Bone and Arthrosurgery Science, 2023, Volume 1, Issue 1
http://ojs.bbwpublisher.com/index.php/BAS

Study of the Effect of Rehabilitation Nursing on the Compliance of Patients with Hip Fracture Towards Rehabilitation Exercise and Functional Recovery

Xiong Xu*

Xiamen Rehabilitation Hospital, Xiamen 362000, Fujian Province, China

***Corresponding author:** Xiong Xu, 13799270707@139.com

Abstract: *Objective:* To analyze the effect of rehabilitation nursing on the compliance of rehabilitation exercise and functional recovery in patients with hip fracture. *Methods:* 80 patients with hip fracture were selected from our hospital (Xiamen Rehabilitation Hospital) from October 2021 to December 2022 as research subjects. After being randomly divided into groups, the control group was given routine nursing, and the observation group was given rehabilitation nursing. The positive effects of different nursing programs on patients' compliance towards rehabilitation exercise, functional recovery, and quality of life were analyzed. *Results:* The rehabilitation compliance of the observation group was higher than that of the control group ($P < 0.05$); the hip function recovery scores of the two groups were similar before nursing ($P > 0.05$), and the scores of the observation group after nursing were significantly higher than those of the control group ($P < 0.05$); The quality-of-life scores in the observation group were higher than those in the control group ($P < 0.05$). *Conclusion:* Rehabilitation nursing can effectively improve the hip fracture patients' compliance towards rehabilitation exercises, which can further improve the patient's functional recovery, improve their quality of life, and the nursing effect is more ideal.

Keywords: Rehabilitation nursing; Hip fracture; Compliance with rehabilitation exercises; Functional recovery; Quality of life

Online publication: March 10, 2023

1. Introduction

Hip fracture mainly refers to the interruption of the continuity of the ilium in the pelvis [1]. Most of the hip fracture patients are middle-aged and elderly people [2]. Hip fractures are mostly related with age, physical condition, occupation, etc., and patients are prone to fractures caused by external force when the body function declines [4-5]. Patients with fractures often feel varying degrees of pain. If they are not treated in time, patients will not only be affected by the clinical symptoms, but their related functions could also be hindered. Surgery is often used in the treatment of hip fractures [6]. On one hand, surgery can bring more significant therapeutic effects; however, it will also cause certain damage to patients [7]. To help patients achieve better outcomes, it is important to emphasize care delivery. Focusing on the compliance of patients with rehabilitation exercises, and committed to improving functional recovery, rehabilitation nursing was implemented in our hospital while considering the patients' needs. Therefore, this study was carried out in order to demonstrate the diversified value of the application of this nursing model.

2. Materials and methods

2.1. General information

Patients with hip fractures admitted to our hospital from October 2021 to December 2022 were screened, and 80 patients were selected. The patients were divided into two groups of 40 with the envelope method. The male to female ratio of the patients in the control group was 22:18, aged 55–85 years old, with an average of 68.38 ± 3.42 years old; the observation group had 20 males and females, aged 56–84 years old, with an average of 68.23 ± 3.29 years old.

Inclusion criteria: (i) patients who were diagnosed with hip fracture by imaging examination; (ii) patient who were informed of the research content; (iii) patients with complete basic information.

Exclusion criteria: (i) patients who had mental and cognitive abnormalities; (ii) patients with complicated disorders.

2.2. Methods

2.2.1. Control group

Routine care was given to the patients in the control group. The goal of nursing was to educate patients on diseases, treatment, and nursing, so as to improve their awareness and cooperation towards the treatment. The patients' psychological state was monitored to understand the patient's state of mind. Routine nursing was performed, such as posture care, diet, life guidance, medication reminders, rehabilitation exercises, etc.

2.2.2. Observation group

In the observation group, rehabilitation nursing was implemented on the basis of nursing care in the control group. (i) Upon admission, the patients' recovery was monitored, and the positions of their limbs were adjusted. The lower limbs were padded and kept abducted by 20–30°. The patients were asked if there was abnormality in the sensation of both lower limbs. If there was none, passive rehabilitation training was adopted, and the patients were assisted to carry out joint exercises for the lower limbs on the affected side under the leadership of the nurse. (2) At 1–2 days after admission, after the passive training, the combination of upper limb abduction, flexion and extension was carried out, and the patients' feedback were noted during the activity. The positions of the patients' lower limbs were adjusted every day, and proper posture care was provided. The knee joints of patients were evened out, and they were guided on performing voluntary muscle contraction and relaxation training. Depending on the recovery of the patient, hip-lifting training can be added at this time for patients with better recovery. (iii) At 3 to 7 days after admission, under the guidance of the nursing staff, the previous passive training was changed to active exercises. The patients were allowed to perform knee flexion and extension exercises under the guidance of the nursing staff, with the movements following being gradual and orderly. At the same time, the patients were guided to perform straight leg raising training, i.e., raising heel of the affected side from the bed, and slowly lowering it after the patient keep their legs raised at 20 cm for 5 seconds. The exercise was repeated 4 to 5 times. (iv) At 2 to 3 weeks after surgery, the hip flexion of the patients was evaluated, and patients with better recovery were guided to perform hip flexion exercises in the supine position. The exercises were performed 8 to 10 times a day, and the duration of each exercise is 10 minutes. In addition, the patient can move their upper and lower limbs up and down while sitting on the bedside. (v) At 3 to 4 weeks after surgery, the patients were taught to use crutches – getting out of bed, standing up, and walking with the help of crutches. In the initial stage, patients were instructed to get out of bed and perform repetitive exercises of standing upright and sitting down. After a while, the patient can change from standing to walking exercise. The walking time was controlled according to the patient's condition, and the walking distance and total exercise time were gradually increased. (vi) At 5 to 9 weeks after surgery, some patients who recovered better were discharged. Nursing staff kept in contact with patients through WeChat and telephone to carry out

continuous rehabilitation nursing. The patients were guided to complete the rehabilitation exercises at home over the phone or by other means, and the family members were advised to supervise the patients. The exercises that could be done at home were walking exercise, going down the stairs, and the likes. During the rehabilitation process, the family members were advised to gradually increase the amount and the type of exercises according to the functional recovery of the patient, pay attention to the exercises, and promote better rehabilitation effects.

2.3. Observation indicators

(i) The patients' compliance with rehabilitation exercise were observed and they were divided into groups based on their compliance: non-compliance, partial compliance, and complete compliance.

(ii) The recovery of hip joint function before and after nursing were scored and compared. The Harris score [8] was used to score the functional recovery. Under the 100-point system, the higher the score, the better the functional performance of the patient.

(iii) The quality of life of patients was scored using the Brief Quality of Life Rating Scale [9], and the scores of both groups were compared.

2.4. Statistical methods

SPSS 24.0 software was used to analyze the measurement data (mean ± SD) and count data (%) of patients, and *t*- and χ^2 tests were performed, in which $P < 0.05$ was considered statistically significant.

3. Results

3.1. Comparison of rehabilitation exercise compliance

The compliance of rehabilitation exercise in the observation group was higher than that in the control group ($P < 0.05$), as shown in **Table 1**.

Table 1. Comparison of rehabilitation exercise compliance [*n* (%)]

Group	Number of cases	Complete compliance	Partial compliance	Non-compliance	Rate of compliance
Observation group	40	27 (67.50)	12 (30.00)	1 (2.50)	39 (97.50)
Control group	40	22 (55.00)	11 (27.50)	7 (17.50)	33 (82.50)
χ^2					5.000
P					0.025

3.2. Comparison of hip function scores

The Harris score of the two groups was significantly improved after nursing, and the score of the observation group after nursing was higher ($P < 0.05$), see **Table 2**.

Table 2. Comparison of hip function scores (mean ± SD, points)

Group	Number of cases (*n*)	Harris score			
		Before nursing	After nursing	*t*	*P*
Observation group	40	39.64 ± 3.45	82.75 ± 4.59	47.483	0.000
Control group	40	40.02 ± 3.57	73.12 ± 3.86	39.815	0.000
t		0.424	10.155		
P		0.689	0.000		

3.3. Comparison of quality-of-life scores

The quality-of-life scores of the observation group were higher than those of the control group ($P < 0.05$), as shown **Table 3**.

Table 3. Comparison of quality-of-life scores (mean ± SD, points)

Group	Number of cases (n)	Physiological function	Psychological state	Body pain	Energy
Observation group	40	82.34 ± 5.63	83.47 ± 5.74	80.47 ± 5.78	81.44 ± 5.82
Control group	40	70.45 ± 4.22	69.27 ± 4.53	68.22 ± 4.39	70.47 ± 4.31
t		10.687	12.282	10.674	9.580
P		0.000	0.000	0.000	0.000

4. Discussion

If there is no effective treatment intervention for hip fractures, the function of the hip joint will be affected, and it will have a negative impact on the patient's life, work, and psychological state [10-11]. While using surgical intervention, it is necessary to emphasize the importance of nursing in order to help patients with their prognosis. On the one hand, the purpose of nursing is to meet the patients' needs during hospitalization; on the other hand, providing nursing-related services can also further improve the overall effect of surgery [12-13]. Especially in terms of patient rehabilitation exercise, a more suitable nursing model can help patients achieve better recovery [14-15]. There are many diverse nursing care plans for patients with hip fractures available [16]. Each plan has its own characteristics, and it needs to be reasonably selected according to the patient's need [17]. This study fully considered the age of patients with hip fractures and focused on the rehabilitation and functional recovery of patients. At the same time, considering the different degree of compliance among middle-aged and elderly patients, we hoped that the rehabilitation nursing can help improve patient compliance [18-19].

In this study, the effect of rehabilitation nursing on hip fracture patients was studied, and the results showed that it further helps patients improve the overall prognosis compared to routine nursing. In terms of compliance with rehabilitation exercises, the patients that underwent rehabilitation nursing showed a higher compliance under the guidance and supervision of the nursing staff. The improvement of compliance is obviously helpful to improve the exercise effect of patients and improve the prognosis [20]. As for functional recovery, there was no significant difference in the scores of the two groups of patients before nursing, indicating that the functional status of the patients before nursing was roughly the same. Although the scores of both groups improved after nursing, it can be seen that the scores of the observation group were higher, which meant that rehabilitation nursing could better improve the patients' hip function. In terms of quality of life, the scores of the observation group were better, suggesting that rehabilitation nursing can also significantly improve the quality of life of patients.

5. Conclusion

In short, rehabilitation nursing for patients with hip fractures can effectively improve patients' compliance towards the exercises, therefore improving functional recovery and the overall nursing effect.

Disclosure statement

The author declares no conflict of interest.

References

[1] Zhang Y, Cui T, Liu T, 2022, The Effect of Rehabilitation Nursing Intervention on the Compliance of Rehabilitation Exercise and Functional Recovery of Patients with Hip Fracture. Medical Information, 35(16): 181–183.

[2] Huang X, 2019, Research Status of Rehabilitation Nursing for Postoperative Limb Function Recovery in Elderly Patients with Hip Fractures. China Disability Medicine, 27(8): 99–100.

[3] Shen L, 2022, The Preventive Effect of Functional Training Rehabilitation Nursing Intervention on Postoperative Knee Stiffness in Patients with Hip Fracture. Chinese and Foreign Medicine Research, 1(16): 103–105.

[4] Ying W, 2022, Evaluation of the Effect of Integrated Medical and Nursing Rapid Rehabilitation Nursing on the Pain Degree of Patients after Hip Fracture Surgery. Chinese Medicine Science, 12(13): 151–154.

[5] Yin F, Tang Y, 2022, Application Effect of Accelerated Rehabilitation Nursing in Patients with Hip Fracture. Nursing of Integrated Traditional Chinese and Western Medicine (Chinese and English), 8(5): 109–111.

[6] Hu Y, 2021, Early Out-of-Bed Activity Intervention for Elderly Patients with Hip Fractures Based on the Life Project Program for the Inpatient Elderly. Chinese Contemporary Medicine, 28(35): 220–222 + 226.

[7] Zhang S, 2021, Research on the Nursing Effect of Upper Limb Yoga Training Combined with Breathing Exercises on Pulmonary Rehabilitation of Elderly Patients with Hip Fracture. China Disability Medicine, 29(19): 15–16.

[8] Chen Q, Liu Y, Lin F, 2021, The Application of Rapid Rehabilitation Nursing Measures in Elderly Patients with Hip Fractures and the Analysis of Their Impact on Postoperative Pain and Quality of Life. World Latest Medical Information Abstracts, 21(88): 246–248.

[9] Wang L, Cheng Q, Zhang X, et al., 2021, Analysis of the Application Effect of Rapid Rehabilitation Nursing in Preventing DVT Formation After Hip Fracture Surgery in the Elderly. World Latest Medical Information Abstracts, 21(95): 346–348.

[10] Wu Y, Pan Y, Yu B, 2020, Analysis of the Intervention Effect of Psychological Resilience Support Combined with Rehabilitation Nursing on Elderly Patients After Hip Fracture Surgery. Frontiers of Medicine, 10(8): 168–169.

[11] Yan J, Fu Y, Hou Y, et al., 2020, Effects of Psychological Assessment and Continuous Rehabilitation on Postoperative Psychology and Joint Function of Elderly Patients with Hip Fracture. Chinese Journal of Gerontology, 40(24): 5303–5306.

[12] Fang S, Liu M, Yang J, 2020, The Effect of Nursing Intervention Based on Motivational Behavior Transformation on the Functional Recovery of Elderly Hip Fracture Patients. Journal of North Sichuan Medical College, 35(3): 531–534.

[13] Chen J, Meng Y, Ning Y, 2020, Application Effect of Early Rehabilitation Nursing Intervention in Postoperative Lower Extremity Deep Vein Thrombosis in Elderly Patients with Hip Fracture. Reflexology and Rehabilitation Medicine, 29(1): 195–196.

[14] Zhang Y, 2020, The Effect of Postoperative Intensive Rehabilitation Nursing on Constipation and Lower Extremity Venous Thrombosis in Elderly Patients with Hip Fracture. Reflexology and Rehabilitation Medicine, 29(10): 168–170.

[15] Zhang J, Du J, Lu W, 2020, The Influence of Rehabilitation Nursing Based on IBM Model on

Rehabilitation Knowledge, Belief, Behavior, and Hip Joint Function of Patients with Hip Fracture. Henan Medical Research, 29(16): 3064–3065.

[16] Dong L, 2020, Effect Analysis of High-Quality Nursing Combined with Rehabilitation Nursing in the Perioperative Period of Elderly Patients with Hip Fracture. Reflexology and Rehabilitation Medicine, 1(20): 129–131.

[17] Tang D, 2020, Analysis of the Application Value of Rapid Rehabilitation Nursing for Elderly Patients with Hip Fractures. Heilongjiang Traditional Chinese Medicine, 49(3): 330–331.

[18] Lin X, 2020, The Effect of Rapid Rehabilitation Nursing on the Sleep Quality of Patients After Hip Fracture Surgery. World Journal of Sleep Medicine, 7(10): 1801–1803.

[19] Gao Z, 2020, The effect of Continuous Rehabilitation Nursing on WeChat Platform Combined with Green's Model on Hip Joint Function and Self-Care Ability in Patients with Hip Fracture. Chinese Medicine and Clinic, 20(1): 148–149.

[20] Fu Q, Jiang L, Chen X, et al., 2019, Effect of Video Rehabilitation Nursing on Postoperative Hip Joint Function and Quality of Life in Elderly Patients with Hip Fracture. Nursing Practice and Research, 16(14): 72–74.