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Effect of the Concept of Fast-Track Surgery in the Nursing of Renal Calculi

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Abstract: The objective is to analyze the effect of the concept of fast-track surgery (FTS) in the nursing of renal calculi and provide references for reducing the risk of complications. A total of 66 patients with renal calculi admitted to our hospital between Mar. 2023 and Mar. 2024 were selected and randomly divided into the experimental group and the control group, with 33 patients in each group. Patients in the control group received conventional nursing, and those in the experimental group received nursing with the concept of FTS in addition to conventional care. The incidence of complications was compared between the two groups. The incidence of complications in the experimental group (12.12%) was significantly decreased compared with that in the control group (33.33%), and the difference was statistically significant ($P<0.05$). The concept of FTS is satisfactorily applied in the nursing of renal calculi, and is helpful to improve the treatment efficacy, reduce the incidence of complications, and minimize the risk to life, which is worthy of wide application.

1. Introduction

Renal calculi are common clinical diseases, which have a certain degree of impact on the health and socio-economic status of Chinese nationals, and the main affected population is young adults aged 30 to 50 years[1]. Their etiological factors are closely related to abnormal metabolism, urinary system factors, drug factors, etc., which easily cause some components in urine to form stones in the kidney, thus affecting their physical and mental health. Due to the different locations of kidney stones, they can be divided into ureteral stones, kidney stones, urethral stones and bladder stones. The etiology and pathogenesis of patients with this disease are diverse, which have a strong correlation with the age, gender, occupation, dietary habits of patients, and it is easy for patients to experience lumbar and abdominal pain, hematuria, abdominal distension and other manifestations, seriously affecting their life and health[2].

There are various techniques for the treatment of renal calculi. At present, extracorporeal shockwave lithotripsy (ESWL), percutaneous nephrolithotomy (PCNL) and retrograde intrarenal surgery (RIRS) are widely used in the treatment of renal calculi, but the impact of postoperative complications on patients should not be ignored[3]. Among them, percutaneous nephrolithotomy has the advantages of less invasiveness, faster recovery, and better rehabilitation in clinical application, but its puncture to establish channels, channel dilatation, lithotripsy and other operating processes may trigger complications [1, 4].With the improvement of medical services, the concept of FTS has

been gradually paid attention to, with significant effect in the nursing care of renal calculi. This concept emphasizes the nursing services before, during and after surgical treatment to reduce surgical risks and surgical trauma and promote postoperative recovery of patients[5]. In the present study, the effect of the concept of FTS in renal calculi was comprehensively investigated to provide references for reducing the risk of complications. The study was reported below.

2. Materials and Methods

2.1. General Data

A total of 66 patients with renal calculi admitted to our hospital between March 2023 and March 2024 were selected and randomly divided into the experimental group and the control group, with 33 patients in each group. There were 23 males and 10 females in the experimental group, aged between 39 and 74 years (mean age: 43.46±1.28 years), and there were 22 males and 11 females in the control group, aged between 40 and 72 years (mean age: 43.78±1.35 years). Data analysis showed that the differences in general data were not significant between the two groups($P>0.05$). This study was reviewed and approved by the ethics committee. The included patients could be responsible for their own behaviors, with normal communication abilities, and agreed to participate in the study.

2.2. Methods

Patients in the control group received conventional nursing, and those in the experimental group received nursing with the concept of FTS in addition to the conventional nursing, as described below.

2.2.1. Preoperative nursing

Warmly receive patients, showing sincerity and care. In the process of guiding patients, use clear and understandable language. Combined with the hospital plan, introduce the hospital layout to them in detail. For example, inform the patients of the location of the outpatient building and inpatient department, as well as the departments distributed on each floor, and mention the public facilities in the hospital, such as the specific orientation of the rest area, bathroom, and canteen, to help the patients quickly familiarize themselves with the hospital environment and reduce strangeness and anxiety. Observe the patients' expression and behavior changes, patiently communicate with them, and use a gentle tone to solve the patients' confusion. Medical staff should use their professional services to gain the trust of patients, give encouragement and support, help them build confidence to overcome the disease, and regulate their negative emotions. Describe the concept of fast-track surgery to patients and their families and guide them to actively participate in nursing services.

2.2.2. Intraoperative nursing

According to the needs of surgical treatment, adjust patients' body positions to ensure their safety and comfort during the process and avoid adverse effects from improper postures. Perform ECG monitoring to identify and manage possible cardiac abnormalities. Central venous pressure was controlled. Through professional instruments and equipment, it was accurately measured and maintained within the normal range, providing an important basis for physicians to determine patients' blood volume, cardiac function, etc., and assisting physicians in completing the operation. Items such as cotton pads were used to protect the heads of the patients, and the hands of the

patients were placed on the sides of their heads. Changes in the body temperature of the patients were always noted, and precautionary measures were provided to keep them warm and avoid impairment to their immune system. Exposure of the body's surface skin was reduced, and the risk of infection was lowered.

2.2.3. Postoperative nursing

Changes in the physical conditions of the patients were observed and parameters such as heart rate and blood pressure were recorded. Patients were instructed to perform simple activities such as turning over, standing, and walking slowly based on their actual conditions. The daily dietary structure of the patients was observed and the patients were instructed to reduce the consumption of spicy and greasy foods and eat more fresh vegetables and fruits. Patients were encouraged to actively drink more water to supplement the liquid needed and enhance the discharge of small stones.

2.3. Outcome Measures

Postoperative recovery of patients and the development of complications such as infection, postoperative bleeding, and peritoneal effusion was observed. The number and incidence of complications were analyzed using a rigorous data processing method[6].

2.4. Statistical Analysis

SPSS 28.0 software was used for data analysis, and the effective rate of the two groups of patients was analyzed. Enumeration data were presented as [n (%)], and χ^2 test was conducted. P values were used to determine the statistical significance of differences.

3. Results

The incidence of complications in the experimental group (12.12%) was significantly decreased compared with that in the control group (33.33%), and the difference was statistically significant ($P<0.05$) (Table 1).

Table 1 Comparison of incidence of complications between two groups (n, %).

Groups	n	Infection	Postoperative bleeding	Peritoneal effusion	Incidence of complications
The experimental group	33	2	1	1	12.12%
The control group	33	4	3	4	33.33%
χ^2	-	-	-	-	4.227
P	-	-	-	-	0.039

4. Discussion

Renal calculi are a disease commonly encountered in clinical practice, which may cause pain and discomfort in patients, adversely affect their physical and mental health, and even threaten their life safety. With the changes in the living habits and dietary structure in China, the incidence of renal calculi has gradually increased in recent years, making it an important issue threatening the physical and mental health of patients.

Patients with renal calculi present with symptoms such as lumbar and abdominal colic and hematuria, which affect their normal working life and easily produce anxiety. In addition to postoperative infection, fever and other complications, stone recurrence caused by residual calculi may aggravate the patients' physical discomfort and psychological anxiety. Ma Ling et al reported that the nursing program developed using the concept of fast-track surgery can have a certain impact on the rehabilitation of patients undergoing percutaneous nephrolithotomy to a certain extent, can shorten the rehabilitation time, and essentially improve the quality of life of patients with kidney stones [7]. It has also been reported that based on the concept of fast-track surgery, perioperative care has been meticulously performed in terms of preoperative care , intraoperative care, and postoperative care , which improves the surgical outcome, reduces various perioperative stress reactions and complications caused by anesthesia, and shortens the length of hospital stay [8]. Targeted surgical treatment is used in the clinical diagnosis and treatment of this disease. In addition, personalized nursing service is essential. The concept of FTS is a new approach that emphasizes the implementation of multidisciplinary and omnidirectional nursing measures throughout the operation process to reduce surgical trauma, minimize the development of surgical complications, expedite patient recovery, and improve their quality of life[9]. In the present study, the incidence of complications was significantly decreased after the implementation of this concept in the experimental group compared with that in the control group, suggesting that the concept of FTS can optimize the treatment efficacy from both psychological and physiological aspects, and reduce the incidence of complications to protect the life and health of patients.

In summary, the concept of FTS is satisfactorily applied in the nursing of renal calculi, and is helpful to improve the treatment efficacy, reduce the incidence of complications, and minimize the risk to life, which is worthy of wide application.

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