

Application of ERAS Concept and Psychological Guidance in Nursing of Patients with Laparoscopic Urology

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Abstract

Objective: To explore the application and effect of the enhanced recovery after surgery (ERAS) concept combined with psychological stress intervention in laparoscopic urological surgery nursing. **Methods:** 100 cases of urological surgical patients according to the nursing way, each 50 cases were divided into observation group and control group, and control group routine nursing, and the observation group implement rapid rehabilitation surgery concept in combination with psychological nursing, the comparison of two groups of patients with stress index, immune function, mental health, postoperative recovery index and the effect of complications. **Results:** There were statistically significant differences in stress index, immune function, mental health level, postoperative recovery index and complications between the observation group and the control group after psychological nursing ($P < 0.05$). **Conclusion:** The concept of rapid rehabilitation surgery combined with psychological nursing can help relieve psychological stress, restore immune function, reduce psychological pressure drop, speed up rehabilitation and reduce the incidence of postoperative complications in patients undergoing laparoscopic urologic surgery. Psychological nursing plays an adjunct role in laparoscopic urological surgery, so it is worth promoting.

Keywords

Laparoscopic Urology, Concept of Rapid Rehabilitation Surgery, Psychological Nursing, Comfortable Nursing

1. Introduction

Laparoscopic urology surgery is one of the higher rates in the surgery, because people's lifestyle changes, increased incidence of urinary system disease and pa-

tients do not understand knowledge related to the operation, so the operation and nursing may lack sufficient cooperation degree, may even produce anxiety and fear for fear of surgery psychological [1] [2]. Danish surgeon Kehlet comprehensively optimized perioperative management measures and first proposed the concept of Enhanced Recovery After Surgery (ERAS) in 1997 [3], which has been widely promoted in European and American countries in recent years [4] and gradually adopted and applied in China [5]. ERAS of the core is in a series of perioperative confirmed by evidence-based medical evidence effective optimization measures, reduce the patients physiological and psychological aspects of traumatic stress reaction, reduce complications, shorten hospitalization time, reduce the risk of readmission and mortality, reduce medical cost at the same time, the ultimate goal is to promote patients' rapid recovery [6]. ERAS has been successfully applied in general surgery, cardiothoracic surgery, orthopedic surgery, gynecology, urology and many other fields, attracting wide attention and high attention from the academic community [7]. With the continuous improvement of laparoscopic equipment and technology, laparoscopic minimally invasive surgery has been widely used in the field of urology. There are many kinds of urological diseases, most of which require surgical treatment. Surgical treatment is a certain traumatic treatment measure, and the lack of understanding of surgery and the uncertainty of surgical effects will increase the adverse emotional reactions of patients [8] [9]. Therefore, to explore the safety of accelerated rehabilitation concept in the field of urology laparoscopic surgery psychological stress nursing intervention, objective analysis and comprehensive evaluation of its clinical application value is a research hotspot and has certain economic and social value. In this study, 100 patients who underwent laparoscopic urologic surgery were grouped, and 50 of them were treated with the rapid recovery surgery concept (ERAS) combined with psychological stress intervention. The nursing effect was significant, and the results are reported as follows.

2. Data and Methods

2.1. General Information

A total of 100 patients admitted to our hospital from January 2020 to July 2021 and receiving laparoscopic urological surgery were selected as observation objects, and they were randomly divided into two groups, 50 patients in each group. Experimental group of 50 cases, 34 male, 16 female, age 20 - 73 years old, average age (45 ± 8.2) years old. Inclusion criteria: All patients received surgery in our hospital and completed clinical treatment, and all test results were complete, reliable and accurate. Exclusion criteria: 1) mental or cognitive impairment; 2) the presence of serious organ diseases; 3) incomplete clinical data; 4) complicated with immune system and blood diseases. Disease types: fenestration of renal cysts in 9 cases, diverticectomy of bladder in 8 cases, holmium laser ureteral ablation in 8 cases, adrenalectomy in 12 cases, nephrectomy in 6 cases

and pyeloplasty in 7 cases. There were 50 patients in control group, including 28 males and 22 females. The mean age was (48.4 ± 6.2) years; Types of diseases: fenestration of renal cysts in 8 cases, adrenalectomy in 6 cases, ureteral holmium laser lithotripsy in 11 cases, nephrectomy in 9 cases, diverticectomy in 8 cases and pyeloplasty in 8 cases. There was no statistically significant difference between the two groups ($P > 0.05$), indicating comparability. All patients were aware of the content of this study and voluntarily signed the informed consent.

The sample size of most studies on influencing factors is at least 5 - 10 times the number of variables according to the stable requirements of statistical variable analysis model. Combined with the risk factors of laparoscopic urological surgery nursing and the factors affecting the efficacy of ERAS + psychological stress intervention, it is predicted that there are about 8 - 10 variables in the regression model of this study, and the shedding rate is calculated as 10%. The sample size required for this study should be about 45 - 110 cases. According to the 10% shedding rate, a total of 100 subjects will be included in this study.

2.2. Nursing Methods

2.2.1. Control Group: Conventional Nursing Methods Were Adopted

1) Preoperative health education. Nursing staff should actively introduce to patients the main treatment methods and the advantages of surgical treatment, in the first day of the operation to carry out psychological counseling work;

2) Preoperative preparation. Help the patient to complete the most basic routine examination, and perform the preoperative enema work, indwelling gastrointestinal decompression tube, help the patient to reduce the pressure in the gastrointestinal tract, avoid the occurrence of aspiration pneumonia. Basic skin preparation, indwelling catheter, and notification of fasting for 12 hours and abstinence from drinking for 4 hours prior to surgery were also performed.

3) Intraoperative nursing. Keep the operating room temperature at 22°C and humidity at about 50%;

4) Postoperative care. Help the patient to maintain correct posture, fluid replenishment, maintain the balance of water and electrolyte in the patient's body, and then add antibiotics for treatment. Rehydration should be carried out after the patient's gastrointestinal function returns to normal. Then, the urinary duct was removed 5 days after surgery to encourage patients to actively get out of bed [10].

2.2.2. Experimental Group: On the Basis of Routine Nursing in the Control Group, the Methods of Rapid Rehabilitation Surgery Combined with Psychological Stress Intervention Nursing Were Adopted. This Group Is Also Called the Psychological Care Group

1) Psychological nursing

Because the patient's age span is larger, psychological state is also different, so nursing staff to master different nurse-patient communication skills, through continuous communication to encourage patients to vent anxiety and fear. Then

in the first night after the operation of the organization of good nursing team to visit the patient's operation and psychological status, through the "health three and a half" method to help patients establish the perioperative period of rapid recovery of confidence, ease the patient's bad mood.

2) Rapid rehabilitation surgery concept comprehensive nursing

Nursing staff should immediately wrap patients with blankets or bedding after surgery. They should also pay attention to warm work on the way to escort patients back to the ward, adjust the temperature in the ward in advance, and keep the patient's body temperature within the normal range, not lower than 36°C. In addition, we should also carry out targeted rehydration treatment for patients. We should pay attention to the dosage of rehydration, neither too much nor too little, and formulate a scientific and reasonable rehydration plan according to the specific situation of patients.

3) Postoperative analgesia

After surgery, pain patients should be given painkillers to relieve the anxiety caused by pain and reduce the incidence of complications.

4) Diet

Nursing staff should closely observe the patient's recovery after surgery, and then adopt a gradual approach to food supplementation to increase patient compliance.

5) Rehabilitation activities

When various bodily functions of patients are improved to a certain extent, nursing staff should actively encourage patients to get out of bed to enhance muscle strength, prevent thrombosis of lower limbs and promote rapid recovery of bodily functions [11] [12].

2.3. Observation Indicators

1) Stress indicators: Serum cortisol (Cor), C-reactive protein (CRP) and adrenocorticotrophic hormone (ACTH) were measured before and after surgery.

2) Immune function: 3dT lymphocyte subsets of CD3+, CD4+ and CD4+/CD8+ were measured before and after surgery.

3) Mental health: Self-rating Anxiety Scale (SAS) and Self-rating Depression Scale (SDS) were used to evaluate the mental health of patients at admission and discharge.

4) Postoperative recovery indicators: first urination time, first exhaust time and first defecation time were recorded.

5) Complications: urinary tract infection, lung infection, abdominal infection, phlebitis and other complications.

2.4. Statistical Methods

SPSS 22.0 statistical software was used for analysis. Counting data was represented by (%), and χ^2 test was performed. Measurement data were represented by (\bar{x}), and t-test was performed. $P < 0.05$ was considered statistically significant.

Ethical approval from patients has been obtained for this study.

3. Results

Comparison of stress indicators between the two groups The levels of Cor, CRP and ACTH in the two groups after psychological nursing were significantly increased compared with those before surgery ($P < 0.05$). There were no significant differences in Cor, CRP and ACTH levels between groups before psychological nursing (all $P > 0.05$). See **Table 1**.

Comparison of immune Function between the two groups There was no statistical significance in CD3+, CD4+, CD4+/CD8+ after psychological nursing in the observation group compared with before psychological nursing ($P > 0.05$). CD3+, CD4+ and CD4+/CD8+ in the control group were significantly decreased after operation ($P < 0.05$). There were no significant differences in CD3+, CD4+, CD4+/CD8+ between groups before operation ($P > 0.05$). CD3+, CD4+ and CD4+/CD8+ in the observation group were significantly higher than those in the control group ($P < 0.05$), as shown in **Table 2**.

Comparison of SAS and SDS scores between the two groups: before psychological nursing, there was no significant difference in SAS and SDS scores between the two groups ($P > 0.05$). After psychological nursing, SAS and SDS

Table 1. Comparison of stress index between two groups before and after psychological nursing ($\bar{x} \pm s$).

Group	N	Cor ($\mu\text{g/L}$)		CRP(mg/L)		ACTH (ng/L)	
		Before psychological care	After psychological care	Before psychological care	After psychological care	Before psychological care	After psychological care
Observation group	550	136.94 \pm 51.03	142.17 \pm 53.75*	27.54 \pm 5.45	40.34 \pm 4.23*	49.43 \pm 14.33	54.45 \pm 2.65*
The control group	550	135.08 \pm 46.12	173.38 \pm 42.65*	28.01 \pm 2.34	31.11 \pm 8.56*	49.94 \pm 9.67	72.23 \pm 6.56*
<i>T</i>		1.081	3.421	1.068	3.124	0.643	3.012
<i>P</i>		>0.05	<0.05	>0.05	<0.05	>0.05	<0.05

Note: *Compared with the same group before psychological nursing, $P < 0.05$.

Table 2. Comparison of cellular immunity indexes between the two groups before and after psychological nursing $n = 50$, ($\bar{x} \pm s$).

Group	N	CD3+ (%)		CD4+ (%)		CD4+ /CD8+	
		Before psychological care	After psychological care	Before psychological care	After psychological care	Before psychological care	After psychological care
Observation group	50	46.94 \pm 6.54	52.42 \pm 4.65	34.43 \pm 2.53	32.89 \pm 5.67	0.84 \pm 0.54	1.75 \pm 1.07
The control group	50	55.02 \pm 2.53	58.25 \pm 4.42*	35.53 \pm 4.56	38.35 \pm 4.56*	1.24 \pm 0.45	1.21 \pm 2.85*
<i>T</i>		4.387	3.324	3.018	4.566	4.007	2.345
<i>P</i>		0.000	0.000	0.003	0.000	0.000	0.026

Note: *Compared with the same group before psychological nursing, $P < 0.05$.

scores in the observation group were significantly lower than those before psychological nursing and those in the control group ($P < 0.05$), as shown in **Table 3**.

Comparison of clinical recovery between the two groups: The first exhaust time, first defecation time, drainage tube removal time and hospital stay time in the observation group were significantly shorter than those in the control group, with statistical significance ($P < 0.05$). See **Table 4**.

Comparison of postoperative complications between the two groups: the incidence of postoperative complications (psychological nursing) in the observation group was 0.07%, which was significantly better than 11.36% in the control group (no psychological nursing), with statistical significance ($P < 0.05$), as shown in **Table 5**.

4. Discussion

Compared with open surgery, laparoscopic surgery has the advantages of minimally invasive, less blood loss, fast recovery and aesthetic wound, and has gradually become the preferred treatment for urology surgery [13]. Currently, laparoscopic surgery is recommended for urological fenestration of renal cyst, diverticulectomy of bladder, holmium laser resection of ureter, adrenal resection and nephrectomy [14]. Urological laparoscopic surgery as a new minimally invasive surgery in our country continues to promote the popularization of new challenges to clinical nursing. Patients with urological diseases not only need to endure pain, but also need to bear external pressure such as family life, which is

Table 3. Comparison of SAS and SDS scores between the two groups ($\bar{x} \pm s$), score.

Group	N	ASA score		SDS score	
		Before psychological care	After psychological care	Before psychological care	After psychological care
Observation group	(n = 50)	51.15 ± 5.93	41.01 ± 5.22*	50.78 ± 5.93	41.01 ± 5.22*
The control group	(n = 50)	51.20 ± 5.35	50.42 ± 5.04	50.81 ± 5.90	51.02 ± 3.43
<i>T</i>		0.93	8.01	0.13	7.98
<i>P</i>		> 0.05	< 0.05	> 0.05	< 0.05

Note: Compared with the same group before psychological nursing * $P < 0.05$.

Table 4. Comparison of clinical recovery between the two groups ($\bar{x} \pm s$)

Group	N	First exhaust time (h)	Time of first bowel movement	Time of first defecation (h)	Length of hospital stay (D)
Observation group	50	27.43 ± 17.34	64.35 ± 12.27	79.4 ± 6.4	4.38 ± 1.08
The control group	50	38.12 ± 28.78*	68.78 ± 12.89*	89.2 ± 4.4*	6.78 ± 2.31*
<i>T</i>		2.068	2.646	12.427	7.818
<i>P</i>		0.041	0.001	0.000	0.001

Note: *Comparison between the two groups, $P < 0.05$.

Table 5. Comparison of postoperative complications between the two groups (%), n = 50.

Group	Urinary tract infection	Lung infection	Abdominal infection	Phlebitis	A combined
Observation group	0(0.00)	0(0.00)	2 (1.15)	2 (1.25)	2 (0.07)
The control group	1(1.30)	3 (4.13)	4 (2.14)	4 (0.19)	13 (11.36)
<i>T</i>					5.148
<i>P</i>					0.011

easy to produce tension, anxiety and other negative emotions. In the perioperative period of laparoscopic surgery, giving patients psychological nursing guidance can relieve the psychological nursing pressure of patients, improve coping ability, and is conducive to postoperative rehabilitation.

In this study, the concept of rapid rehabilitation surgery combined with psychological nursing stress intervention nursing, psychological nursing nursing guidance and implementation of the treatment process from admission to discharge, full evaluation of patients' psychological nursing status, targeted psychological nursing counseling, providing diversified measures to eliminate patients' anxiety and depression. Meditation training is a mind-body adjustment technology that focuses on the inner self. It can relieve depression and anxiety to a certain extent by stopping external activities of consciousness, inhibiting intellectual and rational thinking, and fully relaxing the brain and muscle tissue. Relevant studies have shown [15] that meditation training can regulate sympathetic nerve, inhibit adrenaline level, inhibit elevated blood pressure, and help relieve postoperative pain symptoms. Corresponding to the meditation training for mental relaxation, muscle relaxation training is a behavioral therapy for patients' body relaxation, focusing on the process of muscle relaxation, relieving anxiety, improving sleep quality and alleviating postoperative pain symptoms. Doyle *S et al.* [16] pointed out that when patients have anxiety, the muscles will be tight under the action of the nervous system, and the muscle tension will also aggravate the emotional tension. Therefore, muscle relaxation training can alleviate patients' anxiety and reduce the damage to physical and mental health caused by negative emotions. Music therapy is a new type of adjunctive therapy emerging in recent years, which belongs to the borderline discipline. It can help to treat diseases through physiological and psychological nursing. Music has regular acoustic vibration, which can act on brain wave, heart rate, respiration, etc., because tissue cell resonance, and play a certain role in blood circulation, gastrointestinal peristalsis, metabolism, etc. [17].

In addition, patients, under the guidance of music, eliminate inner tension, pressure and other negative emotions, restore peace and peace. Patients in a strange environment after admission, suffering from pain and psychological nursing double torture, family support and collective intervention through external help, share the patient's psychological care pressure, give patients psychological care support, relieve pressure, stabilize mood, help patients establish con-

confidence in overcoming the disease.

This study shows that perioperative psychological nursing guidance can help patients adjust their emotions from multiple levels and aspects, adopt a positive way to deal with the disease and surgical trauma, relieve patients of anxiety and depression. Stress response refers to the adaptive response that occurs when the body is strongly stimulated. Postoperative stress response will affect the postoperative rehabilitation process of patients, and surgical trauma, pain, and blood loss during surgery may cause stress response. Relevant studies have shown that negative emotional experience may aggravate the surgical stress response, interfere with the endocrine system and nervous system, cause the imbalance of the internal environment, and negatively affect the surgical results [18]. Surgical trauma not only activates a variety of inflammatory mediators, but also inhibits immune function. T lymphocytes such as CD3+, CD4+ and CD4+/CD8+ participate in the regulation of immune response and play an important role in cellular immune function [19].

This study suggests that laparoscopic surgery has an immunosuppressive effect on patients. Immune function is not only affected by external traumatic stimulation, but also closely related to the patient's psychology and emotion. Studies in recent years have confirmed that anxiety, depression, sadness and other negative emotions may inhibit cellular or humoral immune function of the body, leading to the decline of immune function [20] [21].

This study suggests that perioperative psychological nursing guidance can reduce the influence of laparoscopic surgery on cellular immune function, improve the immune function of the body, improve the body's resistance to bacteria and other vitamins, and reduce the risk of infection and other complications.

5. Conclusion

In conclusion, the concept of rapid rehabilitation surgery combined with psychological nursing stress intervention and nursing guidance can regulate anxiety and depression of patients undergoing laparoscopic urology surgery, reduce postoperative stress response, improve immune function and speed up the recovery process.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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