

# Analysis of Preventive Effect of Comprehensive Rehabilitation Nursing on Lower Extremity Deep Vein Thrombosis after Spinal Fracture Operation

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**Abstract:** Objective: To analyze the application value of comprehensive rehabilitation nursing in the prevention of lower extremity deep vein thrombosis after spinal fracture. Methods: Before the implementation of various work, a total of 80 patients with spinal fracture disease requiring surgical treatment were selected from January 2020 to January 2022 and randomly divided into groups. 40 patients in the control group were treated with conventional nursing mode, and 40 patients in the observation group were treated with comprehensive rehabilitation nursing. Before and after the implementation of various nursing measures, the two groups presented the evaluation value of nursing satisfaction, the evaluation value of the incidence of lower limb deep vein thrombosis, the clinical indicators and the evaluation value of coagulation function indicators, carried out careful observation and comparison. Results: The 2.50% result of the observation group was lower than the 17.50% result of the control group,  $P < 0.05$ . The satisfaction of the observation group (97.50%) was higher than that of the control group (82.50%) ( $P < 0.05$ ). Compared with the control group, the evaluation values of lower limb swelling degree, activity time out of bed and length of hospital stay in the observation group were lower,  $P < 0.05$ . The evaluation results of PT, APTT, TT and FIB in the observation group were significantly different from those in the control group ( $P < 0.05$ ). Conclusion: Through comprehensive rehabilitation nursing after spinal fracture, the degree of lower limb swelling of patients is reduced, the prevention effect of deep vein thrombosis is good, the coagulation function is improved, the recovery time is shortened, with high satisfaction, which has reference and application and promotion value in clinical practice.

**Keywords:** Comprehensive Rehabilitation Nursing; Spinal Fracture; Deep Venous Thrombosis of Lower Extremities; Nursing Satisfaction; Blood Coagulation Function

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## Introduction

In recent years, the incidence of spinal fracture is increasing and the harm is great. Indirect external force is the main pathogenic factor, and the typical clinical symptoms of patients after the onset are spinal pain, swelling and dyskinesia, which reduces the quality of life<sup>[1]</sup>. Bed rest after surgical treatment leads to slow venous blood return of lower limbs and high risk of deep vein thrombosis. If not timely intervention will cause organ and tissue dysfunction, which will lead to serious consequences<sup>[2]</sup>. In view of this situation, a series of active and effective comprehensive rehabilitation nursing methods can significantly reduce the risk of complications and improve the overall rehabilitation nursing effect. In this paper, from January 2020 to January 2022, a total of 80 patients with spinal fracture requiring surgical treatment were selected to observe the application value of comprehensive rehabilitation nursing. The following contents are available.

## 1. Data and methods

### 1.1 General Information

A total of 80 patients with spinal fracture were selected, all of whom were admitted during the study period from January 2020 to January 2022. Among the 40 cases in the observation group, 22 cases were male and 18 cases were female. The age range was 35-75 years old according to statistics, and the average value was  $(55.46 \pm 4.21)$  years old. Among the 40

cases enrolled in the control group, 23 cases were male and 17 cases were female. The statistical age range was 36-74 years old, and the average value was (55.52±4.19) years old. There was no difference in natural information between groups ( $P>0.05$ ).

## 1.2 methods

In the control group, routine nursing was carried out according to the relevant standards of spinal fracture, including basic nursing such as disease observation and assisted examination. Guide the intake of easy to digest light food, inform the operation process and prognosis effect, and prepare for the operation.

Observation group comprehensive rehabilitation nursing, (1) postoperative posture nursing: take supine position, raise both lower limbs appropriately, promote lower limb venous reflux. Nursing staff massage the patient's lower limbs properly, assist the patient to turn over, when necessary, put on stretch socks for the patient to prevent thrombosis. (2) Postoperative rehabilitation nursing: carry out early functional exercise, nursing staff combined with intravenous pump treatment, after recovery to a certain extent, carry out lower limb training, the time is controlled at 15min each time, 3 times a day. At the same time, leg elevation training was carried out appropriately, and lower limb flexion exercise was carried out 7d after surgery to prevent muscle atrophy and lower limb deep vein thrombosis. (3) Massage care: massage the lower limbs of patients, and implement the plantar venous pump, increase the pressure of the calf and thigh, increase the blood flow rate to empty the venous congestion. Ask the family member to massage both lower limbs to ensure the vascular function of the patient. (4) Health education: To carry out health education in easy to understand language, inform relevant knowledge of surgery, do psychological work well, eliminate inner concerns, emphasize the importance of prevention of deep vein thrombosis, and improve the degree of nursing cooperation.

## 1.3 Observation Indicators

① The assessment results of the incidence of lower extremity deep vein thrombosis in the two groups were observed and compared [3]. ② The evaluation results of nursing satisfaction of the two groups in the experiment were observed and compared. On the day of discharge, a self-made questionnaire was used for evaluation. The content of the questionnaire: Nursing attitudes and nursing skills, etc., were investigated by patients, and the satisfaction degree was judged by score, with scores ranging from 0 to 100, 90-100 being marked as very satisfied, 60-89 as basic satisfied and 0-59 as dissatisfied. Total satisfaction rate = very satisfaction rate + basic satisfaction rate. ③ The evaluation results of coagulation function of the two groups in the experiment were observed and compared. 3ml peripheral venous blood samples were taken, and the patients' coagulation function and other related indicators were analyzed and evaluated with the help of automatic coagulation analyzer. The evaluation indexes include prothrombin time PT, activated partial thrombin time APTT, thrombin time TT and fibrinogen FIB. ④ The clinical indicators of the two groups were observed, including the degree of lower limb swelling, movement out of bed and length of hospital stay.

## 1.4 Statistical methods

The data collected from the experiment were statistically analyzed in SPSS22.0. The count between the two groups was expressed by (%), and the results were obtained by  $\chi^2$  test. The measurement between the two groups was expressed by () and t-test was performed.  $P<0.05$  was statistically significant.

## 2 .The results

### 2.1 Comparison of incidence of lower extremity deep vein thrombosis between the two groups

The evaluation result of 2.50% in the observation group was lower than that of 17.50% in the control group ( $P < 0.05$ ).

Table 1: Comparison of assessment values for the incidence of deep vein thrombosis in lower limbs [N (%)]

Group	occurrence (n)	Incidence (%)
Control group (n=40)	7 (17.50)	17.50%
Observation group (n=40)	1 (2.50)	2.50%
$\chi^2$	----	5.000
P	----	0.025

## 2.2 Comparison of nursing satisfaction between the two groups

The satisfaction of the observation group (97.50%) was higher than that of the control group (82.50%) ( $P < 0.05$ ).

Table 2: Comparison of nursing satisfaction evaluation values [N (%)]

Group	satisfied	basic satisfied	dissatisfied	satisfaction rate (%)
Control group (n=40)	16 (40.00)	17 (42.50)	7 (17.50)	33 (82.50)
Observation group (n=40)	20 (50.00)	19 (47.50)	1 (2.50)	39 (97.50)
$\chi^2$	----	----	----	5.000
P	----	----	----	0.025

## 2.3 Comparison of coagulation function between the two groups

PT and FIB in the observation group were lower than those in the control group, while APTT and TT in the observation group were higher than those in the control group,  $P < 0.05$ .

Table 3: Coagulation function assessment Scale ( $\bar{x} \pm s$ )

Group	PT (s)	APTT (s)	TT (s)	FIB (g/L)
Control group (n=40)	15.18±2.42	40.29±4.44	18.32±2.55	2.32±0.52
Observation group (n=40)	13.52±2.15	36.87±4.39	16.92±1.59	3.57±0.49
t	3.243	3.464	2.946	11.064
P	0.001	0.000	0.004	0.000

## 2.3 Comparison of clinical indicators between the two groups

Compared with the control group, the evaluation values of lower limb swelling degree, activity time out of bed and length of hospital stay in the observation group were lower,  $P < 0.05$ .

Table 4: Comparison of various clinical indicators ( $\bar{x} \pm s$ )

Group	Degree of lower limb swelling (cm)	movement out of bed (h)	length of hospital stay(d)
Control group (n=40)	3.96±0.33	43.42±4.23	3.97±0.33
Observation group (n=40)	2.05±0.31	36.32±2.98	2.02±0.29
t	26.680	8.678	28.072
P	0.000	0.000	0.000

### 3. Discussion

Patients with spinal fracture are prone to many complications after surgery, the most common of which is deep vein thrombosis of lower limbs, which is highly correlated with patients' reduced coagulation function and stress response. Therefore, it is necessary to pay more attention to it and implement a comprehensive and systematic nursing method to obtain the ideal effect and good prognosis. In the nursing work, the conventional nursing form is single and does not meet the actual needs of patients. Relevant nursing staff carry out comprehensive rehabilitation nursing based on routine nursing, which is of great significance to the improvement of curative effect and prognosis.

The study found that 2.50% of the observation group was lower than 17.50% of the control group,  $P < 0.05$ . It can be seen that comprehensive rehabilitation nursing, health education, promoting patients to realize the importance of prevention and treatment of complications, and actively participate in exercise and treatment, accelerate patients' blood circulation and prevent thrombosis can effectively control the occurrence of lower limb deep vein thrombosis. The satisfaction of the observation group (97.50%) was higher than that of the control group (82.50%) ( $P < 0.05$ ). To investigate the reasons, the use of comprehensive rehabilitation nursing, from different angles, through posture guidance, massage nursing and rehabilitation nursing, so as to keep the lower limb blood flow in a good state, accelerate the recovery of patients with disease, help to improve nursing satisfaction. The evaluation value and recovery time of lower limb swelling in the observation group were lower than those in the control group ( $P < 0.05$ ). It can be seen that the implementation of comprehensive rehabilitation nursing can better promote the recovery of lower limb blood circulation, accelerate the discharge of congestion, significantly relieve the degree of lower limb swelling, shorten the rehabilitation time, and further improve the nursing effect. The evaluation results of PT, APTT, TT and FIB in the observation group were significantly different from those in the control group ( $P < 0.05$ ). It can be seen that the implementation of comprehensive rehabilitation nursing, comprehensive understanding of patients with spinal fracture surgery, improve the importance of related nursing, actively prevent related complications and improve lower limb venous return, is conducive to improve coagulation function.

To sum up, comprehensive rehabilitation nursing can shorten the rehabilitation time, improve the coagulation function, reduce complications, have higher satisfaction and achieve accurate nursing effect in the postoperative nursing work of spinal fracture.

### References

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