

Study on the Effect of Nursing Initiatives and Rehabilitation Guidance in the Clinical Care of Patients with Triple Ankle Fractures

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Abstract: *The study explores the application effect of nursing initiatives and rehabilitation guidance on the clinical care of patients with triple ankle fractures, and to lay the foundation for the development of triple ankle fracture care. 80 patients with triple ankle fracture received and treated in Huaian Second People's Hospital of Jiangsu Province from January 2023 to December 2024 were selected as the study object, divided into the control group (routine nursing interventions) and the experimental group (psychological care, functional training, and rehabilitation guidance), and the nursing effectiveness produced by different nursing programs were compared against each other. All 80 patients were followed up for (12.80 ± 4.11) months (5~18 months) The score of AOFAS was (68.00 ± 4.06) in the control group and (82.50 ± 3.17) in the experimental group; after the implementation of different nursing programs, the experimental group was significantly better than the control group in terms of active leg lifting and ankle range of motion ($P < 0.01$). At the same time, the experimental group was also significantly better than the control group in improving the physical and mental health and quality of life of patients ($P < 0.05$). The application of nursing care and rehabilitation guidance in the clinical care process of patients with triple ankle fracture can significantly improve the physical ability of patients and enhance their quality of life, which is worthy of wide dissemination.*

Keywords: Triple ankle fracture; rehabilitation guidance; nursing care.

INTRODUCTION

Triple ankle fracture is a high-energy injurious triple ankle fracture in which the patient's soft tissues will have different degrees of damage. Whether patients can actively carry out rehabilitation training in the postoperative rehabilitation process is closely related to whether patients can actively participate in rehabilitation training. However, due to the obvious postoperative pain of triple ankle fracture, the effect of postoperative rehabilitation exercise is limited^[1], patients should be given appropriate nursing countermeasures and rehabilitation guidance after discharge from the hospital, so as to improve the patients' adherence to active exercise and rehabilitation after discharge and to accelerate the rehabilitation process. Therefore, the purpose of this study is to apply nursing measures and rehabilitation guidance to the clinical care process of postoperative patients with triple ankle fracture, laying the foundation for orthopedic nursing.

DATA AND METHODS

Clinical data from January 2023 to December 2024, 80 cases of triple ankle fracture cases received and treated in Huaian Second People's Hospital of Jiangsu Province were selected as study subjects. Among them, 40 cases were male and 40 cases were female; their ages ranged from 16 to 40 years old, with an average of (36.12 ± 3.76) years old. The 80 patients were randomly divided into the control group (routine care) and the experimental group (triple ankle fracture care), with 40 cases in each group. Comparing the general conditions of the patients in the two groups, the differences were not statistically significant ($P > 0.05$) and were comparable.

Methods: Patients with tibial triple ankle fracture should lower the affected limb before surgery; pay attention to the tightness of the dressing to prevent compression; the nursing records should be timely and accurate for clinical reference. The control group was given routine nursing interventions: according to the characteristics of the disease of triple ankle fracture to formulate routine nursing programs, such as vital signs monitoring, ward care and so on.

The experimental group was given nursing measures and rehabilitation guidance:

Psychological care: patients need to be informed in detail of the importance and necessity of rehabilitation care, closely monitor and assess the psychological state of patients, and eliminate their negative emotions in a timely manner.

Functional training: patients are advised to perform assisted exercises, such as quadriceps exercises. Assist patients in ankle flexion, toe and nerve function exercises. In addition, while using drugs to prevent venous thrombosis, assist the patient to carry out passive movement of the lower limbs. Two weeks after surgery, patients were advised to start walking with crutches. Hot moxibustion treatment:

appropriate hot moxibustion treatment should be performed before functional training. Using the bird's beak method and meridian warm moxibustion, hot moxibustion was applied to the inner and outer eyes of the knee joint and the foot-sanli points for 10~15 min each time.

Guidance for rehabilitation: first, collect all the patients' relevant information, input it into the computer, and establish the response information to lay the foundation for the subsequent nursing operation. At the same time, patients were asked about the problems that appeared in the subsequent nursing process and recorded to formulate an effective response program. Regularly check the patient's ankle joint and other conditions to understand the progress of the patient's condition. It is recommended that patients perform ankle flexion and extension exercises at the same time. Secondly, communicate with the patient's family about the improvement of the patient's limb function, so that the patient can feel the companionship and support of his family, and actively cooperate with the relevant rehabilitation countermeasures. Finally, popularize the knowledge of triple ankle fracture surgery to the patients and their families, which helps to improve the patients' and their families' understanding of the progress of their own diseases, and pay attention to the postoperative daily precautions, observe whether the fixation is slipped or broken, enhance the patients' self-confidence, and prevent the triple ankle fracture site from being damaged again [2].

Observation indicators Comparison of patients' postoperative AOFAS scores, rehabilitation (active leg lifting, active mobility of the ankle joint, etc.) and improvement of quality of life (physical and mental health, etc.).

Statistical methods SPSS 17.0 software was used for statistical analysis. Measurement data were expressed as ($\bar{x}\pm s$), and the t-test was used for comparison between groups; count data were expressed as frequency, and the χ^2 test was used for comparison between groups. $P < 0.05$ is regarded as statistically significant difference.

RESULTS

2.1 AOFAS scores of patients in the two groups. At the time of discharge, the AOFAS score of the control group was (68.00 ± 4.06), which was significantly lower than that of the experimental group (82.50 ± 3.17), and the difference was statistically significant ($P < 0.05$).

2.2 Comparison of the rehabilitation effect of limb function between the two groups. The rehabilitation effect of limb function such as active leg lifting and active mobility of ankle joint of the test group was better than that of the control group, and the difference was statistically significant ($P < 0.05$). See Table 1.

Table 1 Comparison of the limb function rehabilitation effects of the two groups (x±s)

| Group | Number of cases | Limb swelling duration (h) | Active knee flexion up to 90° time (h) | Active leg raising time (h) | Active ankle mobility (°) | Fugl-Meyer motor function score |
|---------------|-----------------|----------------------------|--|-----------------------------|---------------------------|---------------------------------|
| Test group | 40 | 12.86±2.12 | 2.85±0.78 | 15.82±3.08 | 108.25±12.55 | 81.98±4.58 |
| Control group | 40 | 28.25±2.05 | 4.89±1.10 | 30.22±5.89 | 97.25±10.52 | 70.42±4.56 |
| t | | -0.189 | -0.187 | -0.178 | -0.185 | -0.198 |
| P | | 0.042 | 0.038 | 0.031 | 0.047 | 0.039 |

Comparison of the quality-of-life improvement of patients in the two groups. The quality of life improvement of patients in the experimental group is significantly better than that of the control group in terms of living status, psychological status, physical function, learning performance and other quality of life improvements, and the difference is significant ($P < 0.05$). See Table 2.

Table 2 Comparison of the improvement of quality of life of patients in the two groups (x±s, points)

| Observations | Test group (n=40) group (n=40) | | Control | | t | P |
|----------------------|-----------------------------------|------------|----------|------------|------|-------|
| | Before care | After care | Before | After care | | |
| Living condition | 61.5±1.3 | 84.5±1.6 | 62.0±1.4 | 72.2±1.3 | 2.01 | 0.049 |
| Behavioral status | 52.3±1.8 | 74.5±1.7 | 51.7±1.6 | 58.2±1.5 | 2.48 | 0.042 |
| Mental status | 62.3±1.3 | 82.7±1.2 | 62.5±1.6 | 72.1±1.8 | 2.11 | 0.039 |
| Physical functioning | 63.2±1.1 | 83.1±0.8 | 62.9±1.2 | 71.2±1.1 | 2.08 | 0.048 |
| Social functioning | 59.8±1.4 | 83.5±0.9 | 60.2±1.1 | 73.2±0.5 | 2.15 | 0.039 |
| Academic performance | 45.7±1.5 | 83.2±1.9 | 46.2±1.2 | 63.5±1.8 | 2.38 | 0.038 |

DISCUSSION

The occurrence of triple ankle fractures is closely related to external compression and impingement. The patients had bone defects and articular surface collapse. In the treatment, it is difficult to reset the articular surface and maintain stability. In addition, because this triple ankle fracture produces large damage, coupled with poor blood circulation in the lower limbs, it is easy to lead to triple ankle fracture, which eventually evolves into ischemic necrosis. Therefore, in the course of treatment, appropriate

nursing measures and rehabilitation guidance should be taken to improve the patient's adherence to the treatment, eliminate the adverse emotions, so that they can better cooperate with the treatment and accelerate the rehabilitation process of triple ankle fracture [3].

The results of this study show that the rehabilitation effects of active leg lifting and active mobility of the ankle joint in the experimental group are significantly better than those in the control group ($P < 0.05$); the physical and mental health and quality of life of the experimental group are significantly better than those of the control group ($P < 0.05$). The above results verified the effectiveness and superiority of nursing measures and rehabilitation guidance. The above results may be related to the following factors: First, rehabilitation guidance is conducive to promoting venous return, avoiding venous thrombosis and limb swelling, and accelerating the process of ankle rehabilitation; second, thermal moxibustion has the characteristics of thermal expansion and heat transfer through acupoint hanging moxibustion, so that the heat reaches the diseased area, improves the local circulation, reduces the organic adhesion of the local tissues, and enhances the effect of the functional exercise; third, psychological care can eliminate the negative emotions of patients, which is conducive to strengthening nurse-patient cooperation [4].

Precautions to be taken in the nursing care of triple ankle fracture

(1) Closely observe the pain of the limb. Pain is the first symptom of triple ankle fracture, and all patients with tibial triple ankle fracture will experience severe pain that does not match the degree of triple ankle fracture within 72 h, while gradually getting worse. The nature of the pain is persistent with widespread and deep swelling pain [5]. It progressively manifests as a stabbing or progressive burning pain, as well as a sharp pain similar to running. The pain is not confined to a certain area, but there is a gradual numbness or even disappearance of pain with the pain. Nurses should pay attention to and record the time and degree of pain, as well as understand the nature and cause of the pain. It should be noted that the patient's condition should be analyzed comprehensively to infer whether the disappearance of pain means the condition has improved.

(2) Closely observe the swelling of the limb. Swelling and trauma are related to the location of blood vessel dispersion. When mild swelling occurs in the affected area of the patient, the patient's skin lines will disappear, swelling and pain is not obvious, and the patient's pain is not obvious when the doctor carries out the pressure and pain palpation, which is not enough to affect the functional movement of the limbs; when moderate swelling occurs in the affected area of the patient, the patient's skin lines will disappear and accompanied by the affected area of the skin is red, the localized swelling causes obvious pain, and it affects the functional movement of the limbs and other manifestations; when severe swelling occurs, severe cases can appear In case of severe swelling, severe limb stiffness may occur.

(3) Closely observe the blood circulation of the limb. In the early stage of triple ankle fracture, the skin

of the damaged part of the limb is slightly red and the skin temperature is slightly higher than that of the healthy side. When the internal pressure continues to rise, resulting in disruption of blood circulation, the skin temperature of the damaged limb will be lower than that of the healthy side, resulting in cold ^[6]. Complications of tibial trochanteric fracture are gradual and the level of swelling varies from mild to moderate, followed by tension blisters, and ultimately skin pallor and loss of arterial pulsation, accompanied by dullness of sensation and numbness, and gradual ischemic necrosis of the extremity ^[7].

In pulse observation, the skeletal muscles are weakened, some tissues are swollen, and the distance between the arteries and the skin is thus increased, resulting in a relatively weakened pulse. If the pulse is absent, the vessel may have been damaged or the triple ankle fracture may be so advanced that the artery is blocked. Although distal arterial pulsations are still present, they are no longer necessarily a safe indicator. Other clinical phenomena still need to be observed and analyzed ^[8]. If the temperature at the tip of the limb drops and is accompanied by purple and numbness, and spasms gradually worsen, the doctor should be informed immediately, and measures should be taken immediately. The nursing staff should also lift the patient's limb immediately. However, in simple closed soft tissue injuries, the patient's damaged limb should not be elevated because it will lower the arterial pressure, accelerate the closing of small arteries, and exacerbate tissue ischemia. At this time, every effort should be made to reduce the temperature of the damaged part of the patient's limb, and cold compresses should be given to the damaged part of the patient's limb if necessary ^[9].

(4) Observation of vital signs and urine. In the early stage of triple ankle fracture, the patient's blood flow has not been completely blocked, and there will be a large amount of plasma and fluid oozing out of the capillaries. At this time, patients are even prone to shock. In addition to the massive absorption of necrotic contamination caused by open trauma, the patient's body temperature will rise, which should not be ignored. After trauma, a large number of muscle tissue necrosis will release a large number of myoglobin and potassium ions, at this time the patient is prone to metabolic acidosis. Changes in urine color and volume should be paid close attention to in order to prevent renal function damage and to detect and treat it as early as possible.

Other suggestions

(1) Perform professional nursing care. In the process of clinical care of postoperative patients with triple ankle fracture, the application of nursing measures and rehabilitation guidance can significantly enhance the limb function, which is conducive to the improvement of the quality of survival and should be widely promoted. First, professional nursing care is very effective. According to the results of this study, after professional nursing, the following will be improved: limb pain disappears after 1 week; limb swelling disappears after 2 weeks; limb blood circulation is normal after 1 week; vital signs and urine return to normal after 1 week. Second, nursing work focuses on the link. The nursing care mainly includes psychological care, drug care and preoperative, intraoperative and postoperative care, which

are the main links of nursing work. The results of this study showed that compared with non-professional nursing patients, the recovery speed of patients after professional nursing was significantly accelerated^[10].

(2) Nursing guidance should be continued after discharge from the hospital. Nursing care mainly starts from the hospital, but patients need to be accompanied by professional nurses for nursing care on the first day after discharge from the hospital. In this case, the family care means will be improved, but this situation if does not meet the standards of the patient's convalescence at home then need to recommend that the patient in the hospital to continue nursing treatment and observation.

CONCLUSION

Patients are provided with comprehensive daily care such as changing medication and dressings. During the hospitalization of the patient, the doctor's symptomatic treatment requires the nurse to strictly follow the doctor's instructions to calculate the patient's medication dosage, by knowing the degree of contraindications to the patient's medication, to predict whether the patient's medication will produce side effects and the patient's degree of allergy^[11]. For minor side effects, the patient should be explained to the patient, the patient should be reassured, if necessary, according to the doctor's recommendations to alleviate the patient's drug symptoms, such as the patient's serious drug reactions, should be promptly notified to the superior nurse and the doctor. It is important to note that if the doctor does not deliver the prescription in time, the registered nurse has the right to prescribe a limited amount of medication according to the patient's needs. Nurses are not only required to test the patient's vital signs and dispense medications, but they are also required to pay close attention to the patient's mood changes^[12]. In addition, daily nursing care includes combing and shaving, helping with toileting, making beds, and helping with meals if necessary. All abnormal situations that occur in patients, including changes in the patient's condition with discomfort and pain produced by the body, and even the patient's emotional changes, nurses need to be concerned in real time and find solutions by communicating with the patient and reporting to the medical team leader^[13]. Before the patient is discharged from the hospital, the corresponding task force will also give a comprehensive discharge program, while the nurse should also explain to the patient and family members in detail, but also to ensure that the patient can fully understand. After discharge, community nurses need to regularly check whether patients are taking their medication correctly and change dressings regularly. Physiotherapists will also make regular visits to guide rehabilitation exercises. Dietitians will provide guidance to patients on healthy diet^[14]. When the patient has fully recovered, the patient is advised to see the family doctor regularly.

In conclusion, intramedullary nail fixation technique can treat all types of comminuted tibial triple ankle fractures with little effect on tibial blood supply and can ensure the stability of internal fixation of triple ankle fractures. It has the advantages of light soft tissue damage and short operation time.

Functional recovery of the triple ankle fracture site is faster after early exercise.

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