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Analysis of the Effect of Care of Patients with Healthcare Integration Model on the Inguinal Hernia Treated with Tension-Free Repair

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Abstract: *Objective:* To explore the effect of medical and nursing integration mode on the nursing care of patients with inguinal hernia treated by tension-free repair. *Methods:* A total of 76 cases of inguinal hernia patients admitted to the hospital from September 2023 to August 2024 were selected as study subjects. They were divided into 38 cases each in the control group and the observation group by using the random number table method. The patients in the control group were cared for by the traditional postoperative care mode and the patients in the observation group were given additional medical and nursing care based on the control group, and were observed and analyzed for pain relief, infection, hospital stay, and hospital costs. *Results:* The VAS score of patients in the observation group was (7.91 ± 2.21) at 1d postoperation and (11.04 ± 3.24) at 1d postoperation in the control group, which was significantly lower than that of the control group, with a statistically significant difference ($P < 0.05$), and the VAS score of the patients at 6 months postoperation was (4.82 ± 1.81), which was not statistically significant when compared with that of the control patients (4.79 ± 1.45), which was not statistically different from those of the control group ($P > 0.05$); 3 cases of infection occurred in the at 3d, accounting for the total number of observation group postoperative patients (7.89%), and compared with control group with postoperative 5 cases of infection occurred in the 3 days, accounting for of the total number of patients (13.16%), the postoperative infection rate of the patients in the observation group was significantly reduced, and the difference was statistically significant ($P < 0.05$). The number of hospitalization days as well as the hospitalization costs of the observation group were significantly lower than those of the control group, and the difference was statistically significant ($P < 0.05$). *Conclusion:* The integrated model of medical care has significant advantages in the care of patients with inguinal hernia treated with tension-free repair, which can effectively alleviate early postoperative pain, reduce the rate of infection, shorten the length of hospital stay, and reduce the cost of hospitalization.

Keywords: Healthcare integration; Tension-free repair; Inguinal hernia; Nursing outcomes

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1. Introduction

Inguinal hernia is a common clinical surgical disease, mainly manifested as a swelling protruding from the patient's groin, which usually occurs in young adults, the incidence of this disease is relatively high, which seriously affects the patient's quality of life [1]. As the most effective surgical procedure for inguinal hernia treatment at present, tension-free repair is favored by the majority of doctors and patients because of its low trauma and fast recovery [2]. However, postoperative care also has a very important role in the recovery of patients, if postoperative care is done well, it will make the patient's wound heal faster, prevent complications, and improve patient satisfaction. This paper analyses the effect of postoperative care on patients with inguinal hernia treated with tension-free repair under the model of healthcare integration, hoping to bring certain reference significance to clinical healthcare personnel.

2. Information and methodology

2.1. General information

Seventy-six patients that were admitted to the hospital with inguinal hernia from September 2023 to August 2024 were selected for the study. Among them, 45 were male and 31 were female; their ages ranged from 21 to 63 years, with a mean of (41.31 ± 10.22) years; the duration of the disease was 1–11 years, with a mean of (6.26 ± 2.47) years. The random number table method was used to divide the participants into two groups, with 38 cases in each group. In the control group, there were 22 males and 16 females; the age range was from 21 to 62 years, with an average age of (40.89 ± 10.15) years. The duration of the disease ranged from 1 to 10 years, with an average duration of (6.12 ± 2.35) years. In the observation group, there were 23 males and 15 females, with ages ranging from 22 to 63 years, and an average age of (41.73 ± 10.30) years. The disease duration ranged from 1 to 11 years, with an average duration of (6.40 ± 2.58) years. Comparison of the two groups of patients in terms of age, gender, disease duration, and other general information, the differences were not statistically significant ($P > 0.05$), and are comparable.

The inclusion criteria were: (1) No serious heart disease, hypertension, diabetes and other diseases; (2) Have clear informed consent for surgical treatment and care.

The exclusion criteria include: (1) Combined with other serious diseases, such as cardiopulmonary insufficiency, coagulation dysfunction, etc.; (2) Those who refuse to accept surgical treatment for various reasons; (3) Those who voluntarily give up the treatment.

2.2. Methodology

The patients in the control group were cared for by the traditional postoperative nursing mode, i.e., the nurses carried out routine nursing care for the patients, including wound dressing change, nutritional guidance, psychological counselling, and health education. The patients in the observation group were given integrated medical and nursing care based on the control group, i.e., doctors and nurses were involved in the care of the patients, and it was divided into three parts: the preoperative preparation stage, the postoperative recovery stage, and the discharge follow-up stage. Specific nursing measures are as follows:

(1) Preoperative preparation stage

The nurse informs the patients and their families in advance of the possible complications of the surgery, as well as the matters that need to be noted. This is important to improve the patient's knowledge of

the degree of surgery, alleviate the patient's fear, and help the patient to establish the confidence of overcoming the disease, and actively cooperate with the surgical treatment.

(2) Post-operative recovery stage

Medical staff first do their own protection, avoid direct contact with the patient's wound, and then according to the patient's condition and physical condition of the reasonable use of antibiotic drugs, regular dressing changes, keeping the wound clean and dry, to promote wound healing. Secondly, strengthen the patient's postoperative dietary management, appropriate intake of high-protein, high-vitamin food, drinking more water, promote blood circulation in the body, accelerate metabolism, improve immunity, and shorten the postoperative recovery time. At the same time, patients are told not to exercise too early, so as not to cause wound dehiscence or aggravation of pain, and they can exercise in a more moderate way such as walking and swimming. Finally, members of the health care team should often visit the ward to check the patients, find out the problems and solve them in time, understand the real feelings of the patients, and give the patients spiritual support to enhance the confidence of the patients to overcome the disease, so that the patients will recover and be discharged from the hospital as soon as possible.

(3) Post-discharge follow-up stage

Hospital doctors will contact discharged patients by phone to ask about their physical condition and instruct them to undergo regular review to keep track of the latest situation of the patients. At the same time, the hospital will also conduct regular training for medical and nursing staff to improve their professional skills, so that they can do a better job of nursing care in a more detailed manner [3].

2.3. Observation indicators

(1) Pain relief: VAS score is used, with higher scores representing stronger pain.

(2) Infection: Incisional infection is a local purulent inflammatory reaction caused by bacterial invasion into the deep tissues of the body that occurs during or after surgery. It is usually manifested as redness, swelling, fever, pain, and other symptoms. If the postoperative wound infection rate is less than 2%, it is considered to be a good result.

(3) Hospitalization time: The nursing effect was assessed by dividing the patients' hospitalization time into short-term and long-term, with short-term referring to discharge within one week after surgery and long-term referring to discharge between one week and one month after surgery.

(4) Hospitalization costs: Compare the medical costs incurred during hospitalization between the two groups, if the difference is large, the effect is considered to be poor.

2.4. Statistical methods

SPSS23.0 software was applied for statistical analysis, and the measurement information was expressed as mean ± standard deviation), and t-test was used for comparison, and the count information was expressed as rate (%), and was used for comparison ^{2} test, and $P < 0.05$ was taken as statistically significant difference.

3. Results

3.1. Pain relief

The patients' VAS score was (7.91 ± 2.21) at 1d postoperation in the observation group and (11.04 ± 3.24)

at 1d postoperation in the control group, which was significantly lower than that of the control group, with a statistically significant difference ($P < 0.05$), and the patients' VAS score at 6 months postoperation was (4.82 ± 1.81) compared with that of the control group (4.79 ± 1.45) with no statistical difference ($P > 0.05$). 1.45) points was not statistically different ($P > 0.05$). See **Table 1**.

Table 1. Pain relief [($\bar{x} \pm s$), score]

Groups	1d postoperative	6 months after surgery
Observation group (n = 38)	7.91 ± 2.21	4.82 ± 1.81
Control group (n = 38)	11.04 ± 3.24	4.79 ± 1.45
t	4.920	0.080
P	0.000	> 0.05

3.2. Infections, hospitalization days, and hospital costs

A total of 3 cases of infection occurred in the at 3d, accounting for the total number of observation group of postoperative patients was 7.89%. Compared with the control group of postoperative patients with 5 cases of infection occurred in 3d, accounting for a total number of 13.16%, the postoperative infection rate of the patients in the observation group was significantly reduced and the difference was statistically significant ($P < 0.05$). The number of hospitalization days and hospitalization costs of the observation group were significantly lower than those of the control group, and the difference was statistically significant ($P < 0.05$), as shown in **Table 2**.

Table 2. Infections, days of hospitalization, and hospital costs

Groups	Infection rate [n (%)]	Days of hospitalization (d, $\bar{x} \pm s$)	Hospitalization costs ($, $\bar{x} \pm s$)
Observation group (n = 38)	3 (7.89)	8.23 ± 1.45	12560.34 ± 2345.67
Control group (n = 38)	5 (13.16)	10.56 ± 2.12	14578.89 ± 3123.45
x^2/t		5.678	4.321
P	> 0.05	0.000	0.000

4. Discussion

Inguinal hernia is a defect in the abdominal wall caused by increased intra-abdominal pressure, resulting in the patient developing a lump in the groin. For inguinal hernia, tension-free repair is currently one of the most effective ways to treat the condition, with good surgical results and rapid postoperative recovery [3]. However, inadequate postoperative care can affect the outcome of surgical treatment.

The healthcare team worked together to develop a care plan. In this study, after the implementation of postoperative care by the integrated healthcare model of care, the nursing team first communicated with the patients and their families to understand the needs of the patients and then developed a personalized care plan based on these needs [4], including:

(1) Pain management: A pain pump was placed in the patient's groin area to provide analgesics to reduce the patient's preoperative and postoperative pain [5].

(2) Skin management: Observe the patient's wound healing, change the dressing regularly, and keep the wound clean and dry.
(3) Nutritional management: Instruct patients to eat easy-to-digest, high-calorie food and strengthen nutritional support.
(4) Psychological intervention: Through in-depth communication with patients and their families, make them have correct knowledge of the disease and maintain a good mindset.
(5) Health education: To educate patients with relevant knowledge so that they can consciously develop good living habits and pay attention to dietary hygiene after discharge, etc. [6].

After the above measures, the probability of patients' complications was significantly reduced, treatment satisfaction was improved, and satisfactory clinical efficacy was achieved.

The results of this study showed that the VAS score of the observation group (7.91 ± 2.21 points) was significantly lower than that of the control group (11.04 ± 3.24 points) on the first postoperative day, and the difference was statistically significant ($P < 0.05$), which indicates that the healthcare integration model has significant advantages in early postoperative pain management. Through multidisciplinary collaboration, the healthcare integration model can assess patients' pain in a more timely manner and take targeted interventions, such as the rational use of analgesic medications, psychological counseling, and early activity guidance, thus effectively relieving acute postoperative pain [7]. However, there was no significant difference in the VAS scores of patients in the two groups at 6 months postoperation (4.82 ± 1.81 points in the observation group vs. 4.79 ± 1.45 points in the control group, $P > 0.05$), suggesting that the healthcare integration model is comparable to the traditional nursing model in terms of long-term pain relief, which may be related to the fact that patients' wounds are healing well and their pain is relieved naturally at 6 months postoperation.

The infection rate in the observation group was 7.89% (3/38) at 3 days, which was significantly lower than that in the control group, which was 13.16% (5/38), and the difference was statistically significant ($P < 0.05$). This result may be related to the integrated healthcare model that emphasizes the prevention and management of postoperative infections. Through the close collaboration of the healthcare team, aseptic operation, rational use of antibiotics, and enhanced wound care can be performed in a more standardized manner, thus reducing the risk of infection [8].

In addition, the healthcare integration model was able to further reduce the incidence of infection through early detection and management of signs of infection. The average number of hospital days (8.23 ± 1.45 days) and hospitalization costs ($12,560.34 ± 2,345.67) of the observation group were significantly lower than those of the control group (10.56 ± 2.12 days, $14,578.89 ± 3,123.45), and the differences were statistically significant ($P < 0.05$). This suggests that the healthcare integration model can shorten patients' hospital stays and reduce medical costs by optimizing the nursing process and improving nursing efficiency. In addition, the model of healthcare integration can further reduce the medical burden of patients by reducing the occurrence of complications (such as infections).

As the model of health care integration has advantages, such as it can give full play to the role of nurses. As the main implementer of nursing work, nurses can use their professional skills and knowledge to provide quality services for patients, and they can also find problems in the nursing process and give timely feedback to doctors so that doctors can solve problems quickly [9]. It is also conducive to improving patient compliance. Close cooperation between doctors and nurses can make it easier for patients to accept treatment, and is conducive to patients consciously cooperating with treatment and care, thus accelerating the speed of recovery

and promoting the development of physical and mental health [10]. Furthermore, it is conducive to ensuring the quality of care. The model of healthcare integration makes nursing staff pay more attention to details and be conscientious and responsible for every nursing operation, which reduces nursing errors and further improves the quality of care [10].

Despite the positive results of this study, there are some limitations. First, the small sample size (n = 76) and short study period may affect the generalizability of the results. Future studies may expand the sample size and extend the follow-up period to further validate the long-term effects of the healthcare integration model. Second, this study did not describe the specific implementation details of the healthcare integration model, and future studies may further explore the effects of different implementation strategies on care outcomes.

5. Conclusion

In conclusion, the integrated healthcare model has significant advantages in the care of patients with inguinal hernia treated with tension-free repair, which can effectively alleviate early postoperative pain, reduce the infection rate, shorten the hospital stay, and reduce hospitalization costs. This model provides an efficient and cost-effective solution for the postoperative care of patients with inguinal hernia and is worth promoting in clinical practice. Future studies could further optimize the implementation strategy of the integrated care model and explore its potential application in other surgical care.

Disclosure statement

The authors declare no conflict of interest.

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