

# Impact on Complications and Life Quality of Patients with Discharged Indwelling Double J Tube based on the Extended Nursing Service of the Wechat Platform

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## Abstract

**OBJECTIVE:** To investigate the effect of extended nursing service based on the WeChat platform on the complications and quality of life of patients discharged with indwelling double J tubes. **METHODS:** Seventy-six patients with urinary stones who underwent surgery in our hospital from February 2021 to February 2022 and were discharged with a double J tube were selected as the study subjects. They were randomly divided into a control group and an observation group by applying the random number table method, with 38 cases in each group. The patients in the control group discharged from the hospital with the tube were provided with conventional extended nursing services, while patients in the observation group were discharged from the hospital with extended nursing services based on the WeChat platform. The occurrence of complications during the period of indwelling double J-tube, self-management ability of patients before and after the intervention, and changes in the scores of quality of life were compared between the two groups. **RESULTS:** The overall incidence of complications during indwelling double J-tube in the observation group was significantly lower than that in the control group ( $P < 0.05$ ). Before the intervention, there was no statistically significant difference in the self-management ability and quality of life scores between the two groups ( $P > 0.05$ ). After one month of intervention, the self-management ability and the scores of various quality of life dimensions of patients in the observation group were significantly better than those in the control group ( $P < 0.05$ ). **CONCLUSION:** Compared with the conventional extended care service, the extended care service based on the WeChat platform can significantly reduce the occurrence of complications and improve the quality of life of patients discharged with indwelling double-J tubes.

## Keywords

Double J Tube; Extended Nursing Service; Wechat Platform.

## 1. Introduction

Double J tubes are widely used in urology, and they are required to be left in place for 1-3 months after surgery for urinary stones, ureteral, or benign renal tumors to play a supportive role and avoid ureteral adhesions or internal drainage. However, double J-tubes are foreign bodies, and their placement in the body is highly likely to induce complications such as urinary tract irritation signs, lumbar pain, and hematuria. Therefore, extended care services are needed to provide medical care guidance to prevent or reduce complications during the patient's discharge with a double J tube. Studies [1] have reported that the application of WeChat and other online platforms for extended care services for discharged patients can allow patients to continue to receive health care services and promote disease recovery even outside the hospital. But the application of WeChat-based extended care services in patients discharged with

indwelling double J tubes is less commonly reported. Based on that, a randomized controlled trial was conducted on 76 patients in this study to clarify the effects of extended care services based on the WeChat platform on complications and quality of life in patients discharged with indwelling double J-tubes.

## 2. Material and Methods

### 2.1. Clinical Material

Seventy-six patients with urological stones who underwent surgery with a postoperative double-J tube in our hospital from February 2021 to February 2022 were selected as study subjects. Inclusion criteria: (1) All patients were diagnosed with ureteral stones or renal stones by imaging before surgery, and all had holmium laser lithotripsy; (2) All patients had a postoperative double-J tube and were discharged with the tube; (3) All patients or their primary caregivers were proficient in using WeChat; (4) Patients were informed about the study, willing to cooperate with the study, and signed a consent form. Exclusion criteria: (i) contraindications to lithotripsy; (ii) complications of urinary stones before enrollment; (iii) mental illness, cognitive impairment, or inability to communicate. The above cases were randomly divided into control and observation groups by the random number table method, with 38 cases in each group. Control group: 21 males and 17 females, age 28-69 years, mean (48.71±12.21) years, duration of disease 3-15 d, mean (8.05±3.81) d, including 23 ureteral stones and 15 renal stones; Observation group: 23 males and 15 females, age 25-70 years, mean (49.68±13.38) years, duration of disease 4-14 d, mean (8.63±3.81) d, including 22 cases of ureteral stones and 16 cases of renal stones. There were no significant differences between the two groups at baseline ( $P>0.05$ ), which were comparable.

### 2.2. Methods

Patients in the control group discharged from the hospital with tubes were given routine extended nursing services. When the patients were discharged from the hospital, the nurses verbally informed them of the importance of the indwelling double J-tube, its nursing-related precautions, and the time of extubation and marked the time of extubation on the double J-tube. Patients were instructed to return to the hospital in case of discomfort, and nurses gave telephone follow-up visits every 1-2 weeks to understand their double J-tube retention and postoperative recovery and to provide timely nursing guidance.

The observation group was given WeChat extended nursing service after the patients were discharged from the hospital on the basis of the control group. The specific contents are as follows. (1) Establishment of the WeChat platform-based extended nursing service team. The head nurse of the department is the team leader, and the nurse in charge and the primary nurse are the team members. The team members were required to be proficient in double J-tube nursing and WeChat operation. (2) WeChat extended nursing service implementation: use the hospital's WeChat public number as a missionary platform, and telephone follow-up as an auxiliary follow-up means. WeChat public QR code was pasted in the ward, and nurses distributed double J-tube nursing brochures to patients and family members after surgery and asked them to scan the code and follow the public number. The nurses sent follow-up questionnaires to the patients through the WeChat public number every week to investigate the patients' postoperative recovery and double J-tube retention. Meanwhile, health education in the form of text, pictures, and videos was carried out in the WeChat public number, which was pushed once every three days. Moreover, patients or their families could leave questions on the WeChat public number, and the nurse in charge of the WeChat duty would answer and give relevant instructions. (3) WeChat health education plan: i) Week 1: WeChat follow-up visit to understand the patient's out-of-hospital diet, urination, and rehabilitation exercise status.

The content of the education is mainly about double J tube care, self-symptom and urine observation methods, possible complications and their prevention and treatment methods, etc., to avoid complications. ii) Weeks 2-3: Follow-up visits by WeChat to understand the patient's symptoms and the psychological status during the period of double J tube placement. The content of WeChat education in these two weeks was mainly about medication management, health care, and success stories to enhance patients' confidence. iii) Week 4: Follow-up visit to understand the occurrence of complications of double J-tube, exercise, and the impact on life and work. The content of the WeChat education is mainly about the correct exercise rehabilitation method, the importance of follow-up, the management of daily life and diet, etc.

### 2.3. Observation Indicators

(1) Compare the occurrence of complications related to double J-tube during its indwelling in both groups, such as double J-tube displacement, back pain, bladder irritation sign, hematuria, urinary tract infection, etc. (2) Compare the self-management ability scores of patients in the two groups at discharge and one month after the extended care service intervention. The Adult Health Self-Management Skills Rating Scale (AHSMSRS) was used to evaluate three aspects: self-management cognition (14 items), self-management behavior (14 items), and self-management environment (10 items), and each item was rated on a Likert scale of 5. The higher the score, the better the self-management skills. (3) Compare the quality of life scores of the two groups of patients at discharge and one month of extended care service. The World Health Organization Quality of Life (WHOQOL-BREF)[3] was used to evaluate the quality of life, including physical, psychological, social, and environmental aspects, and the higher the total score. Better the quality of life.

### 2.4. Statistical Methods

SPSS 23.0 software was selected, and the measurement data were expressed as ( $\bar{x} \pm s$ ) by t-test. The count data were expressed as the number of cases (%) by the  $\chi^2$  test.  $P < 0.05$  indicated that the difference was statistically significant.

## 3. Results

### 3.1. Comparison of the Status of Complications Related to Double J-Tube in Two Groups

The overall incidence of complications during double J-tube indwelling was significantly lower in the observation group compared with the control group ( $\chi^2 = 8.756$ ,  $P = 0.003$ ), as shown in Table 1.

**Table 1.** Comparison of the status of complications related to double J-tube in two groups [n (%)]

Group	Number of cases	Double J tube shift	Soreness and pain in the lower back	Bladder irritation sign	Hematuria	Urinary tract infection	Total incidence
Observation group	38	0	0	1	1	0	2 (5.26)
Control group	38	1	5	3	2	1	12 (31.58)
$\chi^2$ value							8.756
P-value							0.003

### 3.2. Comparison of Self-Management Ability Scores between the Two Groups before and after the Intervention

Before the intervention, no significant difference was seen in the comparison of self-management cognition, self-management behavior, and self-management environment scores between the two groups ( $P > 0.05$ ). After one month of the extended nursing intervention, the above self-management ability scores of the observation group were significantly higher than those of the control group ( $P < 0.05$ ), as shown in Table 2.

**Table 2.** Comparison of self-management ability scores between the two groups before and after the intervention ( $\bar{x} \pm s$ , score)

Group	Number of cases	Self-management cognition		Self-management behavior		Self-management environment	
		Pre-intervention	Post-intervention	Pre-intervention	Post-intervention	Pre-intervention	Post-intervention
Observation group	38	40.79±5.78	56.61±4.93*	31.11±4.64	55.58±5.16*	25.76±5.27	39.55±5.18*
Control group	38	41.37±5.40	53.26±5.31*	30.18±4.56	47.11±5.39*	25.16±4.28	34.03±5.74*
t-value		0.452	2.845	0.872	7.003	0.549	4.410
P-value		0.653	0.006	0.386	0.000	0.584	0.000

Note: Compared to pre-intervention within the same group, \*  $P < 0.05$ .

### 3.3. Comparison of Quality of Life Scores between the Two Groups before and after Intervention

Before the intervention, there was no significant difference between the physical, psychological, social, and environmental quality of life scores of the two groups of patients ( $P > 0.05$ ). After the intervention, the observation group had a better quality of life scores than the control group, with significant differences ( $P < 0.05$ ), as shown in Table 3.

**Table 3.** Comparison of quality of life scores between the two groups before and after intervention

Group	Number of cases	Physiology		Psychological		Social		Environment	
		Pre-intervention	Post-intervention	Pre-intervention	Post-intervention	Pre-intervention	Post-intervention	Pre-intervention	Post-intervention
Observation group	38	12.13±2.41	21.05±2.93*	12.08±1.75	21.71±2.55*	12.39±2.31	19.74±2.51*	13.89±2.64	19.79±2.12*
Control group	38	12.39±2.24	16.50±2.50*	11.58±1.78	14.37±2.32*	12.37±2.33	15.47±2.10*	13.55±2.88	16.21±1.93*
t-value		0.494	7.283	1.236	13.145	0.049	8.024	0.540	7.689
P-value		0.623	0.000	0.220	0.000	0.961	0.000	0.591	0.000

Note: Compared to pre-intervention within the same group, \*  $P < 0.05$ .

## 4. Discussion

The double J-tube is an invasive treatment and has a high incidence of complications during tube placement, with varying degrees of anxiety and depression, which have serious adverse effects on their quality of life. Therefore, it is crucial to strengthen nursing interventions in patients with indwelling double J-tubes.

The care of a double J-tube is a relatively complex operation. The traditionally applied extended nursing service is a single form of verbal teaching by nurses at the time of discharge, and the patients and their families can hardly master the double J-tube maintenance skills systematically after discharge only by telephone follow-up to understand their recovery situation and give guidance when appropriate. In order to improve this situation, our department carried out extended nursing services through WeChat. The results showed that the self-management cognition, self-management behavior, and self-management environment scores of patients in the observation group were better than those in the control group, and the total complication rate was significantly lower than that of the control group, similar to the findings of Zhang Lijuan[4], which further confirmed that the extended nursing services based on the WeChat platform could effectively improve the self-management ability of patients with indwelling double J-tubes and reduce the occurrence of complications. WeChat extended nursing service is a new nursing method developed to meet the new situation of social development, and it is also an extended service of hospital nursing. Moreover, the WeChat platform is not restricted by space, time, and location, and it can realize seamless nursing guidance from hospital to home, which can significantly improve the efficiency of nurse-patient communication. Nursing staff can understand and grasp the postoperative recovery and psychological changes of patients in time and provide targeted nursing guidance. In turn, it helps to improve patients' self-management ability[5]. At the same time, WeChat can also provide education on the problems that may occur during double J tube placement through pictures and videos, which are highly targeted, easy to understand, and can be read and studied repeatedly. It is conducive to improving their learning and nursing enthusiasm, enabling them to better master the knowledge and operation of double J tube maintenance and helping them to establish effective self-management, thus reducing the risky behaviors related to complications during double J tube placement and reducing the occurrence of complications[6]. In addition, the results of this study showed that the quality of life scores of patients in the observation group was better than those in the control group during the period of indwelling double J-tube, which was consistent with the results of Qian Zhang[7]. With the improvement of patients' self-management ability, the quality of life of patients would also be improved. Moreover, the WeChat extended nursing service provides patients with comprehensive and systematic knowledge of postoperative urolithiasis and double J-tube indwelling nursing care, which makes patients fully aware of the importance of improving self-management ability, developing good living habits, and following medical advice behavior, thereby helping to promote disease recovery and achieving improved quality of life[8].

In conclusion, compared with conventional extended care services, the extended care services based on the WeChat platform can significantly reduce the occurrence of complications and improve the quality of life of patients discharged with indwelling double J-tubes, which is worth promoting and applying. However, it should be noted that as the application of WeChat becomes more and more widespread, the quality and quantity of information pushed will also become more and more demanding. This requires medical and nursing staff to be more proficient in double J-tube maintenance knowledge and missionary skills and to continuously optimize the WeChat extended care peritoneal model to make it more acceptable to patients.

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