

Application of Rapid Rehabilitation Surgical Concept in Liver Transplantation Care

Xiuqiao Yan*

General Surgery Department, Zhongshan City People's Hospital, Zhongshan, Guangdong, 528400, China

*Corresponding author: 1172022017@qq.com

Abstract: The purpose of this paper is to analyze the effect of the application of the concept of rapid rehabilitation surgical care in liver transplantation nursing. In this paper, 86 patients who underwent liver transplantation treatment in our hospital between August 2019 and August 2021 were selected for investigation and study. The random number table method divided these 86 patients into control and observation groups, with 43 patients in each group. The patients in the control group were provided with clinical care based on the concept of conventional care; the patients in the observation group were provided with clinical care based on the concept of rapid surgical care. The surgical treatment indexes of the two groups were recorded, including the time of recovery of bowel function (venting or defecation), the time of getting out of bed for independent activities after surgery, and the length of hospitalization; the Hamilton Anxiety Inventory HAMA, the Depression Inventory HAMD, and the Quality of Life Assessment Scale SF-36 were applied to assess the anxiety and depression state of mind and quality of life of the patients in the two groups after surgery; Observe the compliance performance of patients in the two groups during the perioperative treatment; Count the incidence of adverse events such as postoperative wound bleeding, poor healing, infection, catheter dislodgement or abnormal drainage, biliary tract disease and rejection reaction in the two groups. The results showed that the patients in the observation group had significantly shorter recovery time of intestinal function, time to get out of bed for voluntary activities and hospital stay after surgery than the control group; the scores of HAMA, HAMD and SF-36 were significantly lower in the observation group than in the control group; the excellent compliance rate of 83.72% in the observation group was significantly higher than that of 65.12% in the control group; the incidence of postoperative adverse events was significantly lower in the observation group than in the control group. The incidence of postoperative adverse events in the observation group was significantly lower than that in the control group, and the differences between the groups were statistically significant ($P < 0.05$). In short, implanting the clinical care of rapid rehabilitation surgical concept in liver transplantation can promote the optimization of surgical treatment indicators, improve patients' poor mentality, improve patients' quality of life, effectively reduce the occurrence of postoperative adverse events, and promote postoperative recovery.

Keywords: Rapid recovery surgical concept, Liver transplantation, Surgical indicators, Psychological status, Quality of life, Rejection reactions, Adverse events

1. Introduction

The liver is an important organ in the human body, whose main functions are to store glycogen and synthesize and secrete proteins. It also has an important impact on food digestion and nutrient absorption. However, the liver is susceptible to disease when the body is overworked, under emotional stress, experiencing irregular sleep patterns, or has an unhealthy diet. Patients with liver damage typically exhibit early non-specific symptoms such as aversion to oily foods, rough skin, bloating after meals, fatigue, and decreased clotting function, which are easily overlooked by the patient [1]. Later stages of the disease progress rapidly and can result in severe symptoms such as ascites, splenomegaly, and liver congestion, leading to severe liver dysfunction or loss and significantly reducing the patient's quality of life and threatening their safety. In recent years, thanks to scientific and technological advancements, the emergence of liver transplantation surgery as a treatment for end-stage liver disease has given patients new hope [2]. Through the accumulation of clinical experience and continuous improvement of surgical techniques, liver transplantation surgery has become a relatively mature technology in surgical operations in China. Many first-tier cities and hospitals with strong comprehensive capabilities have successfully treated end-stage liver disease patients through the

widespread use of liver transplantation surgery, achieving good treatment outcomes. However, liver transplantation is a large and complex clinical surgery that is highly traumatic and requires a long recovery time. Given the individual differences among patients, varying degrees of rejection reactions may occur after the surgery, even if the operation is successful, making the patient's recovery status uncertain. Studies have shown that providing scientifically reasonable and feasible nursing interventions during the liver transplantation process can help alleviate postoperative pain, promote patient comfort, strengthen treatment confidence, establish rehabilitation concepts, and facilitate more active cooperation with clinical treatment under the joint efforts of medical staff and patients. In recent years, as liver transplantation surgery has become increasingly mature, corresponding nursing interventions and concepts have also been developing and changing [3]. Patient demands for nursing care are also gradually increasing. In order to further optimize surgical treatment outcomes and reduce postoperative risks, our hospital actively explores rational nursing plans for liver transplantation surgery. Through practical research, we have found that nursing operations based on the concept of fast-track surgery have a good effect on liver transplantation patients. The specific situation will be analyzed and reported in detail in the following text [4].

2. Materials and Methods

2.1. Basic Information

A survey was conducted on 86 patients who underwent liver transplantation surgery at our hospital from August 2019 to August 2021. The patients were randomly divided into a control group and an observation group, with 43 patients in each group. The control group had 23 male patients and 20 female patients, with the youngest patient being 45 years old, the oldest being 66 years old, and the median age of the group being (51.69 ± 7.65) years. The diseases treated included 14 cases of cirrhosis, 12 cases of liver cancer, 10 cases of liver fibrosis, and 7 cases of cholangitis. The observation group had 25 male patients and 18 female patients, with the youngest patient being 43 years old, the oldest being 67 years old, and the median age of the group being (50.83 ± 7.49) years. The diseases treated included 15 cases of cirrhosis, 12 cases of liver cancer, 11 cases of liver fibrosis, and 5 cases of cholangitis. There was no significant difference in basic data between the two groups ($P > 0.05$), and a comparative study can be carried out [5].

2.2. Inclusion Criteria

Inclusion criteria: (1) all patients did not obtain good results in conservative medical treatment, so they decided to receive liver transplantation electively after systematic examination; (2) patients had good preoperative examination indexes, clear consciousness and normal limb movement; (3) patients' clinical data were complete and true; (4) patients and family members gave informed consent to the surgical treatment and related nursing interventions and voluntarily joined the study. good compliance throughout the study;

Exclusion criteria: (1) Severe liver dysfunction; (2) Coexisting major abnormal functions of other bodily organs; (3) Severely disabled patients; (4) Patients with coexisting diseases of the circulatory system and abnormal coagulation function; (5) Patients with intellectual disabilities, cognitive impairment, poor mental status, and inability to communicate normally.

2.3. Methods

The control group will receive routine nursing interventions based on the concept of standardized nursing. This includes routine preoperative examination to ensure that all physiological indicators meet the surgical requirements; good preoperative preparation including environmental preparation, preparation of surgical instruments and instruments and preparation of various emergency drugs; in addition, relevant personnel should do a good job of informing and communicating with family members and assisting in guiding them to perform preoperative related procedures; intraoperative close cooperation with the physician and rapid intraoperative response to provide the physician with the required medical devices; and close attention to intraoperative changes in the patient's indicators to alert the physician to high-risk events; During the operation, they should work closely with the doctors, respond quickly and provide the doctors with the required medical equipment in a timely manner; pay close attention to the changes in the indicators of the patients during the operation and be alert to the occurrence of high-risk events during the operation [6].

To provide perioperative nursing interventions to patients in the observation group with the concept of rapid rehabilitation surgical nursing. Specific contents include: (1) Psychological care. Prior to surgery, establish good communication with patients, introduce the hospital and ward environment, and relieve or eliminate patients' tension, unfamiliarity, and fear of the hospital environment. Clarify the important impact of surgical treatment on liver function maintenance and subsequent quality of life, and increase patients' attention to surgery. Explain to the patients the relevant situations that may occur during the preparation, operation, and postoperative period of surgical treatment, emphasizing the role of patients' compliance with medical advice in the success and good effect of surgery, and obtain maximum patient understanding to encourage patients to actively cooperate with clinical work [7,8]. (2) Liver transplantation surgery takes a long time, to ensure the continuity of the surgical process, patients should be instructed to cooperate with medical staff to do the corresponding preparation work before surgery. Instruct the patient to fast for 6 hours and withhold water for 2 hours before surgery, and administer glucose, amino acids, and other drugs to provide energy for the patient. Mark the surgical approach determined by medical imaging examination results on the surface of the body for easy identification by doctors. (3) After the operation begins, instruct the patient to adopt the correct position, and closely monitor their vital signs according to the patient's actual condition. In addition, liver transplantation surgery involves a large wound and a long operation time [9]. Prolonged exposure of the abdominal cavity can easily cause the patient to become hypothermic. Therefore, necessary warming care should be provided. For example, the infusion of drugs is treated with preheating, warm saline is used to flush the surgical area, and the patient's exposed parts are covered as much as possible without affecting the operation, while maintaining the temperature of the operating room to minimize discomfort for the patient during the operation. (4) After the operation, the operating room nurse and the ward nurse will exchange information about the patient's disease, condition, anesthesia, and surgical situation so that the ward nurse can fully grasp the patient's situation and carry out corresponding nursing work. Close attention should be given to the patient's vital signs after the operation, and they should be regularly recorded. Assist the patient in changing the position of their limbs within the operable range to avoid pressure injuries. Carefully observe and record any changes in the skin color of the compressed parts to prevent the occurrence of compression injuries [10]. (5) Pay attention to the patient's complaints of pain. Accurately assess the degree of pain using methods such as the numeric rating scale and the visual analog scale, and give the patient pain relief through the use of an analgesic pump or intravenous analgesics. Local massage and encouraging family members to communicate more with the patient are also effective ways to distract their attention and relieve physical pain. (6) Standard management of various catheters and drainage tubes should be carried out after the operation to ensure that they are unobstructed. Patients should be instructed not to compress or bend the catheters, and observe any changes in the color of the drainage fluid. (7) Early postoperative mobilization should be encouraged according to the patient's physical condition. In the early postoperative period, medical staff should assist patients with limb function exercises while in bed [11]. Gradually increase the intensity of exercise after each session. After various catheters and drainage tubes have been removed, encourage patients to stand up beside the bed. When their physical strength gradually recovers, instruct family members to assist patients with slow walking around the bedside, using step count and distance as quantifiable indicators to promote continuous recovery of their physical function. (8) After the patient's intestinal function has recovered (intestinal gas discharge), the family should prepare light, soft, easily digestible liquid diets based on the patient's taste preferences to provide sufficient nutritional support for body recovery [12].

2.4. Observed Indicators

Record surgical treatment indicators such as the surgical time, postoperative intestinal function recovery time (flatulence, defecation), and time to self-activity after getting out of bed, hospitalization time, etc., for two groups of patients. After the operation, use the Hamilton Anxiety Self-Assessment Scale (HAMA) and the Hamilton Depression Self-Assessment Scale (HAMD) to evaluate the psychological status of the two groups of patients. The HAMA scale has 14 evaluation items, and all items use a 0-4 point 5-level scoring method. According to the total score, the patient's level of psychological anxiety is evaluated, with <7 points indicating no anxiety, 7-14 points indicating possible anxiety, 14-21 points indicating definite anxiety, 21-29 points indicating obvious anxiety, and above 29 points indicating severe anxiety. The HAMD scale has 24 evaluation items, 11 of which use a 0-2 point rating system, and the other 13 use a 0-4 point 5-level scoring method. The total score is used to determine the degree of psychological depression. A total score of <8 points indicates no psychological depression; 8-20 points indicate possible depression; 21-35 indicate definite depression; and above 35 points indicate severe depression. The HAMA and HAMD scores of the two groups of patients under

different nursing management concepts should be compared. The Quality of Life Assessment Scale (SF-36) is used to evaluate the quality of life of two groups of patients [13]. The scale covers eight dimensions, including physical function (PF), physical role (RP), bodily pain (BP), general health (CH), vitality (VT), social function (SF), emotional role (RE), and mental health (MH). The total score is 100 points, and a higher score indicates a better quality of life. The degree of coordination between the two groups of patients and medical staff during the perioperative period is observed. Based on the specific behavioral performance of the patients, the compliance behavior is divided into four levels: excellent, good, fair, and poor. The excellent and good compliance rate of the two groups of patients is calculated. The number of cases of adverse events after surgery, such as incisional bleeding, infection, poor healing, catheter detachment, biliary diseases, and rejection reactions, is recorded and compared between the two groups. The incidence of postoperative adverse events is calculated and compared.

2.5. Statistical Analysis

All index data in this study were imported into SPSS 19.0 statistical software for statistical analysis, in which surgical treatment indexes, psychological status score indexes, and quality of life indexes were continuous measurement data, described in the form of mean \pm standard deviation ($\bar{x} \pm s$), and t-test; patients' compliance performance ratings and postoperative rejection and postoperative complication rates were subtypes. The data were described in the form of cases and percentages (n/%), and the χ^2 test was performed, and $P < 0.05$ was considered a statistically significant difference.

3. Results

3.1. Surgical Treatment Indexes

From the data in Table 1, the recovery time of intestinal function (exhaustion or defecation), the time of being able to get out of bed after surgery and the hospitalization time were shorter in the observation group than in the control group, and the surgical treatment indexes of the two groups were significantly better in the observation group than in the control group, and the differences were statistically significant ($P < 0.05$).

Table 1: Comparison of surgical treatment indexes between the observation and control groups ($\bar{x} \pm s$)

Group	Time to recovery of intestinal function(h)	Time to get out of bed for voluntary activities(d)	Hospitalization time(d)
Control group(n=43)	64.55 \pm 4.37	8.62 \pm 1.63	29.45 \pm 5.31
Observation group(n=43)	53.79 \pm 8.32	5.35 \pm 2.15	22.61 \pm 6.42
t	6.813	7.134	4.612
P	<0.05	<0.05	<0.05

3.2. Psychological Status and Quality of Life

From the data in Table 2, it can be seen that the results of HAMA and HAMD scale scores of patients in the observation group were lower than those of patients in the control group, and the results of SF-36 scale scores were significantly higher than those of patients in the control group, and there were significant differences between groups in each score data, and the statistical significance was highlighted ($P < 0.05$), suggesting that the postoperative psychological status and quality of life of patients in the observation group were better than those of patients in the control group [14].

Table 2: Results of HAMA, HAMD, and SF-36 scale scores in the two groups ($\bar{x} \pm s$).

Group	HAMA	HAMD	SF-36
Control group(n=43)	14.86 \pm 2.85	13.58 \pm 2.39	73.54 \pm 4.09
Observation group(n=43)	10.52 \pm 2.43	9.76 \pm 3.12	84.16 \pm 3.87
t	6.517	7.042	5.119
P	<0.05	<0.05	<0.05

3.3. Compliance Behavior

From the data in Table 3, the observation group had better compliance behavior than the control group, and the good compliance rate was significantly higher in the observation group than in the control group (83.72%>65.12%), with statistically significant differences between the groups ($P<0.05$)

Table 3: Comparison of excellent compliance behavior between two groups of patients

Group	Excellent	Good	Fair	Poor	Excellent rate
Control group(n=43)	14	14	10	5	28(65.12)
Observation group(n=43)	17	19	5	2	36(83.72)
X ²					7.326
P					<0.05

3.4. Incidence of Postoperative Adverse Events

From the data in Table 4, the incidence of adverse events such as incisional bleeding, poor healing, infection, catheter dislodgement or abnormal drainage, biliary tract disease, and rejection reaction were lower in the observation group than in the control group, and the difference in data between the groups was statistically significant ($P<0.05$).

Table 4: Comparison of the incidence of postoperative adverse events between the two groups of patients.

Group	Incisional bleeding, poor healing	Infection	Dislodged catheter or abnormal drainage	Biliary tract disease	Rejection reaction
Control group(n=43)	3(6.98)	4(9.30)	2(4.65)	1(2.33)	3(6.98)
Observation group(n=43)	1(2.33)	1(2.33)	0(0.00)	0(0.00)	1(2.33)
X ²	5.672	7.365	6.265	3.429	5.672
P	<0.05	<0.05	<0.05	<0.05	<0.05

4. Conclusions

In recent years, the number of patients with liver diseases has been increasing due to serious environmental pollution and changes in dietary habits. This type of disease has no typical symptoms in its early stages and is easily overlooked by patients. However, as the disease progresses, its later stage develops rapidly, which can lead to severe decline in liver function and threaten the patient's life. Patients with end-stage liver disease obtain a second life through liver transplantation surgery. Currently, liver transplantation surgery is used to treat end-stage liver diseases, including cirrhosis, liver fibrosis, liver failure, polycystic liver disease, and Caroli's disease. These types of diseases cannot achieve good clinical efficacy through conservative medical treatment and can only be treated by liver transplantation surgery to prolong the patient's life. Currently, liver transplantation surgery has been widely carried out and has achieved good clinical benefits in first-tier cities and hospitals with strong comprehensive capabilities [15]. However, liver transplantation surgery is complex, difficult, time-consuming, and risky, and it brings significant trauma to patients and may cause stress reactions, leading to serious complications that affect the prognosis. Therefore, before and after the perioperative period, comprehensive nursing interventions should be given to patients based on their physiological conditions, which are correct, optimized, and reasonable, so that patients can receive the highest feasible nursing interventions before, during, and after surgery, which can reduce the incidence of postoperative complications and achieve better rehabilitation outcomes.

The concept of fast-track surgery nursing is an evidence-based nursing model that emphasizes the targeting and basis of nursing interventions, following a tangible or intangible nursing plan to gradually implement nursing interventions, thereby ensuring the feasibility and effectiveness of nursing operations. The aim is to use the most optimal and scientific nursing methods to promote patients to achieve a psychologically willing and physiologically comfortable nursing effect. It can combine the work experience of medical staff with the actual situation of patients to formulate a set of nursing measures that can improve surgical gain and promote patient recovery. In the current study, the observation group of patients who were provided with clinical nursing interventions based on the

concept of fast-track surgery nursing achieved desirable results.

The study has shown that compared with the control group of patients under the conventional nursing management mode, the observation group of patients had better surgical indicators, including significantly shorter postoperative intestinal recovery time, time to mobilize from bed, and length of hospital stay, indicating that the application of the concept of fast-track surgery nursing can promote patients' postoperative recovery. In addition, judging from the scores of scales such as HAMA, HAMD, and SF-36 for the two groups of patients after surgery, the psychological status of the observation group of patients was significantly better, and their quality of life was also significantly higher than that of the control group, suggesting that the application of the concept of fast-track surgery nursing in nursing liver transplantation surgery patients can effectively alleviate patients' anxiety and depression, improve their quality of life, and promote patient compliance with medical advice, which is conducive to forming an effective force with hospitals for treatment and nursing, narrowing the distance between each other, and thus positively affecting the reduction of postoperative complications.

In summary, implanting the concept of fast-track surgery nursing in clinical nursing for liver transplantation surgery can promote the optimization of surgical treatment indicators, improve patients' negative emotions, enhance quality of life, effectively reduce the incidence of postoperative complications, and promote postoperative recovery. It plays an important clinical value in nursing for liver transplantation surgery, and is worth promoting and learning from.

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