptoms

Table (4): Degree of ED in nerve and non-nerve sparing RC using SHIM questionnaire

Degree of ED	≤ two years		P. value	> two years		P. value
	Nerve sparing RC	Non nerve sparing RC		Nerve sparing RC	Non nerve sparing RC	
Severe ED	-	25	0.001**	-	16	0.001**
Moderate ED	3	8		2	14	
Mild to moderate ED	8	-		4	-	
Mild ED	3	-		7	-	

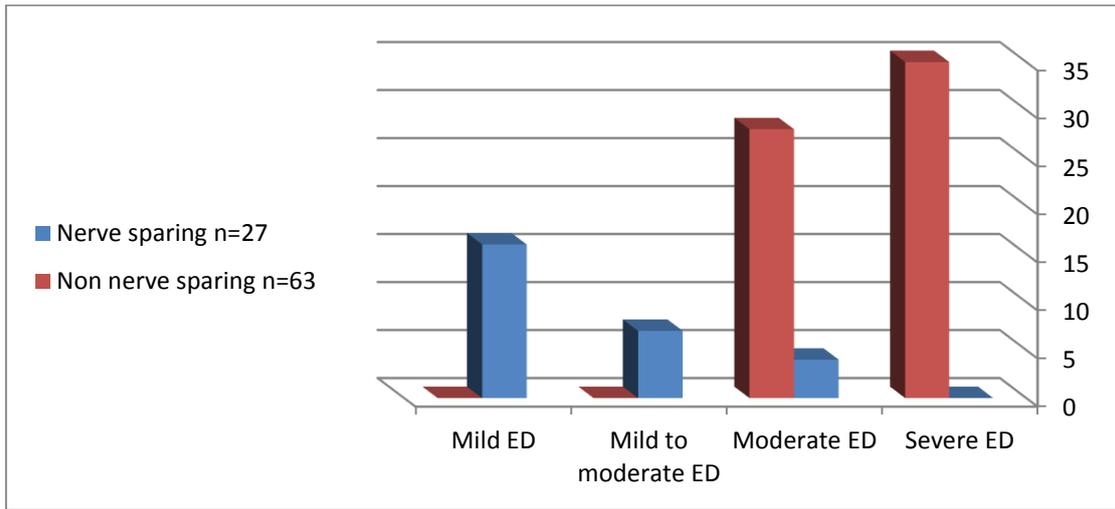


Figure (2): Degree of ED in nerve and non-nerve sparing RC using SHIM questionnaire

Table (5): Degree of ED in ONB and ureterocolic of UD.

Degree of ED	ONB n=58	Ureterocolic n=32	p.value
Severe ED	12	19	0.322
Moderate ED	23	6	
Mild to moderate ED	8	4	
Mild ED	15	3	

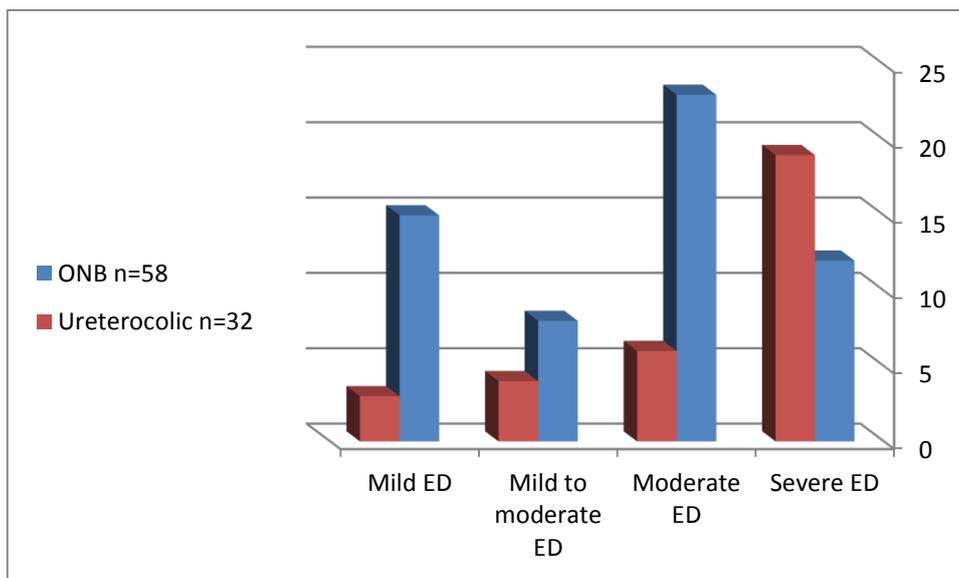


Figure (3): Degree of ED in ONB and ureterocolic of UD

DISCUSSION

Analysis of FACT-BL questionnaire showed that patients with ONB diversion were significantly better than those with ureterocolic diversion in the assessment of the general health status and quality of life including physical, social and functional domains. These results are consistent with those obtained by **McGuire *et al.***⁽⁸⁾ using the QLQ-C30 questionnaire.

In the present study, there was insignificant difference in the emotional functioning score between the two groups. This suggests that the patient may emotionally tolerate different diversions with time and the type of UD does not differentially affect emotional functioning score. These findings are similar to the results of **Somani *et al.***⁽⁹⁾.

In our study ED affected about 79.4% of the patients. These results are consistent with those obtained by **Konety *et al.***⁽¹⁰⁾ who report that 89% of patients who were treated with RC had ED. This may be due to many factors as iatrogenic, emotional and psychological responses of patients and their partners, as well as social concerns and stigma associated with UD that might impair sexuality and sexual satisfaction, and place strain on intimate relationships.

Our study showed that no significant difference between the degree of ED and the type of the UD but there were significant differences between patients who underwent nerve sparing and non-nerve sparing RC. Nerve sparing RC showed lower degrees of ED than the non-nerve sparing.

CONCLUSION AND RECOMMENDATION

Radical cystectomy and urinary diversion is a major surgery affecting all aspect of life. How QOL will be affected is an important point of an ongoing intense research. Patients with ONB diversion were significantly better than those with ureterocolic diversion in the assessment of the general health status and quality of life including physical, social and functional domains. The QOL may not be only affected by the type of UD but also by age of the patient, method of the operation

(nerve sparing RC or non-nerve sparing RC) and the postoperative complications.

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