ORIGINAL RESEARCH

Impact of ERAS on Hysteromyomectomy: A Study on Anxiety, Depression, and Ovarian Function

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ABSTRACT

Objective • To analyze the application of the Enhanced Recovery After Surgery (ERAS) nursing mode in patients undergoing radical cystectomy with urinary diversion.

Methods • A retrospective analysis was conducted on clinical data of 72 patients with bladder cancer who underwent "robot-assisted laparoscopic radical cystectomy + urinary diversion" in Nanjing University Medical College Affiliated Gulou Hospital between January 2021 and January 2023. All patients met the complete inclusion criteria. They were divided into a control group (n=35) and a observation group (n=37). Patients in the control group received routine rehabilitation nursing intervention, while patients in the study group received ERAS nursing mode intervention. The outcomes include time to first intake, time to first defecation, duration of enteral nutrition, duration of antibiotic use, duration of drainage tube placement, length of hospital stay, psychological status Self-rating Depression Scale (SDS), Self-rating Anxiety Scale (SAS), quality of life (SF-36) scores, sexual function assessment Arizona Sexual Experience Scale (ASEX), International Index of Erectile Function-5 (IIEF-5), and occurrence of complications were compared between the two groups.

Results • In the observation group, perioperative indicators, psychological status, quality of life, sexual function, and complication rates were notably improved compared to the control group (all $P < .05$).

Conclusion • ERAS nursing mode intervention in bladder cancer patients exhibited significant effectiveness, enhancing postoperative recovery, reducing anxiety and depression, improving quality of life and sexual function, and lowering complication risks. These findings support the clinical merit and applicability of ERAS nursing in urinary diversion for bladder cancer patients. (*Altern Ther Health Med.* 2024;30(12):249-255).

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INTRODUCTION

When it comes to surgical treatment for bladder cancer, urinary diversion surgery stands as a crucial procedure, forming a part of radical cystectomy.[1] While these surgeries are pivotal in eliminating or controlling the spread of cancer cells, they inherently bring about a spectrum of potential physical and psychological challenges during and after surgery.[2] Under traditional postoperative rehabilitation models, aspects of patients' mental health, quality of life, and sexual function often receive insufficient attention and resolution. Anxiety, depressive feelings, and sexual function disturbances commonly emerge as significant challenges for postoperative patients, not only affecting their quality of life but also potentially interfering with their recovery processes.[3] In response to this scenario, the Enhanced Recovery After Surgery (ERAS) nursing model has emerged prominently in the postoperative recovery of bladder cancer patients.[4] This nursing model, founded on multidisciplinary teamwork, aims to optimize comprehensive preparation, surgical processes, and postoperative management, seeking to minimize surgical trauma risks and complications while accelerating patients' recovery rates.[5]

However, despite ERAS being widely regarded as a feasible nursing model, its precise impact on the psychological, quality of life, and sexual function aspects of bladder cancer patients after urinary diversion surgery necessitates further in-depth exploration.

Surgical treatment for bladder cancer often involves radical cystectomy, which includes urinary diversion surgery.

While these procedures are essential for eliminating or controlling cancer cells, they can result in various physical and psychological challenges for patients. Traditional postoperative rehabilitation models may not adequately address the mental health, quality of life, and sexual function aspects of patients. Anxiety, depression, and sexual function disturbances are common challenges faced by postoperative patients, impacting their overall well-being and recovery.

In response to these challenges, the Enhanced Recovery After Surgery (ERAS) nursing model has emerged as a promising approach for postoperative care in bladder cancer patients. This multidisciplinary nursing model aims to optimize the entire surgical process, from preoperative preparation to postoperative management, to reduce surgical trauma, and complications, and accelerate recovery.

Despite the widespread adoption of the ERAS nursing model, there is a need for further exploration of its specific impact on the psychological status, quality of life, and sexual function of bladder cancer patients undergoing urinary diversion surgery. Surgery not only poses physical challenges but also psychological, emotional, and social trials during the recovery period. Therefore, a deeper understanding of the role of the ERAS nursing model in these domains is crucial for providing comprehensive postoperative care and improving patient well-being.

This study aims to investigate the superiority of the ERAS nursing model in improving postoperative psychological status, quality of life, and sexual function in bladder cancer patients. By comparing the effects of the ERAS nursing model with those of traditional nursing models, we seek to provide more evidence-based and comprehensive nursing strategies for clinical practice. The findings of this study can contribute to optimizing rehabilitation models and enhancing the postoperative care of bladder cancer patients.

OBJECTS AND METHODS

Study Subjects

A retrospective analysis was conducted on clinical data of 72 patients with bladder cancer who underwent "robot-assisted laparoscopic radical cystectomy + urinary diversion" in Nanjing University Medical College Affiliated Gulou Hospital between January 2021 and January 2023. Inclusion criteria: 1. Patients diagnosed with bladder cancer (urothelial carcinoma) confirmed by imaging, cystoscopy, and histopathological staining; 2. Patients meeting the surgical indications; 3. Patients with stable postoperative conditions, clear consciousness, and autonomous mobility; 4. Patients with complete and authentic clinical data available for analysis. Exclusion criteria: 1. Those with severe organ dysfunction; 2. Individuals with abnormalities in the immune system, coagulation function, etc.; 3. Patients with concomitant other tumors or urological diseases; 4. Those with cognitive impairments, consciousness disorders, etc.; 5. Individuals allergic or having relevant contraindications to the surgical, anesthetic, or nursing interventions undertaken in this study were excluded. Based on the nursing intervention received, patients were divided into a control group (n=35) and an observation group (n=37). Patients in the control group received conventional rehabilitation nursing intervention, while patients in the observation group received ERAS nursing mode intervention. All patients were informed and voluntarily participated in this study, which was approved by the hospital's ethics committee.

Methods

Surgical Procedure: Tracheal intubation for general anesthesia was performed, positioning the patient in a lithotomy position with a 25~50° tilt. The da Vinci S system's bedside robotic arm was positioned between the patient's legs. A 12 mm longitudinal skin incision was made 1 cm above the umbilicus as the camera port. Using the Hasson technique, a 12 mm trocar was placed into the abdominal cavity, and CO2 gas was insufflated to maintain a pneumoperitoneum pressure of 14 mmHg (1 mmHg=0.133 kPa). Using the pubic symphysis as the center, an arc was made with a radius from the symphysis to the camera port. At 8 cm to the right and left sides and 16 cm to the left side along this arc, 8 mm skin incisions were made as the first, second, and third robotic arm ports respectively. A 10 mm incision was made 8 cm below the first arm port as the first auxiliary port and a 5 mm incision was made slightly above the space between the second and third arm ports as the second auxiliary port. Under laparoscopic guidance, trocars were placed at these positions. Various trocars were inserted: a 30° camera, monopolar curved scissors (first arm port), bipolar forceps (second arm port), non-crushing ring forceps (third arm port), suction device (second auxiliary port), and auxiliary instruments (first auxiliary port). The first and second arms were the primary operating arms, while the third arm facilitated tissue retraction. The surgery was assisted through two auxiliary ports.

Robot-assisted laparoscopic radical cystectomy was performed via the posterior peritoneal approach. The ureters were identified at the bifurcation of the internal and external iliac arteries, dissected downward to the bladder wall, ligated with clips, and preserved. Within the rectovesical pouch, the peritoneum was horizontally incised near the base, completely dissecting the vas deferens and seminal vesicle, leaving them attached to the bladder. The Denonvilliers' fascia was transversely incised. The anterior wall of the rectum was separated up to the tip of the prostate. The peritoneum was incised and dissected in the pre-bladder space. The bladder side wall was separated from the pelvic side wall, and the puboprostatic ligaments were cut, with a division at the retropubic fascial reflection in the pelvis. The deep dorsal vein complex and the tip of the prostate were dissected, and an "8"-shaped suture was made using 2-0 absorbable sutures on the deep dorsal vein complex. From the first auxiliary port, an assistant used Ligasure to clamp and cut the bladder side ligaments. The tip of the prostate near the urogenital diaphragm was cut, detaching the urethra. The specimen was

placed into a specimen bag, sealed, and removed from the abdominal cavity. In female patients, the base of the bladder, bladder neck, uterus, and adnexa were separated. Bilateral pelvic fascia was opened, and ligaments on both sides of the uterus, bladder, and retro-pubic ligaments were cut. The bladder, uterus, and adnexa were completely excised and removed through the vagina. The pelvic cavity was irrigated with sterile saline, and the anterior wall of the rectum was inspected for damage. Frozen section pathology examinations of the urethra and residual ends of the ureters during surgery showed no tumor tissue. Routine pelvic lymphadenectomy was performed, including the external iliac, internal iliac, and obturator lymph nodes.

Urinary diversion involves the creation of a completely intra-abdominal neobladder or ileal conduit. Within the abdominal cavity, a calibrated cigarette-shaped drainage tube was inserted, and 54 cm of ileum was retrieved at 12 cm proximal to the ileocecal junction. The ileum was sutured at 22 cm and 44 cm distal to this point, marked for orientation. Endo-GIA (6TB45, ETHICON) linear staplers were used to cut the intestine and a portion of the mesentery. The distal and proximal ends of the bowel were overlapped and interlocked for an end-to-end anastomosis, positioning the ileum behind the prepared anastomotic bowel. The overlapping portions of the ileum were incised by 1 cm on the mesenteric border and sequentially introduced into two Endo-GIAs for lateral-side-to-side anastomosis. Two Endo-GIAs were used to close the open ends of the bowel, restoring the continuity of the ileal tube. The mesenteric edges and the closed distal end of the bowel were intermittently sutured with interrupted stitches. Ten centimeters of intact ileum were preserved as the Studer neobladder outlet at the proximal end, while the remaining bowel segments formed a U-shape. Along the close-together side, guided by the thoracic duct, the bowel was incised 1 cm from the proximal mesenteric border. Interrupted 2-0 absorbable sutures were used for initial alignment followed by continuous suturing of the posterior wall of the neobladder using the same suture material. At the 22 cm mark, the bowel was lifted towards the urethral remnant, securing the bowel to the tissue beneath the urethral remnant, ensuring the prevention of mesenteric torsion or excessive tension. The tilt angle of the surgical bed might be adjusted if necessary. Using an 18F ureteral catheter guide, a double-needle continuous suture technique was performed between the lowest part of the bowel and the urethral remnant with two 3-0, 5/8 curved monofilament sutures, each approximately 10 cm, tied together to form a double-headed suture line. Post-urethral anastomosis, the bilateral ureters were sutured to both sides of the distal Studer outlet and a 7F single-J tube was placed inside the ureter, fixed to the neobladder wall using 4-0 absorbable sutures to prevent displacement. The double-J tubes were pulled out through the urethra, ensuring no dislodgement from the ureteral anastomosis site. For the ileal conduit, 10 cm of ileum was utilized, performing side-to-side ileal anastomosis as before, with the proximal end of the ileal conduit anastomosed to the distal end of the ureter, and a stoma was created at the right side's first robotic arm port. A Foley catheter balloon was inserted into the new bladder, and a water test was conducted at the anastomotic site. If significant leakage was observed, an "8"-shaped suture repair was performed. A latex drainage tube was placed through the first auxiliary port, and a 3-4 cm incision was made at the umbilical puncture site to extract the specimen.

Control Group: Patients in the control group received conventional rehabilitation nursing intervention. After admission, they underwent routine medical and nursing management, preoperative discussions, comprehensive assessments, and prompt scheduling of surgeries. Three days before surgery, oral metronidazole was administered, followed by a laxative for active bowel evacuation one day before the surgery. On the night before and the morning of the surgery, a cleansing enema was administered. Patients fasted and refrained from drinking for 12 hours before surgery. During the surgery, no measures such as warming or heat retention were employed. Postoperatively, opioid-based analgesia was provided, and early mobilization of patients was not enforced. Parenteral nutrition was sustained until the patient could pass gas and stools independently, and antibiotics were administered until inflammatory markers normalized. Drainage tubes were removed after the patient started eating to eliminate the risk of intestinal or urinary fistula. In cases of postoperative intestinal obstruction, a gastric tube was inserted.

Observation Group: Patients in the observation group received ERAS nursing intervention with specific measures: (1) Preoperative care involved educating patients about the ERAS protocol and perioperative preparation. Detailed instructions were provided on the surgical procedure and the use of skin stomas to boost patient confidence through interactive methods like videos and images from recovered patients. Psychological support was given to alleviate negative emotions such as anxiety and tension. Nutritional status assessment and guidance for pre-rehabilitation training were conducted. Preoperative nutritional support was provided, and a liquid diet was administered a day before surgery, followed by fasting 10 hours before the surgery, with the allowance of oral carbohydrates (rapid recovery fluids) 2 hours before. (2) Intraoperative care included prophylactic antibiotic use to reduce postoperative infection risks, multimodal low-opioid analgesia, general anesthesia combined with epidural anesthesia, and various measures to maintain normal body temperature and reduce stress responses. Inflammation management, airway management, and lung and brain protection strategies were strictly observed. Surgical quality control measures were adhered to, including intra-abdominal drainage and urinary catheterization. (3) Postoperative care involved multimodal analgesia, encouragement of early dietary intake, early mobilization for rehabilitation exercises, monitoring and early removal of drainage tubes and urinary catheters after excluding the risk of intestinal or urinary fistula, prophylactic

antibiotic use for 48 hours, standardized use of anticoagulants in the absence of significant active bleeding, and early placement of an intestinal obstruction tube in case of bowel obstruction.

Outcome Measures

Perioperative Indicator Levels: The observed perioperative indicators in this study included: time to first intake, time to first defecation, duration of enteral nutrition use, duration of antibiotic use, duration of drainage tube placement, and length of hospital stay. All information on these indicators was uniformly recorded by relevant medical and nursing staff in our hospital.

Psychological and Emotional State Indicators 6: Before and after intervention, the level of depression in patients was assessed using the Self-Rating Depression Scale (SDS), with a total score of 100 points and a threshold value of 53 points. A lower score indicates lower levels of depressive emotions. Anxiety levels in patients were evaluated using the Self-Rating Anxiety Scale (SAS), which also scored out of 100 points, with a threshold value of 50 points. A lower score indicates lower levels of anxiety in patients.

Quality of Life (SF-36) Score Levels 7: After the intervention, the quality-of-life level of the patients was evaluated using the Short Form Health Survey (SF-36). This questionnaire comprises eight dimensions related to physical and social functioning, emotional and physiological well-being, bodily pain, vitality, mental health, and overall health. Scores in each dimension positively correlate with the patient's quality of life and are converted into a percentage.

Sexual Function Score Indicators: Before and after the intervention, the Arizona Sexual Experience Scale (ASEX) 8 and the International Index of Erectile Function Questionnaire (IIEF-5) 9 were used to assess the patient's sexual function levels. ASEX includes five items: sexual drive, arousal, vaginal lubrication/penile erection, ability to achieve orgasm, and sexual satisfaction, each scored from 1 to 6 based on functionality (higher scores indicating worse function). When the total ASEX score is ≥19, any single item is ≥5, or any three items are ≥4, it is considered sexual dysfunction. IIEF-5 comprises five aspects: erectile function, orgasmic function, sexual desire, intercourse satisfaction, and overall satisfaction, scored from 0 to 25 (higher scores indicating better sexual function). A score ≥22 indicates normal erectile function.

Incidence of Complications: The observed complications in this study included postoperative infections, postoperative bleeding, intestinal obstruction, intestinal or urinary fistulae, anastomotic strictures, and renal function impairment. All occurrences of these complications were uniformly recorded by relevant medical and nursing staff in our hospital.

Statistical Analysis

GraphPad Prism version 8 was used for plotting, and SPSS version 22.0 was used for data analysis. For continuous data, the mean and standard deviation were used to describe the distribution, and statistical analysis was performed using *t* tests or analysis of variance (ANOVA). For categorical data, frequencies and percentages were used to describe the distribution, and statistical analysis was performed using chi-square tests or Fisher's exact tests. A significance level of $P < .05$ was considered statistically significant.

Table 1. Comparison of Baseline Characteristics

	Control (n=35)	Observation (n=37)	t/χ^2	*P* value
Gender			0.007	.929
Male	31 (88.57)	32 (86.49)		
Female	4 (11.43)	5 (13.51)		
Age (years)	56.82±9.74	56.41±9.37	0.182	.856
Marital Status			0.492	.482
Married	28 (80.00)	27 (72.97)		
Unmarried/Divorced/Widowed	7 (20.00)	10 (27.03)		
Education Level			0.278	.598
High School and below	30 (85.71)	30 (81.08)		
College and above	5 (14.29)	7 (18.92)		
Pathological Staging			0.087	.767
T1	12 (34.29)	11 (29.73)		
T2	13 (37.14)	15 (40.54)		
T3-4	10 (28.57)	11 (29.73)		

Table 2. Comparison of Perioperative Indicators (days)

Perioperative Indicators	Control (n=35)	Observation (n=37)	*t*	*P* value
First Water Intake Time	3.23±0.75	0.72±0.26	19.181	<.001
First Defecation Time	4.56±1.09	2.74±0.73	8.366	<.001
Enteral Nutrition Usage Time	7.97±4.43	4.45±2.64	4.122	<.001
Antibiotic Usage Time	13.42±5.61	3.27±2.69	9.873	<.001
Drainage Tube Retention Time	11.64±5.59	5.46±2.34	6.178	<.001
Hospital Stay	18.13±6.85	9.26±3.11	7.139	<.001

RESULTS

Comparison of Baseline Characteristics

The baseline characteristics of the two groups of patients were comparable, showing no significant differences in comparison ($P > .05$). See Table 1 for details.

Comparison of Perioperative Indicators

The observation group exhibited significantly lower levels of postoperative first water intake time, first defecation time, enteral nutrition usage time, antibiotic usage time, drainage tube retention time, and hospital stay compared to the control group ($P < .05$). See Table 2 for details.

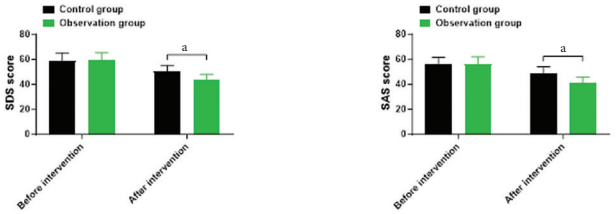
Comparison of Psychological and Emotional Status Indicators

As depicted in Figure 1, the SDS scores before and after intervention in the control group were (58.74±6.33, 50.16±5.09), and SAS scores were (55.72±5.86, 48.74±5.39). In the observation group, the SDS scores before and after intervention were (59.17±6.23, 43.27±4.64), and SAS scores were (56.13±5.91, 40.92±4.97). Before the intervention, there was no significant difference in SDS and SAS scores between the two groups ($P > 0.05$). However, after the intervention, the SDS and SAS scores in the observation group were significantly lower than those in the control group ($P < .05$).

Comparison of Quality of Life (SF-36) Scores

After the intervention, the observation group exhibited significantly higher levels of overall health, mental health, emotional role, physical functioning, bodily pain, vitality,

Figure 1. Comparison of Psychological and Emotional Status Indicators



[a]indicates a comparison with $P < .05$.

social functioning, and general health perceptions compared to the control group ($P < .05$). Refer to Table 3 for details.

Comparison of Sexual Function Scores

As shown in Figure 2, the ASEX scores in the control group before and after intervention were (9.84±1.54, 18.43±4.37) and the IIEF-5 scores were (21.47±5.16, 13.62±2.57) respectively. In the observation group, the ASEX scores before and after intervention were (9.92±1.51, 14.65±2.73) and the IIEF-5 scores were (21.63±4.89, 17.51±3.32). Before the intervention, there were no significant differences in ASEX and IIEF-5 scores between the two groups ($P > .05$). However, after the intervention, the ASEX scores in the observation group were significantly lower than those in the control group, while the IIEF-5 scores were notably higher in the observation group compared to the control group ($P < .05$).

Comparison of Complications Incidence

The complication incidence rate in the control group was 25.71%, while in the observation group, it was 8.11%. The complication rate in the observation group was significantly lower than that in the control group ($P < .05$). See Table 4 for details.

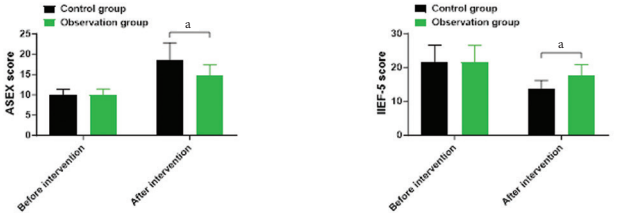
DISCUSSION

Bladder cancer is a malignant tumor that occurs on the surface of the bladder mucosa, with over 90% of cases being urothelial carcinoma, where non-muscle-invasive urothelial carcinoma accounts for approximately 70%, and muscle-invasive urothelial carcinoma around 30%.[10] According to,[11] the onset of bladder cancer may be linked to prolonged exposure to carcinogens due to factors like chronic stimulation from existing stones within the body or prolonged exposure to carcinogenic substances due to specific occupational characteristics or living environments. The disease can occur at any age, with higher incidence rates in older individuals, particularly between 50 to 70 years old. The early clinical manifestations of bladder cancer primarily involve painless intermittent hematuria. Some patients may also experience urgency, frequency, dysuria, and voiding difficulties as initial bladder irritation symptoms. As the condition progresses, some female patients might develop concurrent cystitis, and during pathological changes, some patients may experience kidney hydronephrosis due to tumor blockage.[12] Currently, the

Table 3. Comparison of Quality of Life (SF-36) Scores

SF-36 Scores	Control (n=35)	Observation (n=37)	*t*	*P* value
Overall Health	49.53±12.57	64.13±10.27	5.410	<.001
Mental Health	59.04±10.63	73.25±11.16	5.525	<.001
Emotional Role	69.82±12.45	86.12±10.74	5.958	<.001
Physical Functioning	64.08±12.56	79.53±13.28	5.065	<.001
Physical Role	64.83±14.59	78.26±13.05	4.121	<.001
Social Functioning	73.25±13.94	87.17±14.07	4.214	<.001
Bodily Pain	70.17±13.51	82.68±13.05	3.996	<.001
Vitality	50.06±11.59	70.16±10.62	7.678	<.001

Figure 2. Comparison of Sexual Function Scores



[a]indicates a comparison with $P < .05$.

Table 4. Comparison of Complications Incidence

Complications	Control (n=35)	Observation (n=37)	χ^2	*P* value
Postoperative Infection	2 (5.71)	1 (2.70)	-	-
Postoperative Bleeding	1 (2.86)	1 (2.70)	-	-
Intestinal Obstruction	2 (5.71)	1 (2.70)	-	-
Intestinal Fistula	1 (2.86)	0 (0.00)	-	-
Urinary Fistula	1 (2.86)	0 (0.00)	-	-
Anastomotic Stenosis	1 (2.86)	0 (0.00)	-	-
Renal Function Impairment	1 (2.86)	0 (0.00)	-	-
Total Incidence Rate	9 (25.71)	3 (8.11)	4.014	.045

standard treatment for muscle-invasive urothelial carcinoma involves radical cystectomy combined with urinary diversion, a procedure known for its wide applicability, high reliability, and definite efficacy.[13] However, as reported,[14] this procedure has drawbacks including lengthy preoperative preparation, extended hospitalization, slow postoperative recovery, and a higher occurrence of postoperative complications. Additionally, due to the need for urinary diversion procedures like stoma creation, patients often experience negative emotions and a reduced quality of life postoperatively. Hence, it is suggested that patients undergo high-quality nursing intervention postoperatively, which can have a positive impact on their physiological recovery and quality of life.

ERAS (Enhanced Recovery After Surgery) is a commonly employed clinical treatment concept aimed at reducing perioperative and postoperative stress responses and accelerating postoperative recovery through evidence-based medical interventions.[15] Its core principle revolves around minimizing invasive surgical procedures to reduce patient trauma and postoperative stress responses, thus lowering the occurrence of postoperative complications, significantly reducing hospital stays, and promoting postoperative recovery for patients.[16] Nowadays, the ERAS concept is applied in nearly all major surgeries across various specialties. While ERAS protocols have been used for many years in radical cystectomy procedures, evidence regarding the implementation of ERAS management for urinary diversion remains relatively limited. Therefore, this study compared the effects of conventional rehabilitation nursing models with

ERAS nursing models in the perioperative and postoperative recovery of bladder cancer patients undergoing urinary diversion. The results of this study revealed that the observation group had significantly lower first water intake time, first bowel movement time, duration of gastrointestinal nutrition use, antibiotic use, duration of drainage tube placement, and hospitalization time compared to the control group ($P < .05$). These results, consistent with previous studies,[17,18] confirm the beneficial impact of ERAS principles on postoperative recovery for patients.

The study [19] suggests that radical cystectomy combined with urinary diversion significantly prolongs the survival time of bladder cancer patients. However, this procedure alters the urinary tract of patients, and some may develop negative emotions due to the inability to accept long-term use of urine bags. This condition is detrimental to disease control and the quality of life of patients. Quality of life is a comprehensive indicator that assesses a patient's living condition, social functioning, and physiological and psychological status. It holds significant importance in predicting a patient's health status.[20] The results of this study indicate that post-intervention, the observation group exhibited significantly lower SDS and SAS scores compared to the control group ($P < .05$). Additionally, post-intervention, the observation group showed significantly higher scores in overall health, mental health, emotional function, physiological function, physical functioning, social functioning, bodily pain, and vitality compared to the control group ($P < .05$). These findings demonstrate that the ERAS nursing model effectively alleviates negative emotions such as anxiety and depression in bladder cancer patients undergoing urinary diversion, consequently enhancing their quality of life. The reason behind this lies in the psychological care provided to patients preoperatively through the ERAS nursing model, which helps boost their confidence in treatment, encouraging proactive participation in the treatment process. Sexual function is an essential component of bladder cancer-specific scales and a vital module reflecting a patient's overall quality of life. Regardless of the surgical approach adopted in clinical practice, cautious handling to protect the patient's blood vessels and nerves is crucial to minimize adverse effects on sexual function.[21] The study's results show that post-intervention, the observation group exhibited significantly lower ASEX scores, and higher IIEF-5 scores compared to the control group ($P < .05$). These results indicate that the application of the ERAS nursing model reduces nerve and vascular bundle damage caused by surgery, thus mitigating the impact on postoperative sexual function for patients. In terms of complications, the results of this study indicate that the complication incidence rate was 25.71% in the control group and 8.11% in the observation group. The occurrence of complications in the observation group was significantly lower than that in the control group ($P < .05$). This outcome aligns with prior related research,[22] suggesting that the application of ERAS nursing protocols significantly reduces the risk of surgical complications in patients.

CONCLUSION

The application of ERAS nursing intervention in bladder cancer patients undergoing urinary diversion demonstrates significant efficacy. Compared to conventional rehabilitation nursing interventions, ERAS nursing interventions further facilitate postoperative recovery, alleviate adverse emotions such as anxiety and depression, and enhance patients' quality of life and sexual function. It is important to note that despite the positive findings regarding the impact of ERAS nursing protocols on anxiety, depression, and sexual function in bladder cancer patients undergoing urinary diversion, this study has several limitations that need improvement: 1. Sample Size and Study Design: The sample size in this study was relatively small, comprising only 72 patients, and it was a retrospective analysis, which might affect the generalizability and reliability of the results. 2. Limitations and Generalizability: The conclusions drawn in this study are based on the experience and data from a single medical institution, and the period was limited (retrospective analysis from January 2021 to January 2023), potentially limiting the generalizability of the results due to potential variations in practices across different regions and institutions. 3. Lack of Long-Term Follow-up: This study did not include long-term follow-up observations of patients' postoperative conditions and long-term impacts. Understanding postoperative recovery and long-term effects are crucial for evaluating the sustained effectiveness of ERAS nursing protocols.

In summary, these limitations underscore the restricted scope of this study's findings. In future research, we aim to address these limitations by increasing sample size, conducting long-term follow-up observations, and deepening research in this field. These efforts are crucial for guiding clinical practices and providing better medical care for bladder cancer patients undergoing urinary diversion.

FUNDING

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