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The Effect of the Medical and Nursing Integration Model in the Care of Patients Undergoing Inguinal Hernia Surgery

Qian Sun[1], Weihua Liu[1]*, Yinghui Hou[1], Jingyan Wang[2]

[1]Department of General Surgery, Affiliated Hospital of Hebei University, Baoding 071000, Hebei, China
[2]Surgical Ward, Affiliated Hospital of Hebei University, Baoding 071000, Hebei, China

***Corresponding author:** *Weihua Liu, 1593194800@163.com*

Abstract: *Objective:* To explore the application effect of the care of patients with inguinal hernia surgery, medical and nursing integration model with a view to providing help for the optimization of clinical surgical care program. *Methods:* Seventy-eight inguinal hernia patients who underwent surgical treatment in a hospital during the period of December 2023 to November 2024 were selected and divided into a control group and a study group, each with 39 cases, using the mean score method. The control group was given the usual clinical surgical care model, and the observation group was given the medical and nursing integration model, and the nursing effects of the two groups were compared. *Results:* The postoperative pain level score of patients in the observation group (2.23 ± 0.52) was lower than that of the control group (3.86 ± 1.02); the gastrointestinal recovery time of patients in the observation group (23.12 ± 4.06h), and the time to get out of bed (15.42 ± 4.19d) were shorter than that of the control group (29.53 ± 3.47 h) and (20.85 ± 3.08 d), and the differences were statistically significant ($P < 0.05$); postoperative sleep efficiency score (the observation group 5.12 ± 1.14), sleep disorder score (6.42 ± 1.29), time to sleep score (7.56 ± 1.57), and daytime function score (6.25 ± 1.19) in were significantly lower than those in the control group [(7.46 ± 1.29), (8.63 ± 1.41), (10.37 ± 1.38), and (8.49 ± 1.24), respectively], with the differences being statistically significant ($P < 0.05$).; the incidence of complications such as urinary retention, local hematoma, and incision infection during the treatment period of the patients in the observation group (2.56%) was significantly lower than that of the control group (20.51%), and the difference was statistically significant ($P < 0.05$); in the observation group, the patient care satisfaction (97.44%) was significantly higher than that of the control group (76.92%), and the difference was statistically significant ($P < 0.05$). *Conclusion*: The integrated model of medical care has significant advantages in the care of patients undergoing inguinal hernia surgery, which can effectively alleviate postoperative pain, shorten the gastrointestinal recovery time and the time to get out of bed, and at the same time significantly improve the quality of patient's sleep, and reduce the risk of complications such as urinary retention, local hematomas, and incisional infections, to obtain a higher degree of satisfaction from patients, and it is recommended that it should be popularized and applied in other medical departments.

Keywords: Inguinal hernia surgery; Integrated health care; Surgical indicators; Complications; Satisfaction

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1. Introduction

Inguinal hernia is a common and frequent disease in general surgery, which is prone to incarceration and has a greater risk of incomplete intestinal obstruction and intestinal necrosis [1]. Clinical treatment of inguinal hernia often uses tension-free repair or laparoscopic hernia repair, but the prognosis of the patient's effect in addition to rely on the level of surgical operation of the physician, but also depends largely on the quality of care safety [2]. With the development of medical technology and the improvement of patients' demand for medical services, the traditional nursing model has been difficult to meet the all-round needs of inguinal hernia surgery patients. The healthcare integration model, as a new medical service model, emphasizes the joint participation of doctors and nurses in the diagnosis, treatment and care process of patients, providing patients with more high-quality, efficient, and continuous medical services through close cooperation, information sharing, and responsibility sharing [3]. In recent years, the healthcare integration model has been widely used both at home and abroad and has achieved remarkable results in the treatment and care of a variety of diseases, but its application in the care of patients undergoing inguinal hernia surgery has been less well researched, and there is a lack of practical basis for its value, especially in terms of improving the patients' postoperative pain, reducing the rate of complications, and shortening the length of hospitalization [4]. Because of this, this study was conducted through a small-sample clinical trial to investigate the specific application effect of the healthcare integration model in the care of patients with inguinal hernia surgery, with a view to providing a scientific basis for the further optimization of nursing care programs for patients with inguinal hernia surgery.

2. Information and methodology

2.1. General information

A total of 78 inguinal hernia patients who underwent surgical treatment at a hospital between December 2023 and November 2024 were divided into two groups using the mean score method: a control group and a study group, each consisting of 39 patients. In the control group, there were 24 males and 15 females, with ages ranging from 19 to 63 years, and an average age of 43.89 ± 6.15 years. The disease duration for this group ranged from 1 to 6 months, with a mean duration of 2.12 ± 0.35 months. In the study group, there were 23 males and 16 females, with ages ranging from 22 to 64 years, and an average age of 42.73 ± 6.39 years. The disease duration in this group varied from 1 to 8 years, with a mean of 2.40 ± 0.41 months. Statistical comparisons of general information, such as age, gender, and disease duration, between the two groups revealed no significant differences ($P > 0.05$), indicating that the groups were comparable. The study was approved by the hospital's Ethics Committee for implementation.

The inclusion criteria of the study included: (1) patients who were clearly diagnosed with inguinal hernia by clinical examination (e.g. ultrasound, CT, etc.) and underwent surgical treatment; (2) aged between 19 and 64 years old and able to cooperate in completing the nursing care and follow-up; (3) patients who were aware of the purpose of the study, the process and the potential risks, and voluntarily signed the informed consent for the study; and (4) patients who were free of severe cardiac, pulmonary, hepatic, and renal dysfunction underlying disease, and were able to tolerate the surgery and postoperative care.

The exclusion criteria consisted of: (1) those with serious diseases such as combined malignant tumours, serious infections, coagulation disorders, etc.; (2) previous history of inguinal area surgery; (3) pregnant or breastfeeding females; (4) unable to cooperate with nursing care or follow up visits; and (5) those who are

currently participating in other clinical trial studies.

2.2. Methodology

The control group adopts the conventional clinical surgical nursing model. After admission, patients receive routine inguinal hernia surgery nursing, including preoperative perfecting of various examinations, preoperative assessment, implementation of health education and psychological counselling. During the operation, the nursing staff actively cooperated with the surgeon to ensure that the operation was carried out smoothly. Postoperatively, the patient's vital signs were closely monitored, the incision was observed to prevent complications such as incision infection and urinary retention, and postoperative rehabilitation guidance was provided.

The observation group adopts the medical and nursing integration model of care, and the specific implementation steps are as follows:

(1) Formation of an integrated medical and nursing care team

One deputy chief physician, one attending physician, one anesthetist, two charge nurses, and three nurses were deployed to form a multidisciplinary integrated medical and nursing care team, and the team members worked together to formulate a personalized care plan.

(2) Preoperative nursing

Doctors and nurses work together to conduct a comprehensive assessment of the patient, including medical history, physical condition, psychological state, and surgical risk, as well as explain the surgical process, precautions, and postoperative rehabilitation to the patient and his family to reduce the patient's anxiety. Nurses also assist in completing required preoperative examinations, such as blood tests and electrocardiograms, as per the doctor's instructions. Furthermore, they guide the patient on essential preoperative preparations, including fasting and drinking guidelines, to ensure the patient is ready for surgery.

(3) Intraoperative nursing

During the operation, the nurse works closely with the surgeon and anesthetist, monitors the patient's vital signs in real time, and deals with abnormalities promptly. They also record the intraoperative situation in detail and hand it over to the ward nurses after the operation to ensure that the information is transmitted accurately and correctly.

(4) Postoperative care

Doctors and nurses check in together daily to assess the patient's recovery and make timely adjustments to the treatment plan and nursing measures. At the same time, according to the patient's pain score, the medical and nursing team work together to formulate an analgesic program to ensure patient comfort. The condition of the incision is closely monitored, and patients are encouraged to get out of bed early to prevent complications such as incision infection and urinary retention. A personalized rehabilitation plan was formulated with the patient's actual situation, including dietary guidance, activity suggestions, and follow-up arrangements, to promote the patient's rapid recovery.

(5) Discharge and follow-up

After discharge, the integrated health care team works together to provide patients with detailed discharge instructions, including medication, diet, activities and follow-up time, etc., and regularly follows up with patients by phone or outpatient clinic to learn about their recovery, answer questions promptly, and ensure the effectiveness of rehabilitation.

2.3. Observation indicators

(1) Surgery-related indexes: Observe and record the postoperative gastrointestinal recovery time and the time of getting out of bed activities of the two groups of patients; apply visual analogue scoring (VAS) to quantify the pain level of the two groups of patients. Scoring range 0–4 points, no pain: 0 points; mild pain: 1–2 points; moderate pain: 3–4 points; severe pain: 5 points.

(2) Sleep quality score: Pittsburgh Sleep Quality Index Scale (PSOI) was used for sleep quality assessment, the evaluation contained sleep efficiency, sleep disorders, time to fall asleep, daytime functioning, etc., and the scoring range of each dimension was 0–12 points, and the higher the score suggested that the patient's sleep quality was poorer.

(3) Assessment of complication rate: Observe and record the occurrence of urinary retention, local hematoma and incision infection complications during the treatment period of the two groups of patients, and the total incidence rate = the number of cases occurring/total number of cases × 100%.

(4) Nursing satisfaction: The hospital's own questionnaire was used to investigate the patients' satisfaction with nursing techniques, medical and nursing attitudes, timeliness in meeting patients' needs, and ward environment. Patients ticked satisfied, more satisfied, or dissatisfied according to their real feelings. Total satisfaction = (satisfied + more satisfied) number of cases / total number of cases × 100%.

2.4. Statistical analysis

SPSS24.0 software was applied for statistical processing. Measurement data such as postoperative pain level, gastrointestinal recovery time, time to get out of bed, sleep efficiency, sleep disorders, time to fall asleep, and daytime function were expressed as mean ± standard deviation ($\bar{x} \pm s$). Comparisons were made using the t-test. Count data, including related complications and nursing satisfaction, were expressed as rates [n(%)] and compared using x^2 test, where $P < 0.05$ was considered statistically significant.

3. Results

3.1. Comparison of surgery-related indicators between the two groups

The postoperative pain level scores of patients in the observation group were lower than those of the control group, and the gastrointestinal recovery time and time to get out of bed were shorter than those of the control group, with statistically significant differences ($P < 0.05$), as shown in **Table 1**.

Table 1. Comparison of surgery-related indicators between the two groups of patients ($\bar{x} \pm s$)

Groups	Postoperative pain level (points)	Gastrointestinal recovery time (h)	Time out of bed (d)
Control group (n = 39)	3.86 ± 1.02	29.53 ± 3.47	20.85 ± 3.08
Observation group (n = 39)	2.23 ± 0.52	23.12 ± 4.06	15.42 ± 4.19
t	8.891	7.495	6.521
P	< 0.001	< 0.001	< 0.001

3.2. Comparison of postoperative sleep quality PSQI scores between the two groups of patients

The postoperative sleep efficiency, sleep disorder, time to sleep, and daytime function scores of the patients in the observation group were significantly lower than those of the control group, and the differences were statistically significant ($P < 0.05$), as shown in **Table 2**.

Table 2. Comparison of PSQI scores for postoperative sleep quality between the two groups ($\bar{x} \pm s$, points)

Groups	Sleep efficiency	Sleep disorder	Bedtime	Daytime function
Control group (n = 39)	7.46 ± 1.29	8.63 ± 1.41	10.37 ± 1.38	8.49 ± 1.24
Observation group (n = 39)	5.12 ± 1.14	6.42 ± 1.29	7.56 ± 1.57	6.25 ± 1.19
t	8.489	7.221	8.395	8.140
P	< 0.001	< 0.001	< 0.001	< 0.001

3.3. Comparison of the incidence of relevant complications between the two groups of patients

The incidence of complications such as urinary retention, local hematoma and incision infection during the treatment period of patients in the observation group was significantly lower than that of the control group, and the difference was statistically significant ($P < 0.05$), as shown in **Table 3**.

Table 3. Comparison of the incidence of relevant complications between the two groups of patients, [n (%)]

Groups	Urine retention	Local hematoma	Cutaneous infection	Total incidence
Control group (n=39)	2 (5.13)	5 (12.82)	1 (2.56)	8 (20.51)
Observation group (n=39)	0	1 (2.56)	0	1 (2.56)
x^2				4.522
p				0.034

3.4. Comparison of patient care satisfaction between the two groups

The patient care satisfaction of the observation group was significantly higher than that of the control group, and the difference was statistically significant ($P < 0.05$), shown in **Table 4**.

Table 4. Comparison of patient care satisfaction between the two groups [n (%)]

Groups	Dissatisfied	More satisfied	Unsatisfactory	Total satisfaction
Control group (n = 39)	20 (51.28)	10 (25.64)	9 (23.08)	30 (76.92)
Observation group (n = 39)	27 (69.23)	11 (28.21)	1 (2.56)	38 (97.44)
x^2				7.341
p				0.007

4. Discussion

As inguinal hernia surgery involves structural repair of the abdominal wall, postoperative patients often face risks such as pain, gastrointestinal dysfunction, and incisional infection, which may prolong the recovery time and affect the quality of life [5]. In addition, the occurrence of complications such as decreased sleep quality and urinary retention in the postoperative period can further increase the difficulty of nursing care. Therefore, methods to optimize patients' postoperative recovery process through effective nursing interventions have become a key difficulty in inguinal hernia surgery nursing [6]. In the nursing practice of inguinal hernia surgery patients, the conventional clinical surgical nursing model is mainly carried out through preoperative examination, health education, intraoperative co-operation, and postoperative monitoring. However, its limitations are very significant. Firstly, the conventional nursing model lacks in-depth collaboration between doctors and nurses, resulting in a lack of close articulation between nursing measures and treatment protocols, which can affect the recovery effect of patients [7]. Secondly, the conventional nursing model has limited effects in postoperative pain management, gastrointestinal function recovery and sleep quality improvement, which cannot meet the all-round needs of patients and makes it difficult to effectively respond to the complex recovery process after surgery.

The integrated healthcare model is a new type of healthcare service model, the core of which lies in the close collaboration and information sharing between doctors and nurses, emphasizing the joint participation of a multidisciplinary team, and realizing the whole-process management from pre-operative assessment, intra-operative cooperation to post-operative recovery through the development of personalized care plans [8]. The core advantage of the healthcare integration model is that it can integrate medical resources, optimize the nursing process, improve the relevance and continuity of care, and improve the quality of care by identifying and solving problems in patients' postoperative recovery in a more timely manner through joint room visits between doctors and nurses, and the joint development of treatment plans and nursing measures [9, 10].

In this study, by comparing the clinical outcomes of the two groups of patients under different care models, it was found that the postoperative pain score of patients in the observation group (2.23 ± 0.52) was significantly lower than that of the control group (3.86 ± 1.02), indicating that the healthcare integration model was more effective in relieving postoperative pain. Additionally, the gastrointestinal recovery time (23.12 ± 4.06 hours) and the time to get out of bed were both shorter in the observation group compared to the control group (15.42 ± 4.19 days), suggesting that this model helped accelerate postoperative recovery. The sleep quality scores of patients in the observation group were also significantly better than those in the control group, indicating that the healthcare integration model improved postoperative sleep quality. Furthermore, the complication rate in the observation group (2.56%) was significantly lower than in the control group (20.51%), and patient satisfaction with nursing care (97.44%) was notably higher than in the control group (76.92%), further demonstrating the effectiveness of this model in reducing complications and improving patient satisfaction.

5. Conclusion

In summary, the healthcare integration model in the care of patients undergoing inguinal hernia surgery effectively relieves postoperative pain, accelerates gastrointestinal recovery, shortens the time to get out of bed, improves sleep quality, and significantly reduces the incidence of complications. Through close collaboration between doctors, nurses, and other care providers, this model enhances patient satisfaction with care. It also offers a scientific basis for optimizing care plans for patients undergoing inguinal hernia surgery. Therefore, it is recommended that this

model be further promoted and applied in clinical practice to improve the quality of surgical care.

Disclosure statement

The authors declare no conflict of interest.

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