

ORIGINAL RESEARCH

Observation of the effectiveness of whole course of comprehensive nursing in clinical care after the surgery for benign prostatic hyperplasia

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Abstract

This study discussed the effect of whole course of comprehensive nursing after the operation for benign prostatic hyperplasia (BPH). Eighty-six patients with BPH who were to undergo prostatic hyperplasia surgery were divided into a control group and a study group based on therapeutic method. 43 patients in each group were postoperatively given usual care in the control group and comprehensive nursing in the study group. The mental status, prostate symptoms, quality of life, complications and degree of satisfaction were compared before and after the interventions. The mental status, prostate symptoms, and quality of life (QOL) of the patients were relatively similar ($p > 0.05$) before the intervention. The scores of self-rating anxiety scale (SAS), self-rating depression scale (SDS), international prostate symptom scale (IPSS) and QOL of patients in the study group were significantly lower than those in the control group after the intervention ($p < 0.05$). The incidence of complications in the study group was 4.65%, which was significantly lower than that of the control group at 18.60% ($p < 0.05$), while the satisfaction rate in the study group was 95.35%, which was significantly higher than that of the control group at 69.77% ($p < 0.05$). The whole course of comprehensive nursing after the operation for BPH surgery was effective in improving patients' mental status, promoting the recovery of prostate, improving patients' quality of life, reducing the incidence of complications, and improving patients' satisfaction.

Keywords

Benign prostatic hyperplasia; Usual care; Comprehensive nursing; Nursing efficacy; Satisfaction

1. Introduction

Benign prostatic hyperplasia (BPH) is one of the most common triggers of lower urinary tract symptoms in middle-aged and older men. Epidemiological studies have found that the risk of this disease tends to increase significantly with the age of men [1, 2]. Related studies have pointed out that on average, one in two older men over the age of 60 will develop BPH in China, and it is suggested that the burden of BPH will continue to rise in the coming years [3, 4]. In addition, BPH can cause lower urinary tract symptoms such as frequent micturition, nocturia, and bladder emptying difficulties, and in severe cases, which can lead to active urinary retention and greatly reduce the quality of life and well-being of patients [5, 6]. At present, the clinical treatment of BPH consists of two main options: pharmacological treatment and surgical treatment, and the choice of treatment option needs to be decided based on the actual wishes of the patient. In recent years, with the improvement of people's living standards, the number of people undergoing BPH surgery at home and abroad has increased significantly [7]. Transurethral bipolar plasma

vaporization of the prostate is a relatively common treatment option in clinical practice, but as most of the patients treated are middle-aged and elderly, intraoperative complications are highly likely to occur during the surgery, which can seriously affect the quality of life and prognosis of patients [8, 9]. Relevant studies have found that clinical treatment combined with different nursing protocols can effectively improve the quality of life of patients and thus improve the overall treatment effect [10, 11]. At present, how to improve the nursing effect of BPH is a hot topic, and a variety of nursing protocols have emerged clinically, all of which have been effective to some extent [12, 13]. Comprehensive nursing intervention is the main program currently used in our hospital, and the aim of this study was to compare the effectiveness of this program with usual care for BPH after surgery.

2. Materials and methods

2.1 Study objects

This is a retrospective study. Patients admitted to the Department of Urology at our hospital for proposed prostatic

hyperplasia surgery from June 2019 to October 2022 were used as study subjects, from which patients who met the screening criteria for this study were selected. Screening criteria: (1) the diagnosis of BPH was confirmed by patients' clinical symptoms and routine examinations (ultrasonography, urodynamic examination and cystography, *etc.*); (2) all subjects met the indications for prostate surgery and had no contraindications to surgery; (3) clinical information was complete and informed consent was voluntarily signed; (4) those who had serious urinary tract infections, serious bleeding tendency, psychiatric diseases that did not cooperate with the physician to complete the treatment, or poor compliance, immune diseases, incomplete clinical information or unwillingness to join the study were also excluded. In this study, 86 patients who met the study criteria were selected as the main subjects, and the patients were divided into control and study groups based on therapeutic method, with 43 subjects in each group. The mean ages of the patients in the control and study groups were (62.15 ± 4.23) and (62.46 ± 4.71) years, and the mean disease duration was (2.02 ± 0.51) and (2.07 ± 0.47) years, respectively. The general data between the two groups of subjects was comparable and had no significantly difference ($t = 0.319, 0.479; p = 0.751, 0.633$).

2.2 Research method

86 patients were enrolled in the study underwent prostatectomy, and the control group was given usual care after prostate hyperplasia surgery, which mainly included condition monitoring, activity management, diet regulation, and medication as prescribed by the doctor. (1) Condition monitoring mainly included close observation of the patient's urination, whether there was bleeding after surgery. If the hematuria was mild and short-lasting, no special treatment was needed, but on the contrary, timely treatment was required, followed by detection of the improvement of the patient's symptoms. (2) Activity management, generally required bed rest within 1 to 2 days after surgery, no off-bed activity, avoidance of strenuous exercise within one week to one month, and prohibition of sexual life within 6 weeks after surgery. (3) Dietary adjustments reflected in drinking more water after surgery to help expel blood clots and prostate residue, and avoiding spicy and stimulating foods and alcohol. (4) Medication should be administered as prescribed by the doctor, as well as postoperative anti-infection and other basic treatments. Patients in the study group all received comprehensive nursing interventions, which mainly included nursing group establishment, health knowledge promotion, psychological guidance, dietary care, and functional training care, *etc.* (1) As for the establishment and training of the nursing team, the team was established by the professional medical and nursing staff of the hospital and trained in operational skills and knowledge, and regular group meetings were conducted to summarize the problems and formulate corresponding solutions, *etc.* (2) Health knowledge lecture included the causes of prostatic hyperplasia, the extent of the disease and the treatment plan taken, as well as some precautions during the treatment process, while answering the doubts of patients and their families through communication between doctors and patients to increase patients' trust in the

medical staff. This stage could be done through the distribution of health brochures and the screening of promotional videos (animations) to enhance patients' understanding of the disease. (3) For psychological guidance, the psychological state of patients was known through communication with them and through questionnaire surveys. According to the actual situation of the patient, psychological guidance, early detection of problems and early intervention were given. (4) In terms of dietary care, targeted nutritional support, such as more easily digestible foods with high dietary fiber, was provided to facilitate postoperative recovery based on the patient's actual condition, such as dietary characteristics and preferences based on the routine avoidance of spicy and alcoholic drinks. (5) Functional training was emphasized in the study group on the basis of routine activity management in the control group, such as encouraging and correctly guiding patients to perform functional exercises of the pelvic floor muscles, insisting on corresponding training of the anus, regular urination training, and promoting the recovery of bladder function and gastrointestinal tract function by massage. (6) Regarding the prevention of complications, it was early planned for possible complications after prostate hyperplasia, such as strengthening surgical wound care, changing surgical dressings in time to prevent infections, giving health guidance according to the actual recovery status of patients, preventing deep vein thrombosis in the lower limbs, and strengthening the exercise of *musculus levator ani* to accelerate the recovery of urethral sphincter function to avoid urinary incontinence.

2.3 Observational indices

2.3.1 Assessment of mental status

The self-rating anxiety scale (SAS) and the self-rating depression scale (SDS) were used to measure the anxiety and depression of the subjects, respectively. The SAS and SDS scales contains 20 items, and each item is rated on a four-point scale of 1 to 4, based on the frequency of symptoms, with 1 to 4 representing the frequency of symptoms associated with the score of no or rarely occurring, sometimes occurring (a small proportion of the time), most of the time occurring, and vast majority of the time occurring or the symptoms persisting and not disappearing, respectively. Both scales were calculated using the percentage method. The total score of 20 items was counted, and the severity of symptoms was directly proportional to the score. Anxiety was classified as a watershed value of 50, below which the patients belonged to the normal group without anxiety, 50 to 60 as mild, 61 to 70 as moderate, and scores higher than 70 as severe anxiety. Depression was defined as a critical value of 53, 53 to 62 for mild, 63 to 72 for moderate, and a score higher than 72 for severe depression. For numerical statistics of depression, there were some items that were reverse questions and the scoring criteria should be clearly stated [14].

2.3.2 Assessment of prostate symptoms and quality of life

The International Prostate Symptom Scale (IPSS) was used to evaluate the urinary symptoms of patients [15], which was divided into 7 items: incomplete urination, frequent urination,

intermittent urination, difficulty in holding urination, thinning of the urinary line, number of urination starts and interruptions, and nocturia. 0 means “none”, 1 means “less than 1 in 5 such cases”, 2 means “less than half”, 3 means “greater than half, 4 means “more than half”, and 5 means “almost every time”, and the higher the symptom score, the more serious the symptom is, and the total score from 0 to 7 is considered mild, 8 to 19 is considered moderate, and 20 to 35 is considered severe.

The quality of life (QOL) score was assessed using one question as a QOL assessment [16], such as “If you were to have your current urinating condition for the rest of your life, how would you feel about your QOL thereafter?” The appropriate judgement was given according to the patient’s actual situation and was divided into a scale of 0 to 6, with 0 meaning “happy”, 1 meaning “satisfied”, 2 meaning “mostly satisfied”, 3 meaning 3 means “okay”, 4 meaning “not very satisfied”, 5 meaning “distressed”, and 6 meaning “very bad”. The higher the score, the worse the QOL is.

2.3.3 Incidence of postoperative complications

The occurrence of infections, urinary incontinence, and bladder spasms in the two groups of subjects were counted, and the incidence of complications was compared.

The hospital’s self-made nursing satisfaction questionnaire was used to allow the study participants to respond to several elements of satisfaction with the nursing service, operation, and effectiveness of the nursing process by means of a questionnaire, with satisfaction (%) = (number of satisfied cases + number of relatively satisfied cases)/total number of cases × 100% [17].

2.4 Statistics

The raw data were tabulated and analyzed with the statistical software SPSS 23.0, and the independent sample *t*-test was used to analyze the quantitative data ($\bar{x} \pm s$) such as mental status, IPSS and QOL. The chi-square test was used for categorical data (%). A *p* value of 0.05 was considered statistically significant.

3. Results

3.1 Assessment of patients' mental status

Before the intervention, the SAS scores and SDS scores of the two groups were similar and the difference was not significant ($t = 1.678, 1.414; p = 0.097, 0.161$). Compared with the pre-intervention, these two scores of the subjects in both groups were decreased to different degrees, which were much more decreased in the study group, and the difference was statistically significant ($p < 0.001$), as shown in Table 1.

3.2 Comparison of patients' quality of life

Before the intervention, the IPSS scores and QOL scores of the two groups were similar and the difference was not significant ($t = 1.033, 0.820; p = 0.304, 0.415$). Compared with the pre-intervention, these two scores of the subjects in both groups were significantly decreased after intervention,

and particularly, there was more decrease in the study group than in the control group, and the difference was statistically significant ($p < 0.001$), as shown in Table 2.

3.3 Comparison of the occurrence of complications

In the control group, there were 3 patients with infection, 3 patients with urinary incontinence and 2 patients with bladder spasm in a total of 43 cases, and the complication rate in this group was 18.60%. In the study group, there were no patients with urinary incontinence, 1 patient with infection and 1 patient with bladder spasm, and the complication rate was 4.65%, which was significantly lower than the complication rate in the control group ($p = 0.044$), as shown in Table 3.

3.4 Comparison of the rate of satisfaction

In the study group, the percentage of patients who were satisfied with the nursing effect was 95.35%, which was significantly higher than 69.77% in the control group, and the difference was statistically significant ($p = 0.002$), as shown in Table 4.

4. Discussion

Epidemiological studies have found that BPH tends to occur mostly after the age of 40 years, with 50% to 60% of men over the age of 60 years suffering from the disease, and by the age of 80 years, almost all men will have this disease, the incidence of which increases annually with age [18, 19]. The disease is characterized by a higher incidence in urban than in rural areas, and the diagnosis rate is also much lower than the actual prevalence in the urban elderly population [20]. Studies have demonstrated that undesirable environmental factors play an important role in the occurrence and development of the disease. Experts suggest that the prostate, as an organ of the human body, ages with age and hyperplasia is only one manifestation of its aging. Therefore, the increase in average life expectancy is also the principal reason for the growing incidence of this disease [21, 22]. Benign prostatic hyperplasia is inevitable in the aging process of the male body, and is difficult to prevent by targeting the etiology [23]. Therefore, the middle-aged and elderly population should pay attention to the daily management of chronic diseases in daily life, including measures to reduce urinary holding and excessive urinary holding, reducing alcohol consumption, and performing annual testing, thereby reducing or delaying the onset of the disease.

For BPH, most patients are treated conservatively, but the therapeutic effect of this option is limited and it is difficult to achieve satisfactory expectations. Therefore, surgical treatment is more effective in terms of treatment outcome, considering the actual condition of the patient [24]. Transurethral bipolar plasma vaporization of the prostate is an excellent option with features such as minimal surgical trauma and pain relief, but due to the specific nature of the surgical population, it is difficult to avoid stress reactions and complications during treatment, which in turn adversely affects the overall outcome [25, 26]. Studies have shown that patients

TABLE 1. Comparison of patients' mental status.

Group	Number of case	Detection time	SAS score	SDS score
Control group	43	Before intervention	59.30 ± 5.81	60.94 ± 6.13
		After intervention	41.49 ± 5.01	41.90 ± 4.76
Study group	43	Before intervention	61.43 ± 5.93	62.58 ± 4.50
		After intervention	32.26 ± 4.96	30.85 ± 4.79
<i>t</i> value			8.594	10.727
<i>p</i> value			<0.001	<0.001

SAS: self-rating anxiety scale; SDS: self-rating depression scale.

TABLE 2. Comparison of patients' quality of life.

Group	Number of case	Detection time	IPSS score	QOL score
Control group	43	Before intervention	25.24 ± 2.68	4.78 ± 0.59
		After intervention	7.68 ± 0.78	2.03 ± 0.18
Study group	43	Before intervention	25.86 ± 2.90	4.68 ± 0.54
		After intervention	6.48 ± 0.63	1.46 ± 0.20
<i>t</i> value			7.850	13.938
<i>p</i> value			<0.001	<0.001

IPSS: international prostate symptom scale; QOL: quality of life.

TABLE 3. Comparison of the occurrence of complications.

Group	Number of case	Infection	Urinary incontinence	Bladder spasm	Incidence
Control group	43	3 (6.98)	3 (6.98)	2 (4.65)	18.60%
Study group	43	1 (2.33)	0	1 (2.33)	4.65%
χ^2 value					4.074
<i>p</i> value					0.044

TABLE 4. Comparison of the rate of satisfaction.

Group	Number of case	Satisfaction	Relative satisfaction	Dissatisfaction	Incidence
Control group	43	19 (44.17)	11 (25.58)	13 (30.23)	69.77%
Study group	43	33 (76.74)	8 (18.60)	2 (4.65)	95.35%
χ^2 value					12.310
<i>p</i> value					0.002

may experience painful urination and bladder irritation after surgery, and that appropriate care protocols can effectively reduce the occurrence of postoperative complications [27, 28]. Usual care focuses more on the postoperative diet, exercise, and medication guidance to meet the basic needs of the patient, but have little effect on the patient's mental status and QOL. The integrated nursing intervention model is a comprehensive nursing program that involves a wide range of components. In recent years, this model of care has been refined as nursing program continue to be explored, enabling truly integrated nursing interventions from the patient's perspective. Previous studies have revealed that integrated nursing interventions are more widely used in clinical care, and in the care of some other diseases it is not only effective in improving treatment effect, but also in improving QOL of patients [29, 30].

The results of this study indicated that, compared with the control group of usual care, the study group with comprehen-

sive nursing intervention could effectively improve the mental state of the patients, as reflected by the reduction of the SAS and SDS scores of the patients, which indicates that appropriate psychological guidance and intervention can effectively improve the mental state of the patients, especially through the communication between the doctor and the patient to understand where the anxiety and depression of the patients are and then propose appropriate solutions. This not only helps to establish a good doctor-patient relationship, but also improves the patient's compliance with the treatment. In addition, in terms of patients' symptoms of prostatic hyperplasia and quality of life, it was found that the IPSS scores and QOL scores of the patients in the study group were significantly lower than those of the control group, revealing that the patients' symptoms and quality of life were significantly improved. This may be related to the fact that the comprehensive care intervention pays more attention to the patient's diet and functional

recovery in order to improve the recovery of the patient's prostate and gastrointestinal functions, which in turn improves the patient's quality of life. Infection, urinary incontinence, and bladder infection are common complications of surgery, and by comparing the incidence of complications, it is clear that the integrated nursing intervention model can effectively reduce the incidence of postoperative complications, and the reason for this may be linked to the early anticipation and management of complications in the protocol. Finally, this study also conducted the satisfaction surveys on these two nursing protocols, and the results showed that the patients in the integrated nursing intervention group were more satisfied and receptive to the nursing protocol compared to the usual care protocols.

5. Conclusions

To sum up, the whole course of comprehensive nursing shows a significant effect using after BPH surgery, which can effectively improve patients' mental status, promote the recovery of prostate, improve patients' quality of life, reduce the incidence of complications, and improve patients' satisfaction. This article is a retrospective study with a small sample size, only mental status, quality of life, complications and satisfaction were analyzed, and the effect of this model on the serological indicators of patients has not been clarified so far. In the future, we will expand the sample size for further prospective study with the aim of providing data to support the exploration of postoperative care options for BPH.

AVAILABILITY OF DATA AND MATERIALS

The authors declare that all data supporting the findings of this study are available within the paper and any raw data can be obtained from the corresponding author upon request.

AUTHOR CONTRIBUTIONS

WJY—designed the study and carried them out, prepared the manuscript for publication and reviewed the draft of the manuscript. WJY, HQY and JF—supervised the data collection, analyzed the data, interpreted the data. All authors have read and approved the manuscript.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Ethical approval was obtained from the Ethics Committee of Jinhua Hospital of TCM Affiliated to Zhejiang University of Traditional Chinese Medicine (Approval no. 2023031701). Written informed consent was obtained from a legally authorized representative for anonymized patient information to be published in this article.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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