

Effect of Comprehensive Nursing Intervention in Patients with Urinary Incontinence After Radical Prostatectomy

Haiqin Zhong*

Taizhou Second People's Hospital, Taizhou 225500, Jiangsu Province, China

*Corresponding author: Haiqin Zhong, xiaobaodanxiao@163.com

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Abstract: *Objective:* To explore and analyze the clinical effect of comprehensive nursing intervention in patients with urinary incontinence after radical prostatectomy. *Methods:* 84 patients with urinary incontinence after radical prostatectomy admitted to the Urology Department between May 2021 and May 2023 were included in this study. The patients were divided into a comprehensive group and a control group, with 42 cases in each group through a double-blind mechanism. The comprehensive group received comprehensive nursing care, and the control group received primary nursing care. The duration of indwelling urinary catheters and urinary incontinence; psychological performance and living conditions were compared between the two groups. *Results:* The duration of the indwelling urinary catheter and urinary incontinence of the patients in the comprehensive group were significantly shorter than that in the control group ($P < 0.05$). Before nursing, there was no statistically significant difference in the anxiety, depression, and other psychological manifestations between the two groups ($P > 0.05$); after nursing, the comprehensive group's anxiety, depression, and other psychological manifestations of the comprehensive group were significantly lower than those of the control group ($P < 0.05$). Before nursing, there was no statistically significant difference in the physical function, mental state, emotional state, and physical recovery of the patients between both groups ($P > 0.05$); after nursing, the physical function, mental state, emotional state, physical recovery of the patients in the comprehensive group were significantly better than those of the control group. Besides, the living conditions of the patients in the comprehensive group were also significantly better than the control group's ($P < 0.05$). *Conclusion:* Comprehensive nursing intervention can effectively improve symptoms of urinary incontinence after radical prostatectomy, reduce inner pressure, and improve living standards.

Keywords: Comprehensive nursing intervention; Radical prostatectomy; Urinary incontinence

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1. Introduction

Prostate cancer is more common in older men. It is a malignant tumor that occurs in the prostate epithelium. The disease develops slowly and is difficult to detect in the early stage. It is often discovered when it proliferates or produces distant metastasis^[1,2]. This disease is usually treated by radical prostatectomy. Radical

prostatectomy involves removing the prostate, some seminal vesicles, ejaculatory ducts, vas deferens, and other tissues^[3,4]. Urinary incontinence is a common complication after radical prostatectomy. Urinary incontinence means uncontrolled urination. Intervention measures should be taken for patients with urinary incontinence after radical prostatectomy to promote the recovery of voiding function^[5]. Comprehensive nursing is a widely used clinical intervention in the current healthcare landscape. It incorporates the principles of comprehensive care and offers patients a range of interventions aimed at alleviating the symptoms of urinary incontinence^[6,7]. This article aims to study and analyze the clinical effect of comprehensive nursing intervention on urinary incontinence in patients after radical prostatectomy.

2. General information and methods

2.1. General information

84 patients with urinary incontinence after radical prostatectomy admitted to the Department of Urology between May 2021 and May 2023 were included in this study. The patients were divided into a comprehensive group and a control group, with 42 cases in each group, by a double-blind mechanism. The patients in the comprehensive group had an age range of 56 to 81 years, with an average age of 68.21 ± 1.36 years. In terms of tumor stage, there were 9 cases of T1b, 15 cases of T2a, and 18 cases of T2b. The age range for the control group was 55 to 81 years, with an average age of 68.31 ± 1.46 years. The tumor stage distribution in this group was 11 cases of T1b, 14 cases of T2a, and 17 cases of T2b. There were no statistically significant differences ($P > 0.05$) in general characteristics such as gender and tumor stage between the two groups.

Inclusion criteria: (1) Presence of urinary incontinence after radical prostatectomy, (2) signed an informed consent.

Exclusion criteria: (1) Abnormal consciousness, (2) organ failure, (3) coagulation disorders.

2.2. Methods

The control group received basic nursing care, which involved monitoring postoperative health, and providing guidance on a suitable diet, medication management, and daily routines. Additionally, they were informed about the procedure of radical prostatectomy and educated on precautions related to urinary incontinence.

Comprehensive nursing care included various components. (1) Postoperative patients with urinary incontinence often experience emotions like anxiety and fear. The nursing team provided patients with information about urinary incontinence, offered emotional support to ease patients' feelings, encouraged patients to actively participate in clinical treatment, and informed patients that with appropriate symptomatic treatment, urinary incontinence symptoms could improve. (2) Dietary intervention: A postoperative diet plan was formulated for each patient. The diet consisted of balanced nutrition, with high protein and vitamins, so as to aid postoperative tissue recovery. (3) Bladder function exercise: The daily water intake of the patients was increased while reducing the frequency of consumption, and the total daily water intake was recommended to be 3000 mL. Patients were instructed to perform pelvic floor muscle contractions, contracting the pelvic floor muscles when the urge was felt, and relaxing afterward. (4) Pelvic floor muscle training: Patients could stand, sit, or lie in a supine position to relax the muscles of the lower limbs and contract the pubic bone, perineum, and portal-porting sphincter. For example, when a patient lies down in a supine position, he/she could separate the legs, breathe normally, contract the perineal and anal muscles, lift the pelvic floor muscles, contract for 10 seconds, and rest for 10 seconds, 30 times daily. (5) Urinary reflex training: The catheter was clamped two days before its removal. When a patient needed to urinate, they listened to the sound of running water, did some urination movements, and the catheter was slowly opened. (6) Nerve electrical stimulation for bladder therapy

equipment: electrical stimulation of nerve function can promote the recovery of the detrusor and sphincter. Before the treatment, the urine was discharged, and the bladder was emptied. Each treatment was done for half an hour once a day. The treatment lasted for two weeks.

2.3. Observation indicators

- (1) The duration of indwelling urinary catheter and urinary incontinence after surgery of the groups were compared.
- (2) The psychological performance of the patients of both groups was compared and assessed by the Anxiety Assessment Scale (SAS) and the Depression Self-rating Scale (SDS), with the former ranging from 0–100 points, and the latter ranging from 0–80 points.
- (3) The life status between the groups was compared and assessed with the short-form survey (SF-36), including physical function, mental status, social feelings, and physical recovery, with a score ranging from 0–100.

2.4. Statistical analysis

The data were processed and analyzed using SPSS 21.0. Count data were presented as the number of cases (*n*) and percentage (%), and analyzed with the χ^2 test. Measurement data were expressed as mean \pm standard deviation and analyzed using the *t*-test, with statistical significance set at ($P < 0.05$).

3. Results

3.1. Duration of indwelling urinary catheter and urinary incontinence after surgery

The duration of indwelling urinary catheters and urinary incontinence of the patients in the comprehensive group was significantly shorter than that of the control group ($P < 0.05$), as shown in **Table 1**.

Table 1. The comparison of duration of indwelling urinary catheter and urinary incontinence after surgery between the two groups (mean \pm standard deviation)

Group	Number of cases	Duration of indwelling catheter	Duration of urinary incontinence
Comprehensive group	42	7.13 \pm 1.57	1.18 \pm 0.42
Control group	42	9.54 \pm 1.33	3.25 \pm 0.87
<i>t</i>	–	7.5906	13.8862
<i>P</i>	–	0.0000	0.0000

3.2. Psychological state

Before nursing, the anxiety, depression, and other psychological indicators of both groups were compared, and there were no statistically significant differences ($P > 0.05$). However, after the nursing intervention, the comprehensive group exhibited significantly lower levels of anxiety, depression, and other psychological symptoms compared to the control group ($P < 0.05$), as shown in **Table 2**.

3.3. Quality of life

Before the commencement of nursing care, there were no statistically significant differences ($P > 0.05$) between the groups with respect to physical function, mental state, emotional state, and physical recovery. However, following the nursing care intervention, the comprehensive group demonstrated significantly improved physical

function, mental state, emotional state, physical recovery, and overall living conditions compared to the control group ($P < 0.05$), as shown in **Table 3**.

Table 2. The comparison of psychological performance between the two groups (mean \pm standard deviation)

Group	Number of cases	Anxiety		Depression	
		Before nursing	After nursing	Before nursing	After nursing
Comprehensive group	42	49.37 \pm 3.68	37.19 \pm 2.56	48.21 \pm 3.73	36.19 \pm 2.51
Control group	42	49.56 \pm 3.55	42.51 \pm 3.59	48.31 \pm 3.86	41.33 \pm 3.58
<i>t</i>	-	0.2408	7.8193	0.1264	7.6187
<i>P</i>	-	0.8103	0.0000	0.8997	0.0000

Table 3. The comparison of living conditions between groups is as follows (mean \pm standard deviation)

Group	Number of cases	Body function		Mental state		Emotional state		Physical recovery	
		Before nursing	After nursing	Before nursing	After nursing	Before nursing	After nursing	Before nursing	After nursing
Comprehensive group	42	65.27 \pm 4.21	84.27 \pm 3.51	64.55 \pm 3.59	83.54 \pm 3.59	67.22 \pm 3.02	80.22 \pm 3.25	66.28 \pm 3.57	81.27 \pm 3.19
Comparison group	42	65.38 \pm 4.36	71.24 \pm 4.29	64.85 \pm 3.29	70.24 \pm 4.32	67.31 \pm 3.11	68.24 \pm 4.59	66.37 \pm 3.19	69.27 \pm 4.18
<i>t</i>	-	0.6522	15.2345	0.3992	15.3452	0.1345	13.8047	0.1218	14.7900
<i>P</i>	-	0.5161	0.0000	0.6907	0.0000	0.8933	0.0000	0.9033	0.0000

4. Discussion

The prostate is a gland within the male reproductive system, and when its epithelial cells become cancerous, prostate cancer can develop. The primary treatment method for this condition is radical prostatectomy, which involves the surgical removal of the prostate gland and certain surrounding tissues to achieve the treatment goal [8,9]. The prostate is near the urethra. Therefore, surgical anesthesia and surgical procedures will affect the urinary function of the patients. After an investigation, it was found that many patients had symptoms of urinary incontinence after surgery [10]. Urinary incontinence is a condition in which a patient loses control over their ability to hold or control urine, leading to unintentional urine leakage. This condition can have a significant impact on both the patient's physical and psychological well-being. It will also prolong the postoperative recovery period [11]. Comprehensive nursing intervention is applied to patients who experience urinary incontinence following radical prostatectomy. By employing specific intervention measures, the goal is to promptly alleviate the symptoms of urinary incontinence and expedite the postoperative recovery process [12]. This nursing model can further improve nursing quality, improve the patients' emotional well-being, educate them about postoperative urinary incontinence, and adjust their mentality [13]. The nursing model also involves adjusting the patient's diet and taking sufficient nutrients to provide energy for tissue growth and healing [14]. Most patients who require radical prostatectomy are older adults. Postoperative recovery of urinary continence is generally slow among this population. Therefore, implementing intervention measures is essential to facilitate the healing of the voiding reflex, bladder function, and pelvic floor muscles. Once the patient is mobile after the surgery, nurses will provide guidance on rehabilitation exercises and create a rehabilitation plan to expedite the elimination of urinary incontinence symptoms [15]. Pelvic floor muscle training enhances

muscle strength, aiding in urethra closure and autonomous urine control. Micturition reflex training stimulates the nervous system to establish a micturition reflex. Bladder function exercises enhance bladder adaptability to urine, supporting detrusor and sphincter improvement. Nerve electrical stimulation via a bladder therapy device repairs damaged nerves, facilitating pelvic floor muscle recovery and urinary incontinence improvement.

5. Conclusion

In summary, comprehensive nursing can improve the recovery of urinary incontinence after radical prostatectomy and help patients restore urinary functions. Therefore, this nursing model should be popularized.

Disclosure statement

The authors declare no conflict of interest.

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