

Analysis of the Effect of Rehabilitation Nursing Intervention on Functional Recovery in Patients with Rheumatoid Arthritis

Honglian Ma*

Tibetan Medical Hospital of Qinghai Province, Xining 810007, Qinghai Province, China

*Corresponding author: Honglian Ma, 15597027117@163.com

Copyright: © 2024 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

Abstract: *Objective:* To explore and analyze the effect of rehabilitation nursing intervention on functional recovery in patients with rheumatoid arthritis. *Methods:* From May 2020 to May 2023, 150 patients with rheumatoid arthritis who received integrated treatment of Tibetan and Western medicine in the rheumatology department were selected as the research subjects. They were divided into the rehabilitation group and the reference group according to the double-blind mechanism, with 75 cases in each group. The rehabilitation group received rehabilitation nursing intervention and the reference group received basic nursing. The standard of living, joint function recovery, and nursing satisfaction were compared between the two groups. *Results:* Before the intervention, there was no statistically significant difference ($P > 0.05$) in living standards such as physiology, mental outlook, emotional performance, and social culture between the groups. After the intervention, the standard of living such as culture, of the rehabilitation group was significantly better than that of the reference group ($P < 0.05$). Before the intervention, there was no statistically significant difference ($P > 0.05$) in the recovery of joint functions such as the number of joint tenderness, grip strength of both hands, duration of morning stiffness, and number of joint swelling among the groups. After the intervention, the number of joint tenderness, hand grip strength, duration of morning stiffness, number of joint swelling, and other joint function recovery in the rehabilitation group were significantly better than those in the reference group ($P < 0.05$). The nursing satisfaction of the rehabilitation group was significantly higher than that of the reference group ($P < 0.05$). *Conclusion:* Rehabilitation nursing intervention can accelerate the recovery of joint function and improve the living standard of patients with rheumatoid arthritis.

Keywords: Rehabilitation nursing intervention; Rheumatoid arthritis; Functional recovery effect

Online publication: March 20, 2024

1. Introduction

Rheumatoid arthritis is a common autoimmune disease in the immunology department. The disease can cause joint pain, swelling, and stiffness in the morning and affects 80% of women^[1]. The age of disease onset ranges relatively wide, the genetic predisposition is obvious, and its pathogenesis still requires further study^[2]. The onset of rheumatoid arthritis is relatively insidious. Symptoms appear first in the joints of the upper extremities,

which can lead to severe joint deformities in patients in the late stage ^[3]. At present, the disease can be controlled with treatment. After treatment, patients' work and life will not be greatly affected, but it cannot be completely cured. The main treatment principles are to control the development of the disease and improve the range of motion of joints ^[4]. Rehabilitation nursing is a nursing model with physical rehabilitation as the core. Patients with rheumatoid arthritis who receive rehabilitation nursing while receiving treatment will have more significant control over their disease ^[5]. The purpose of this paper is to study and analyze the effect of rehabilitation nursing intervention on the functional recovery of patients with rheumatoid arthritis.

2. General information and methods

2.1. General information

From May 2020 to May 2023, 150 patients with rheumatoid arthritis who received integrated treatment of Tibetan and Western medicine in the rheumatology department were selected as the research subjects. They were divided into the rehabilitation group and the reference group according to the double-blind mechanism, with 75 cases in each group. In the rehabilitation group, there were 32 males and 43 females; aged 35–77 years old, with an average of 56.27 ± 1.63 years old; the duration of illness was 1–10 years, with an average of 5.32 ± 1.22 years. In the reference group, there were 31 males and 44 females; aged 36–78 years old, with an average of 56.42 ± 1.72 years old; the duration of illness was 1–11 years, with an average of 5.44 ± 1.29 years. There was no statistically significant difference ($P > 0.05$) in general information such as gender, age, and duration of illness between the groups.

2.2. Methods

The reference group was provided with routine nursing care. The rehabilitation group received rehabilitation nursing intervention:

- (1) Joint activities: When the patient's joint pain was alleviated, the joint activities were guided within the patient's tolerance. It first involved moving the small joints, then moving the large joints; first flexing and extending the joints, and then carrying out stretching and rotation. Afterward, a hot towel was applied to the joints, once a day for half an hour.
- (2) Muscle strengthening: After the joints had recovered to a certain extent, muscle strengthening training was performed to improve muscle endurance. The patient was guided to perform muscle contraction and relaxation activities twice a day, about 15 minutes each time.
- (3) Psychological counseling: Patients were provided with general rheumatoid arthritis knowledge to correctly understand the disease. They were encouraged to actively cooperate with the treatment of the disease and avoid being too anxious and worried. The doubts raised by patients are answered in detail.
- (4) Sleep intervention: Before going to bed, patients avoided food that stimulates nerves, such as strong tea, coffee, etc. Patients with serious sleep disorders followed the doctor's advice to take some sedative drugs to allow patients to sleep normally.
- (5) Auxiliary measures: Tibetan medicine bath treatment, oral administration of Tibetan medicine for 15 days after the end of the treatment, combined with auxiliary exercise and self-maintenance measures were performed to speed up the blood circulation of the limbs, reduce joint pain, swelling, stiffness and other symptoms.

2.3. Observation indicators

- (1) The living standards between the groups were compared and assessed with the Brief Life Evaluation

Scale (SF-36), including physiology, mental outlook, emotional performance, and social culture.

- (2) The recovery of joint function between the groups was compared, including the amount of joint tenderness, grip strength of both hands, duration of morning stiffness, and amount of joint swelling.
- (3) The nursing satisfaction between the groups was evaluated and compared using the self-made scale, including very satisfied, generally satisfied, and dissatisfied.

2.4. Statistical analysis

SPSS21.0 statistical software was selected to process and analyze the data. The count data were expressed by the number of cases (n) and percentage (%), the χ^2 test was implemented; the measurement data were expressed by the mean \pm standard deviation (SD), and the *t*-test was implemented. $P < 0.05$ indicated a statistically significant difference.

3. Results

3.1. Comparing the living standards between the rehabilitation group and the reference group

Before the intervention, there was no statistically significant difference ($P > 0.05$) in living standards such as physiology, mental outlook, emotional performance, and social culture between the groups. After the intervention, the standard of living of the rehabilitation group was significantly better than that of the reference group ($P < 0.05$). The details are shown in **Table 1**.

Table 1. The comparison of living standards between groups (mean \pm SD, points)

| Group | Number of cases | Physiology | | Mental outlook | | Emotional performance | | Social culture | |
|----------------------|-----------------|---------------------|--------------------|---------------------|--------------------|-----------------------|--------------------|---------------------|--------------------|
| | | Before intervention | After intervention | Before intervention | After intervention | Before intervention | After intervention | Before intervention | After intervention |
| Rehabilitation group | 75 | 70.24 \pm 3.54 | 86.97 \pm 3.61 | 69.75 \pm 3.24 | 85.44 \pm 3.51 | 68.12 \pm 3.27 | 84.37 \pm 3.91 | 70.28 \pm 3.51 | 87.55 \pm 3.62 |
| Reference group | 75 | 70.54 \pm 3.69 | 81.57 \pm 3.52 | 69.84 \pm 3.65 | 80.96 \pm 3.67 | 68.27 \pm 3.69 | 79.55 \pm 3.18 | 70.96 \pm 3.67 | 82.75 \pm 3.16 |
| <i>t</i> value | - | 0.5080 | 9.2750 | 0.1596 | 7.6399 | 0.2634 | 8.2824 | 1.1596 | 8.6508 |
| <i>P</i> value | - | 0.6122 | 0.0000 | 0.8733 | 0.0000 | 0.7926 | 0.0000 | 0.2481 | 0.0000 |

3.2. Comparing the recovery of joint function between the rehabilitation group and the reference group

Before the intervention, there was no statistically significant difference ($P > 0.05$) in the recovery of joint functions such as the number of joint tenderness, grip strength of both hands, duration of morning stiffness, and number of joint swelling among the groups. After the intervention, the number of joint tenderness, hand grip strength, duration of morning stiffness, number of joint swelling, and other joint function recovery in the rehabilitation group were significantly better than those in the reference group ($P < 0.05$). The results are presented in **Table 2**.

3.3. Comparing the nursing satisfaction between the rehabilitation group and the reference group

The nursing satisfaction of the rehabilitation group was significantly higher than that of the reference group ($P < 0.05$), as shown in **Table 3**.

Table 2. The comparison of joint function recovery between groups (mean \pm SD)

| Group | Number of cases | Number of joint tenderness (pieces) | | Grip strength of both hands (mmHg) | | Duration of morning stiffness (minutes) | | Number of swollen joints (number) | |
|----------------------|-----------------|-------------------------------------|--------------------|------------------------------------|--------------------|---|--------------------|-----------------------------------|--------------------|
| | | Before intervention | After intervention | Before intervention | After intervention | Before intervention | After intervention | Before intervention | After intervention |
| Rehabilitation group | 75 | 6.27 \pm 3.24 | 4.01 \pm 1.52 | 76.21 \pm 19.24 | 90.27 \pm 25.51 | 43.27 \pm 15.26 | 17.24 \pm 11.52 | 5.27 \pm 3.21 | 1.96 \pm 1.25 |
| Reference group | 75 | 6.31 \pm 3.22 | 5.67 \pm 1.33 | 76.32 \pm 19.65 | 80.33 \pm 21.85 | 43.61 \pm 15.98 | 30.54 \pm 15.63 | 5.36 \pm 3.58 | 4.32 \pm 1.62 |
| <i>t</i> value | - | 0.0758 | 7.1178 | 0.0346 | 2.5628 | 0.1332 | 5.9320 | 0.1620 | 9.9884 |
| <i>P</i> value | - | 0.9397 | 0.0000 | 0.9724 | 0.0114 | 0.8942 | 0.0000 | 0.8715 | 0.0000 |

Table 3. The comparison of nursing satisfaction between groups [n (%)]

| Group | Number of cases | Very satisfied | Generally satisfied | Dissatisfied | Total satisfaction rate |
|----------------------|-----------------|----------------|---------------------|--------------|-------------------------|
| Rehabilitation group | 75 | 52 (69.33) | 22 (29.33) | 1 (1.33) | 74 (98.67) |
| Reference group | 75 | 50 (66.67) | 18 (24.00) | 7 (9.33) | 68 (90.67) |
| χ^2 value | - | - | - | - | 4.7535 |
| <i>P</i> value | - | - | - | - | 0.0292 |

4. Discussion

The main symptom of rheumatoid arthritis is erosive arthritis, with synovitis as a pathological feature. Symptoms are not obvious in the early stage, but can lead to joint deformity and loss of function in the later stage [6,7]. Rheumatoid arthritis is a systemic disease, and its main therapy is drug treatment. Surgical treatment is used if drug treatment is ineffective, but it cannot be completely cured. Treatment can relieve joint symptoms and delay the occurrence of joint deformity [8,9]. Studies have found that the disease will affect other body tissues, causing complications in different parts of the body, such as heart, lungs, blood vessels, blood, and kidneys, and carries a risk of death. Rehabilitation care for patients with rheumatoid arthritis can be provided to further control the development of the disease [10]. After symptomatic treatment, patients should carry out joint activity training according to the recovery of their joints. The intensity of the training should meet the patient's tolerance, increase muscle stimulation, improve muscle stretching and contraction capabilities, and maintain the normal function of joints and muscles [11,12]. Some patients with rheumatoid arthritis have a certain degree of sleep disturbance. Food intake should be restricted before going to bed. If necessary, some drugs can be used appropriately to help patients fall asleep [13,14]. Rehabilitation care can improve the patient's symptoms, enhance the patient's grip strength, and restore the patient's standard of living [15].

Based on the results, before the intervention, there was no statistically significant difference ($P > 0.05$) in living standards such as physiology, mental outlook, emotional performance, and social culture between the groups; after the intervention, the physiology, mental outlook, emotional performance, and social culture of the rehabilitation group were significantly better than the reference group ($P < 0.05$). Before the intervention, there was no statistically significant difference ($P > 0.05$) in the recovery of joint functions such as the number of joint tenderness, grip strength of both hands, duration of morning stiffness, and number of joint swelling among the groups; after the intervention, the number of joint tenderness, hands grip strength, duration of morning stiffness, number of joint swelling, and other joint function recovery in the rehabilitation group were

significantly better than those in the reference group ($P < 0.05$). The nursing satisfaction of the rehabilitation group was significantly higher than that of the reference group ($P < 0.05$). After rehabilitation nursing intervention, the joint functions of patients with rheumatoid arthritis have recovered to a certain extent. This intervention can delay the development of the disease, allow patients to return to normal life, and improve nursing satisfaction.

5. Conclusion

In summary, the application of rehabilitation nursing in patients with rheumatoid arthritis can effectively promote the recovery of joint function, and it is worthy of promotion and clinical application.

Disclosure statement

The author declares no conflict of interest.

References

- [1] Yang Q, Yang L, Yang H, et al., 2023, The Effects of Nursing Intervention Guided by Positive Reinforcement Theory on Pain and Functional Exercise Compliance in Patients with Rheumatoid Arthritis. *China Medical Herald*, 20(15): 163–167.
- [2] Wang R, Li Y, Shen Y, et al., 2023, The Application of Meticulous Nursing Based on Clinical Pathways in the Rehabilitation Period of Patients with Rheumatoid Arthritis and Its Impact on the Quality of Life. *Clinical Medicine Engineering*, 30(03): 377–378.
- [3] Ren Z, Zhu T, Ma H, 2022, The Effect of Combined Mind-Mapping Model Based on “Catfish Effect” on Improving the Quality of Care for Patients with Rheumatoid Arthritis. *Heilongjiang Medical Science*, 45(04): 193–194 + 196.
- [4] Lei J, Tan T, Zhou L, et al., 2022, Effects of Tongbizhitong Powder External Wax Therapy Combined with Oral Administration of Traditional Chinese Medicine on Acute Joint Pain, Swelling and Laboratory Indicators in Patients with Active Rheumatoid Arthritis. *Sichuan Traditional Chinese Medicine*, 40(07): 124–128.
- [5] Zhou X, 2022, Improvement of Motor Function and Sleep Quality by Traditional Chinese Medicine Rehabilitation Intervention During the Treatment of Rheumatoid Arthritis with Tibetan Medicine Five-Flavored Nectar Bath Therapy. *Chinese Journal of Ethnic Medicine*, 28(01): 21–22.
- [6] Gong L, Lei J, Zhao K, 2021, Effects of Comprehensive Rehabilitation Nursing Combined with Family Collaborative Management Based on 5E Theory on Coping Style, Medical Compliance Behavior and Joint Dysfunction Classification of Patients with Rheumatoid Arthritis. *Clinical Medicine Research and Practice*, 6(35): 173–175.
- [7] Li N, Gao X, Zhao M, 2021, The Impact of Extended Nursing Services on the Network Interactive Platform on the Compliance of Out-of-Hospital Functional Exercise and Quality of Life in Patients with Rheumatoid Arthritis Under Conservative Treatment. *Journal of Chronic Diseases*, 22(04): 556–557.
- [8] Liu X, 2021, Effects of Traditional Chinese Medicine Empathy Nursing Combined with Video Education Nursing Mode on Functional Recovery and Overall Health of Patients with Rheumatoid Arthritis in Stable Stage. *Chinese Contemporary Medicine*, 28(01): 229–232.
- [9] Hao X, Ji D, Zhou M, et al., 2020, The Impact of the “Internet + Health Education” Model Based on Schramm’s Two-Way Communication Theory on the Psychological Distress of Patients with Rheumatoid Arthritis. *Qilu Nursing Journal*, 26(01): 46–49.
- [10] Xu P, Lu W, Liu F, 2019, Analysis of the Effect of Targeted Nursing on Rheumatoid Arthritis Patients Undergoing

Double Filtration Plasma Exchange. *Contemporary Medicine*, 17(17): 226–227.

- [11] Zhu F, Zheng J, Wen F, et al., 2019, Observation on the Effect of Nursing Intervention on Joint Movement Function and Quality of Life in Patients with Rheumatoid Arthritis. *General Nursing*, 17(18): 2256–2259.
- [12] Hua M, Zhu S, Fan J, 2019, Effects of Special Pain Nursing Combined with Periodic Health Education on Pain Symptoms, Coping Styles and Quality of Life in Patients with Rheumatoid Arthritis. *Nursing Practice and Research*, 16(13): 22–24.
- [13] Guo L, Gao H, Wang X, 2018, Effects of Personalized Health Education Combined with Continuous Nursing Care on Treatment Compliance and Joint Function in Patients with Rheumatoid Arthritis. *Nursing Practice and Research*, 15(20): 42–44.
- [14] Cai X, Xiao J, Guo F, et al., 2018, The Significance of Sequential Intervention of Social Health Care Model Applied to Rheumatoid Arthritis in Improving Patients' Treatment Compliance. *Guangdong Medicine*, 39(16): 2546–2548.
- [15] Li Y, 2018, Observation of Curative Effect of Traditional Chinese Medicine Nursing Intervention on Rheumatoid Arthritis Treated by External Application of Traditional Chinese Medicine and Analysis on Improvement of Patients' Quality of Life. *Electronic Journal of Cardiovascular Diseases of Integrated Traditional Chinese and Western Medicine*, 6(22): 128–129.

Publisher's note

Bio-Byword Scientific Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.