



Body Image Following Radical Cystectomy and Ileal Neobladder or Conduit in Korean Patients

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Purpose: The aim of this study was to compare the body images of patients who underwent radical cystectomy with an orthotopic ileal neobladder or an ileal conduit.

Materials and Methods: A total of 114 adult patients who underwent radical cystectomy between March 2006 and December 2012 at a single institution, Ewha Womans University Mokdong Hospital in Korea, were evaluated in this retrospective chart-review study. Forty-two patients (29 orthotopic ileal neobladder and 13 ileal conduit) who completed questionnaires were included in the final analysis; the remaining patients were excluded. The patients were assessed with two questionnaires: the Korean version of the Body Image Scale (K-BIS) and the self-designed questionnaire.

Results: The results did not differ significantly by age at surgery, time from surgery to survey, pathologic stage, grade, histologic subtype, education, residency, or Eastern Cooperative Oncology Group performance status, but did differ significantly by age at survey and sex. The mean summary score for K-BIS showed significant differences between the two groups ($p=0.001$). We found that patients who underwent an orthotopic ileal neobladder had a significantly better body image. The self-designed questionnaire score was not significantly different between the two groups ($p=0.572$).

Conclusions: In our retrospective analysis, patients who underwent orthotopic ileal neobladder had a superior body image compared with those who underwent an ileal conduit.

Keywords: Body image; Cystectomy; Urinary bladder neoplasm; Urinary diversion

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INTRODUCTION

Bladder cancer is one of the most common urological malignancies. Previous studies have shown that radical cystectomy can be performed safely in patients with acceptable perioperative morbidity and long-term survival, when comorbidities are taken into account [1-3]. Apart from the advantageous outcome of tumor removal, bladder resection also provides a means of achieving urinary diversion and, therefore, has been implemented in a variety of patient cases [4]. The preferred method of urinary diversion is orthotopic ileal neobladder following radical cystectomy [4,5]. However, because of improvements in surgical techniques in recent years, continent urinary diversions and ileal conduit urinary diversions have been

shown to have similar perioperative complication rates, cancer control, and morbidity [6]. Although a considerable number of patients are classified as appropriate candidates for orthotopic ileal neobladder, patients and physicians should always consider all possible functional results associated with each procedure and make an informed decision on an individual basis.

Quality of life (QoL) is an important factor to consider after radical cystectomy and urinary diversion because of the potential negative effect of surgery on a patient's perception of body image and on their urinary, sexual, and social function [7]. However, the challenge of translating subjective components of health into a quantitative value is complex and must draw on a variety of fields in the social sciences. Many questionnaires or instruments have been

developed to assess various factors affecting QoL in cancer patients [7,8]. Although there has been a long-recognized need for accurate QoL assessment in these patients, the lack of reliable and sensitive data has limited research. Furthermore, the results of various studies of QoL are discordant [8].

Body image is an important component of QoL assessment, but a review of the literature reveals a lack of a suitable scale with which to measure body image in cancer patients, particularly in the clinical trial setting [9]. This is an important oversight given the increasing focus on QoL as an endpoint and the need to measure the subjective effect of treatment on surviving patients. Several studies have focused on comparative data between morbidity and QoL after ileal conduit or orthotopic ileal neobladder [10-13], but research in Korean patients has been limited. Recently, however, Khang et al. [14] validated a Korean version of the Body Image Scale (K-BIS), which showed good reliability and validation for the assessment of body image in Korean patients.

In this study we aimed to assess the body image of patients who underwent radical cystectomy followed by orthotopic ileal neobladder or ileal conduit with the use of K-BIS. We also evaluated urinary function using our self-designed questionnaire.

MATERIALS AND METHODS

1. Patients

A total of 114 adult patients who underwent radical cystectomy between March 2006 and December 2012 at a single institution, Ewha Womans University Mokdong Hospital in Korea, were evaluated in this retrospective chart-review study. Of 114 patients, 42 patients (29 in the orthotopic ileal neobladder group and 13 in the ileal conduit group) were included in this study. As classified by urinary diversion method, 87 patients underwent orthotopic ileal neobladder, 17 patients underwent ileal conduit, and 10 patients underwent "other" urinary diversion surgery. Twenty-nine of 87 patients (33.3%) who underwent orthotopic ileal neobladder and 13 of 17 patients (76.4%) who underwent ileal conduit were included in this study. The final study population comprised those patients who visited our outpatient department between March 2013 and May 2013. Time from surgery to survey was 1.4 ± 1.7 years in the neobladder group and 1.9 ± 1.0 years in the ileal conduit group, and the difference was not statistically significant ($p=0.208$). A single interviewer surveyed the patients. Body image was measured by K-BIS, and urinary function was evaluated by using our self-designed questionnaire. Interested patients were eligible to participate if they met the following criteria: had a diagnosis of bladder carcinoma, underwent radical cystectomy, had no other major disabling medical or psychiatric conditions, were aged 40-80 years, provided written informed consent, and were able to read and write in Korean. We excluded patients with major concomitant medical or psychological disease. Forty-two

patients (29 orthotopic ileal neobladder and 13 ileal conduit) who completed the questionnaire were included in the final analysis; the remaining patients were excluded. Before the patients underwent the operation, we interpreted the method of surgery and the change in body image. The patients were informed about the possibility of stoma creation. Contraindications to orthotopic ileal neobladder were as follows: (1) chronic renal failure with serum creatinine exceeding 2 mg/dL without acute hydro-nephrosis; (2) severe hepatic failure; (3) compromised intestinal function, especially caused by radiation or inflammatory bowel disease; (4) presence of histologically proven cancer at the prostatic apex (male) or bladder neck (female); (5) lack of patient motivation and/or intellect to follow a strict postoperative voiding regimen, to accept possible incontinence (mainly nocturnal) in the early postoperative phase and sometimes in the long term; and (6) pelvic-floor disorders such as detrusor sphincter dyssynergia or neurological disease. All patients were retrospectively assessed with the questionnaires mentioned below. We did not survey the patients before surgery; thus, the change in QoL of the individual patients could not be assessed.

2. Questionnaires

The BIS is a self-reporting scale with a 10-item measure, which allows a rapid and comprehensive assessment of affective (e.g., feeling self-conscious), behavioral (e.g., difficulty looking at one's own naked body), and cognitive (e.g., satisfaction with appearance) dimensions of body image in cancer patients. Furthermore, it was designed for use in any cancer type and associated treatment. BIS uses a four-point response scale (ranging from 0=not at all to 3=very much), and the final score is the sum of the 10 items (ranging from 0 to 30); 0 represents no symptoms, distress, or concerns with body image. BIS showed a single-factor solution and demonstrated good psychometric characteristics with adequate reliability and validity [15]. We used the K-BIS in a population of bladder cancer patients to evaluate its potential application in Korean subjects [14] (Supplementary material 1).

The self-designed questionnaire on urinary function has a self-reporting scale and a four-item measure, which allows the rapid and comprehensive evaluation of voiding difficulty and the effect of treatment on the daily life of these cancer patients. This questionnaire has a four-point response scale (ranging from 1=not at all to 4=very much), and the final score is the sum of the four items (ranging from 0 to 16); 0 represents no symptoms or distress (Supplementary material 2).

3. Statistical analysis

A total of 42 patients were divided into two groups: the orthotopic ileal neobladder group and the ileal conduit group. Comparisons were made between the two groups. A chi-square test or Fisher exact test was used for categorical variables, and the Mann-Whitney U test was used for con-

TABLE 1. Patients' characteristics

Characteristic	Neobladder (n=29)	Ileal Conduit (n=13)	p-value
Age at surgery (y)	62.1±10.5 (44.0–77.0)	69.4±11.1 (42.0–84.0)	0.057 ^a
Age at survey (y)	63.5±10.5 (44.0–79.0)	71.3±11.5 (43.0–86.0)	0.049 ^a
Time to surgery to survey (y)	1.4±1.7 (0–9.0)	1.9±1.0 (1.0–5.0)	0.208 ^a
Gender			<0.001 ^b
Male	27 (93.1)	5 (38.5)	
Female	2 (6.9)	8 (61.5)	
Pathologic stage			0.134 ^c
Organ confined	27 (93.1)	10 (76.9)	
Nonorgan confined	2 (6.9)	3 (23.1)	
Grade			0.862 ^b
High	23 (79.3)	10 (76.9)	
Low	6 (20.7)	3 (23.1)	
Histology			0.131 ^c
TCC	29 (100)	12 (92.3)	
Others	0 (0)	1 (7.7)	
Education			0.289 ^b
Higher (above high school)	14 (48.3)	4 (30.8)	
Lower	15 (51.7)	9 (69.2)	
Residency			0.881 ^c
Urban	24 (79.2)	11 (84.6)	
Rural	5 (20.8)	2 (15.4)	
ECOG performance			0.498 ^c
0 or 1	29 (100)	13 (100)	
≥2	0 (0)	0 (0)	
PSA (ng/mL)	1.5±1.7 (0.1–7.4)	3.4±1.6 (1.6–4.4)	0.163 ^a
TRUS (mL)	26.2±7.5 (18.0–40.0)	24.0±7.5 (17.0–33.0)	0.793 ^a

Values are presented as mean±standard deviation (range) or number (%).

TCC, transitional cell carcinoma; ECOG, Eastern Cooperative Oncology Group; PSA, prostate specific antigen; TRUS, transrectal ultrasonography (prostate volume by ultrasonography).

^a:Mann-Whitney U test, ^b:Chi-square test, ^c:Fisher exact test.

tinuous variables. All p-values were two-sided, and $p \leq 0.05$ indicated a significant difference. The statistical analyses were performed by using PASW ver. 18.0 (SPSS Inc., Chicago, IL, USA).

RESULTS

1. Patient characteristics

Data were collected from 29 patients in the orthotopic ileal neobladder group and from 13 patients in the ileal conduit group. The patient's characteristics are shown in Table 1. The two groups did not differ significantly in age at time of surgery, time from surgery to survey, pathologic stage, grade, histologic subtype, education, residency, Eastern Cooperative Oncology Group performance status, prostate-specific antigen concentration, or prostate volume (by ultrasonography). However, the age at survey was higher in the ileal conduit group than in the orthotopic ileal neobladder group ($p=0.049$), and the number of male patients was higher in the orthotopic ileal neobladder group than in the ileal conduit group ($p < 0.001$). The patients had surgical complications such as acute pyelonephritis and ileus. A total of 13.8% of patients (4/29) in the ileal neobladder group and 15.4% of patients (2/13) in the ileal conduit group

had acute pyelonephritis. None of the patients in the neobladder group and 7.7% of the patients (1/13) in the ileal conduit group had ileus. One patient who underwent ureteral stricture needed additional treatment, such as insertion of a ureteral stent (data not shown).

2. Korean Body Image Scale

Body image was compared between the two groups (Table 2). The following factors were significantly different: self-consciousness ($p < 0.001$), dissatisfaction with appearance ($p < 0.001$), difficulty seeing oneself naked ($p < 0.001$), avoidance of people ($p=0.022$), dissatisfaction with body ($p=0.002$), and dissatisfaction with scarring ($p=0.039$). The following factors were not significantly different: feeling less physically attractive ($p=0.151$), feeling less masculine/feminine ($p=0.251$), feeling less sexually attractive ($p=0.153$), and body feeling less whole ($p=0.854$). The mean summary score was 3.66 ± 4.06 in the orthotopic ileal neobladder group and was 8.54 ± 3.56 in the ileal conduit group, which represented a significant difference between the two groups ($p=0.001$).

3. Self-designed questionnaire on urinary function

To evaluate the self-designed questionnaire, data were

TABLE 2. Korean version of the Body Image Scale

Scale item	Neobladder	Ileal Conduit	p-value
1. Self-conscious	0.17±0.38	1.23±0.83	< 0.001
2. Less physically attractive	0.34±0.55	0.77±0.83	0.151
3. Dissatisfied with appearance	0.17±0.38	0.92±0.64	< 0.001
4. Less masculine/feminine	0.55±0.78	0.85±0.90	0.251
5. Difficult to see self naked	0.28±0.45	1.38±0.87	< 0.001
6. Less sexually attractive	0.72±0.92	0.31±0.63	0.153
7. Avoid people	0.12±0.31	0.77±1.17	0.022
8. Body less whole	0.59±0.78	0.46±0.52	0.854
9. Dissatisfied with body	0.35±0.67	0.92±0.49	0.002
10. Dissatisfied with scar	0.38±0.56	0.92±0.86	0.039
Sum	3.66±4.06	8.54±3.56	0.001

compared between the two groups as shown in Table 3. No statistically significant differences were observed between the factors analyzed. The mean summary score for the self-designed questionnaire was 6.76±1.82 in the orthotopic ileal neobladder group and was 6.54±1.98 in the ileal conduit group; the difference was not statistically significant ($p=0.572$). We also analyzed the results of an extra questionnaire for 29 orthotopic ileal neobladder patients (data not shown). In the orthotopic ileal neobladder group, 37.9% (11/29) of patients wore pads routinely during the day, 75.9% (22/29) of patients wore pads routinely during the night, and 5 patients used the urinary catheter during voiding dysfunction.

DISCUSSION

In this study, we investigated body image using a validated questionnaire and evaluated body image and urinary function as a measure of QoL in patients aged 40–80 years who underwent radical cystectomy followed by an orthotopic ileal neobladder or an ileal conduit. In our cohort of 42 patients who underwent radical cystectomies, 29 patients underwent orthotopic ileal neobladder and 13 an ileal conduit. A previous study focused on comparative data between hospital stay and perioperative complications following ileal conduit or ileal neobladder [12]; however, in this study we emphasized body orthotopic image and urinary function, not including complications and other problems. The mean summary score for K-BIS indicated significant differences between the two groups. We observed that patients who underwent orthotopic ileal neobladder rather than ileal conduit reported a better body image. Urinary function did not differ significantly between the two groups. However, patients' views may be important in treatment evaluation. A previous study used a self-designed questionnaire to assess the possibility that various activities and specific problems influence treatment evaluation [13]. Our self-designed questionnaire was developed to evaluate a patient's subjective life satisfaction, which was not mentioned in the previous study.

TABLE 3. Voiding-function questionnaire

Scale item	Neobladder	Ileal Conduit	p-value
1. Do you feel difficulty in daily life?	2.10±0.67	1.85±0.69	0.272
2. Do you feel difficulty of enjoy hobby?	1.62±0.62	1.77±0.93	0.821
3. Do you feel difficulty of living in society?	1.72±0.84	1.62±0.96	0.529
4. Do you regret your surgery?	1.31±0.71	1.31±0.48	0.582
Sum	6.76±1.82	6.54±1.98	0.572

The questionnaire addressed feelings about difficulties with daily life, with enjoying hobbies, and with living in society and regrets about surgery. These questionnaires were closely correlated with daily life and indicated that radical cystectomy patients experience major difficulties, which are most frequently mentioned during outpatient follow-up. Analysis of the data by sex showed that 27 of the 32 male patients (84.4%) underwent orthotopic ileal neobladder, and 2 of the 10 female patients (20%) underwent ileal conduit. The incidence of bladder cancer is lower in female patients. It was difficult to collect enough data for ileal conduit patients in our hospital because of the insufficient number of cases. Most of the female ileal conduit patients were elderly and were not concerned much about their appearance.

Hobisch et al. [13] concluded that QoL was better preserved with orthotopic ileal neobladder than with ileal conduit urinary diversion. On the other hand, most of the studies that compared different types of urinary diversion (incontinent, continent, or orthotopic diversion) were unable to confirm which reconstruction type was superior to the others with regard to QoL [12,15–17]. One hypothesis for this observation is that patients are preoperatively prepared for the disadvantages associated with their treatment via method-to-patient matching. It has been proposed that patients who have consented to and have been counseled prior to undergoing ileal conduit diversion may be better mentally and physically prepared for the reality of an abdominal stoma. On the other hand, participants in a randomized controlled trial of ileal conduit compared with orthotopic ileal neobladder with a balanced and equivalent level of counseling may respond differently.

Differing opinions exist in the literature for comparisons of body image between patients with different types of urinary diversions and bladder replacements. A study by Kikuchi et al. [18], for example, indicated that patients who underwent ileal conduit had a worse body image score, despite 77% of patients claiming that they would choose the procedure again; this percentage was only marginally less for the orthotopic ileal neobladder group, 86% of whom would choose the same treatment. Boyd et al. [19] reported a decrease in sexual desire and physical contact in ileal conduit patients in comparison with those who underwent orthotopic ileal diversion. The authors concluded that this

correlated with a negative body image. In contrast, Hedgepeth et al. [11], who compared body image and QoL between ileal conduit and ileal neobladder groups, did not report a difference in body image between the two groups.

We found that patients who underwent an orthotopic ileal neobladder had a significantly better body image. Despite our results being in contrast with the findings of others in the field [11,12,16,17,20,21], we propose several possible reasons for this discrepancy. First, surgeons in our hospital generally prefer orthotopic ileal neobladder to ileal conduit and generally favor the results of orthotopic ileal neobladder. According to our investigation of the patients who underwent urinary diversion, over the past 7 years in our hospital, more than 70% of patients underwent orthotopic ileal neobladder, and the remainder underwent ileal conduit. This may be a consequence of several years of experience, specifically in orthotopic ileal neobladder, which leads to better overall results. Second, we also noted that the age at survey of the ileal conduit group was significantly greater than that of the orthotopic ileal neobladder group, which could have had an effect on patient body image. However, no significant difference in voiding function was found between the two groups. This cannot be explained entirely by age at survey, and other factors may also play a role.

This study had several limitations that should be considered, particularly that this was a retrospective, cross-sectional, nonrandomized study with a limited number of patients. Because it was not a randomized clinical trial, certain biases may have been introduced into the analysis that could not be properly controlled, and these may have had an effect on the results. Because of our small number of patients, a multivariate analysis was not possible. Therefore, a larger, prospective, longitudinal, and randomized study is required to confirm these findings and to better evaluate different urinary diversion procedures. Also, we did not survey the patients before surgery; thus, the change in QoL of the individual patients could not be investigated.

CONCLUSIONS

In this retrospective analysis, patients who underwent orthotopic ileal neobladder had a superior body image compared with those who underwent an ileal conduit. Further randomized prospective studies, building upon the data of this pilot study, are required to address this important finding.

CONFLICTS OF INTEREST

The authors have nothing to disclose.

SUPPLEMENTARY MATERIALS



Scan this QR code to see the supplementary materials, or visit <http://kjurology.org/src/sm/kju-55-161-s001.pdf>. Supplementary material 1. The Korean version of the Body Image Scale. Supplementary material 2. The self-designed questionnaire on urinary function.

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