Influence of a continuous nursing model based on network cloud platforms for urinary control, urination function and quality of life of patients after radical prostatectomy

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Abstract: Objective: To investigate the effect of a continuous nursing mode on urinary control, urinary function and quality of life of patients after radical prostatectomy under the network cloud platform. Method: A total of 100 prostate cancer patients admitted to our hospital from January 2017 to January 2019 were enrolled. According to different care modes, they were divided into the experimental group and the control group, 50 patients in each group. Patients in the experimental group received the continuous care model under the network cloud platform, and the control group patients received the conventional care model. Urinary control, urination, self-care ability, incidence of complications, quality of life and nursing satisfaction of the two groups were compared. Results: In terms of urination, urinary control, quality of life, self-care ability, the incidence of complications and nursing satisfaction, the experimental group was better than the control group (P<0.05). Conclusion: The continuous nursing model under the network cloud platform has a positive impact on patient’s urinary control, urination function and quality of life after radical prostatectomy. It is worthy of being widely promoted and used in clinical treatment.

Keywords: Internet cloud platform, continuous care, prostate cancer, controlled urination function, quality of life

Introduction

Urinary incontinence is a common complication in prostate cancer. A great deal of evidence has demonstrated that urinary incontinence is closely correlated with the time after surgery. Generally, patient’s urinary control rate can exceed 90% after one year of surgery, while it only reaches 50% within short term [1-3]. The urination dysfunction not only weakens the patient’s immunity, affects the patient’s physical health, but also causes psychological stress and burdens the patient [4, 5]. For this reason, it has been the focus of clinical treatment for prostate cancer to improve the patient’s urinary control ability and quality of life in the process of care. Despite the fact that conventional nursing measures have a certain effect at present, they lack scientific and reasonable guidance and publicity, resulting in an unsatisfactory nursing effect. In recent years, the use of network technology to develop nursing models has become increasingly popular, because the application of network technology can enable patients to understand the knowledge of related diseases, and facilitate related work [6-8]. To further study the impact of the continuous care model under the network cloud platform on urinary control, urination function and quality of life of patients after radical prostatectomy, this study included 100 prostate cancer patients who were admitted to our hospital from January 2017 to January 2019 to conduct the analysis.

Materials and methods

General information

We conducted a retrospective trial on 100 prostate cancer patients admitted to our hospital over a period from January 2017 to January 2019. They were equally divided into the experimental group and the control group according
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to different care modes. The patients in the experimental group were 67-81 (76.39±2.71) years old. The patients in the control group were 68-81 (75.24±2.58) years old. The comparison of the general data of the two groups of patients was not statistically significant (P>0.05).

The following inclusion criteria were applied at the trial registration. All patients underwent radical surgery for prostate cancer and had normal speech skills. During the operation, the urethral stump and the bladder were continuously anastomosed. No drugs were used to treat urinary incontinence after the operation. No prostate surgery or radiotherapy was performed before the operation. There was no urinary incontinence and no history of cerebrovascular issue. This study was approved by the hospital ethics committee. All patients and their families knew the purpose and methods of this study, and they signed an informed consent form and agreed to participate in the study.

Individuals with mental disorders, heart failure, severe respiratory failure, decreased judgment and inability to understand were excluded.

Methods

Patients in the control group were given regular care. Namely, provided regular dietary education and health education during hospitalization, and dietary and medication guidance after discharge.

Patients in the experimental group received the continuous care model under the network cloud platform; namely, established contact with patients through network communication and network platforms. First, the setup of a continuation care team who is responsible for the management of the network communication group, collect patients’ urinary incontinence conditions and give guidance and suggestions [9, 10]. Team members integrated information about urinary incontinence and uploaded it to the network communication group in the form of video or audio. The relevant nursing staff put daily medication guidance and pelvic floor muscle function training programs in the network communication group to provide references [11-13]. Team members were online at least three days a week to help patients solve their disease questions and provide individualized guidance, actively communicate with patients and their families, understand the patient’s daily situations, and record the patient’s diet, urine control and urination, and supervise the patient’s pelvic floor muscle training on the network platform [14, 15]. Introduce more successful cases to patients to help patients build confidence.

Observation indicators

Urinary control, urination, self-care ability, incidence of complications, quality of life and nursing satisfaction of the two groups were compared. Urine control is graded as cured, markedly effective, and ineffective. If the patient can control the entire process of urination it is defined as cured. Markedly effective is defined as the patient can basically control the urination process. If the patient’s urinary incontinence has not improved significantly it is considered ineffective. The total effective rate of urinary control = cured rate + markedly effective rate.

In terms of the self-care ability of patients, the Exercise of Self-care Agency (ESCA) Scale is used for evaluation, including three aspects of self-care skills, self-responsibility, and self-concept. The higher the score, the stronger the self-care ability of patients. Complications include bleeding, infection, and urethral stricture. The quality of life is evaluated using the WHO Quality of Life Scale, which includes living conditions, social conditions, and emotional conditions. The higher the scores of living conditions and emotional conditions, the better the quality of life of the patient, and things are opposite for social conditions. Nursing satisfaction = very satisfied rate + satisfaction rate.

Statistical methods

Discrete variables are expressed as counts and percentages, and continuous variables as means and standard deviation (SD); differences between groups were assessed using Chi-square test for categorical variables, and Student t-test for continuous variables. The significance level of all the analyses was defined as P<0.05. SPSS 20.0 was the software used for the analysis and GraphPad Prism 7 (GraphPad Software, San Diego, USA) was used to illustrate the figures.
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Results

Comparison of urinary incontinence

Regarding the incidence of urinary incontinence, the experimental group (16%) demonstrated lower levels than that of the control group (40%) (P<0.05). See Table 1 for details.

Comparison of the effective urinary control function

When considering the total effective rate of urinary control, the experimental group (98%) exhibited a higher level than the control group (80%) (P<0.05). See Table 2 for details.

Comparison of the self-care ability

With respect to the self-care ability scores, the experimental group were higher than those of the control group (P<0.05), see Figure 1.

Comparison of the quality of life scores

The experimental group demonstrated higher physical and emotional status scores than those of the control group, and lower social status scores (P<0.01). See Figure 2.

Comparison of the incidence of complications

Lower incidence of complications was identified in the experimental group (4%) than the control group (18%) (P<0.05). See Table 3.

Comparison of the nursing satisfaction

In the analysis of the nursing satisfaction, the experimental group reported better scores

| Table 1. Comparison of urinary incontinence between the two groups [n (%)] |
|------------------|------------------|------------------|-------------------|-------------------|
| Groups           | Frequency          | Amount of incontinence | Total incidence rate |
|                  | One time/week | One time/d | Several times/d | a small amount | a moderate amount |                         |
| Experimental group | 3            | 2          | 3               | 3               | 1                  | 16%                      |
| Control group    | 8            | 6          | 6               | 10              | 7                  | 40%                      |
| t                | 4.33         | 4.89       |                   | 7.14            |                    |
| P                | 0.037        | 0.027      |                   | 0.008           |

| Table 2. Comparison of the effectiveness of urinary control function between the two groups [n (%)] |
|------------------|------------------|------------------|-------------------|-------------------|
| Groups           | n          | Cured          | Markedly effective | Ineffective      | Total effective rate |
| Experimental group | 50        | 70% (35/50) | 28% (14/50)       | 2% (1/50)        | 98% (49/50)         |
| Control group    | 50        | 40% (20/50) | 40% (20/50)       | 20% (10/50)      | 80% (40/50)         |
| X²               | 8.23        |                |                   |                  |
| P                | 0.004       |                |                   |                  |

Figure 1. Comparison of the self-care ability between the two groups of patients. Note: The abscissa represents the self-care ability index; the ordinate represents the score. The scores of self-care skills, self-care responsibility, and self-care concept of the experimental group were (25.68±3.19), (23.13±3.51), and (25.24±3.54); and those of the control group were (23.12±3.24), (17.05±3.22), and (20.03±3.12) respectively. a Indicates that the comparison of self-care skill scores between the two groups was significant (t=3.98, P=0.00); b Indicates that the comparison of self-responsibility scores between the two groups was significant (t=9.03, P=0.00); c Indicates that the comparison of self-concept scores between the two groups was significant (t=8.39, P=0.00).
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Can provide extended guidance and care to patients who have been discharged from the hospital using continuous care based on the network cloud platform, so that patients can realize a smooth transition from the hospital to the home environment [10, 20, 21]. Based on the continuous care under the network cloud platform, medical staff can use the network cloud platform to establish contact with patients, breaking the time and space constraints, and protecting the privacy of patients.

In the current study, the incidence of urinary incontinence in the experimental group was lower than the control group (16% vs 40%); the total effective rate of urinary control in the experimental group was higher compared with control group (98% vs 80%) (P<0.05), taken together, these indicate that continuous care based on the network cloud platform can effectively improve the urination function of patients and reduce the incidence of urinary incontinence. The experimental group exhibited higher scores of self-care ability, scores of physical and emotional status than the control group, while lower scores of social status (P<0.05), indicating that continuous care under the network cloud platform can enable patients to better understand the relevant knowledge of urinary incontinence. In addition, a lower incidence of complications was identified in the experimental group (4%) than in the control group. Regarding the nursing satisfaction, the experimental group was higher than the control group (98% vs 78%). The study conducted by Colletti et al [22] pointed out that the quality of life of patients who used continuous care was higher than that of patients who used conventional nursing methods, which further reinforces the scientific nature of our trial. Unfortunately, the present study has some limitations. On one hand, the findings in this study were interpreted with limited sample size. On the other hand, a long-term follow-up trial is not carried out, and a long-term disease-free period was not obtained. In the future, prospective randomized trials with long-term data will be needed to draw definitive conclusions.

To conclude, the continuous care model based on the network cloud platform has a positive impact on urinary control, urination function and quality of life of patients after radical prostatectomy, and can significantly improve the
Continuous nursing mode on urinary control, urinary function and quality of life of patients. It is worthy of extensive promotion in clinical treatment.

Disclosure of conflict of interest

None.

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