

Efficacy Observation of Repeated Facilitation Therapy Combined with Routine Rehabilitation in the Recovery of Upper Limb Function in Stroke Patients

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Abstract: **Objective:** To observe the impact of repeated facilitation therapy combined with routine rehabilitation on the upper limb function of stroke patients. **Methods:** Seventy-six stroke patients admitted to our hospital from January to December 2024 were selected as the research subjects and randomly divided into two groups of 38 patients each. One group received routine rehabilitation treatment during the rehabilitation period (control group), and the other group received repeated facilitation therapy combined with routine rehabilitation treatment (observation group). The changes in upper limb function, activities of daily living, quality of life, and muscle tone of the two groups were analyzed. **Results:** The upper limb function and activities of daily living in the observation group were higher than those in the control group after treatment ($P<0.05$). The quality of life and muscle tone level in the observation group were also higher than those in the control group after treatment ($P<0.05$). **Conclusion:** Repeated facilitation therapy combined with routine rehabilitation for stroke patients is helpful to improve the upper limb function, enhance the activities of daily living, improve the quality of life, and contribute to the recovery of patients.

Keywords: Repeated Facilitation Therapy; Routine Rehabilitation Therapy; Stroke; Upper Limb Function

1. Introduction

Stroke is the most common and highly prevalent type of cerebrovascular disease, with a high risk and even the potential to endanger the patient's life. Most of these patients have varying degrees of damage to their nervous system functions, which can easily lead to different types of functional impairments. Upper limb dysfunction

is the most common type, directly affecting the patient's prognosis and reducing their quality of life [1-2]. During the rehabilitation of stroke patients, it is necessary to promptly adopt effective rehabilitation treatment plans to assist in the recovery of upper limb function. Repeated facilitation therapy has gradually been applied to the rehabilitation treatment of stroke patients. It helps to restore the damaged functions of patients by regulating nerve pathways [3]. This study mainly observed the effect of repeated facilitation therapy combined with routine rehabilitation in stroke patients.

2. Materials and Methods

2.1 General Information

Seventy-six stroke patients admitted to our hospital from January to December 2024 were selected as the research subjects and randomly divided into two groups of 38 patients each. One group received routine rehabilitation treatment during the rehabilitation period (control group), and the other group received repeated facilitation therapy combined with routine rehabilitation treatment (observation group). In the control group, there were 20 males and 18 females, aged 58-79 years, with an average age of (65.33 ± 1.83) years. The body mass index ranged from 21 to 24kg/m^2 , with an average of $(22.47\pm 0.77)\text{kg/m}^2$. In the observation group, there were 21 males and 17 females, aged 57-78 years, with an average age of (64.89 ± 1.98) years. The body mass index ranged from 21 to 24kg/m^2 , with an average of $(22.52\pm 0.85)\text{kg/m}^2$. There was no significant difference in the basic data of stroke cases between the two groups ($P>0.05$).

2.2 Methods

The patients in the control group received routine rehabilitation treatment during the rehabilitation process. The rehabilitation doctor guided the patients to conduct upper limb

function exercises in a timely manner according to their recovery status. In the early stage, passive upper limb activities were mainly carried out, and then gradually shifted to active activities. Hand function exercises were also included. Each session lasted 30 minutes, three times a day. The patients in the observation group received additional repeated facilitation therapy: (1) Shoulder joint movement: The patients were guided to perform flexion, adduction, abduction, and internal rotation of the shoulder joint alternately, 20 minutes per session, three times a day. (2) Elbow joint movement: The patients were guided to perform flexion and extension of the elbow joint independently, alternating between the left and right sides, 15 minutes per session, three times a day. (3) Forearm training: The patients were guided to perform pronation and supination training of the forearm, 15 minutes per session, three times a day. (4) Wrist joint movement: The patients were guided to perform flexion and dorsiflexion of the wrist joint, 10 minutes per session, three times a day. During the training process, the rehabilitation doctor guided the patients on each movement one by one to ensure the accuracy of each rehabilitation training.

2.3 Observation Indicators

(1) Upper limb function and activities of daily living: The upper limb function was evaluated according to the Fugl-Meyer Assessment (FMA) scale, with a score range of 0-66 points. The higher the score, the better the upper limb function. The activities of daily living were evaluated according to the Barthel Index (ADL)

scale, with a score range of 0-100 points. The higher the score, the better the activities of daily living. (2) Quality of life and muscle tone level: The quality of life of patients during the recovery period was scored according to the Short-Form 36 Health Survey (SF-36) scale, with a score range of 0-100 points. The higher the score, the better the quality of life. The muscle tone level was evaluated on a scale of 0-5 points. The higher the score, the better the muscle tone.

2.4 Statistical Methods

The relevant data in this study were analyzed by SPSS 25.0. Measurement data were expressed as mean±standard deviation and tested by the t-test. Count data were expressed as percentages and tested by the chi-square test. A difference with ($P<0.05$) was considered statistically significant.

3. Result

3.1 Analysis of Upper Limb Function and Activities of Daily Living

The upper limb function and activities of daily living in the observation group were higher than those in the control group after treatment ($P<0.05$), as shown in Table 1.

3.2 Analysis of Quality of Life and Muscle Tone Level

The quality of life and muscle tone level in the observation group were higher than those in the control group after treatment ($P<0.05$), as shown in Table 2.

Table 1. Upper Limb Function and Daily Activity Ability Analysis ($\bar{x} \pm s$)

Group	Number of Cases	Upper Limb Function		Daily Activity Ability	
		Before Treatment	After Treatment	Before Treatment	After Treatment
Observation Group	38	25.45±2.25	46.85±2.11	63.45±2.58	82.63±2.35
Control Group	38	25.66±2.35	32.05±2.05	63.66±2.74	73.28±1.98
<i>t</i>	-	1.587	28.045	1.857	21.045
<i>p</i>	-	0.615	<0.001	0.515	<0.001

Table 2. Quality of Life and Muscle Tone Analysis ($\bar{x} \pm s$)

Group	Number of Cases	Quality of Life		Daily Activity Ability	
		Before Treatment	After Treatment	Before Treatment	After Treatment
Observation Group	38	63.63±2.85	82.63±2.15	2.05±0.56	4.15±0.31
Control Group	38	64.05±2.92	78.06±2.74	2.06±0.41	2.64±0.64
<i>t</i>	-	1.427	15.045	1.116	16.785
<i>p</i>	-	0.345	<0.001	0.234	<0.001

4. Discussion

Stroke mainly occurs in the elderly population and has a certain risk. The disease can easily

cause different degrees of functional impairments in patients, and upper limb dysfunction is the most common type, directly affecting the prognosis. Combining with clinical

practice, the recovery of these patients is relatively slow, which has a great impact on their independent living ability [4]. To comprehensively ensure the treatment effect of stroke patients, it is necessary to guide patients to carry out rehabilitation training in a timely manner during the recovery process to help restore their upper limb function.

During routine rehabilitation treatment, guiding patients to perform active and passive activities can promote the recovery of damaged functions, but the effect is relatively slow, which is not conducive to the short-term recovery of patients. The purpose of repeated facilitation therapy is to dredge the damaged nerve pathways of patients. By guiding patients to carry out various upper limb movements, it can excite the nerve pathways and increase the conduction efficiency of nerve pathways [5-6]. At the same time, under the continuous effect of repeated facilitation therapy, the excitability of spinal motor neurons can be reduced, which can improve the upper limb function of patients and relieve the symptoms of upper limb muscle spasm. In this study, the observation group received repeated facilitation therapy on the basis of routine rehabilitation treatment during the rehabilitation period. The comparison shows that under the effect of this combined rehabilitation treatment, it can promote the recovery of upper limb function and muscle strength level of patients, enhance the activity ability of patients, and improve the quality of life during the recovery period of patients, comprehensively ensuring the treatment effect of these patients.

In conclusion, during the rehabilitation treatment of stroke patients, repeated facilitation therapy combined with routine rehabilitation can be carried out to promote the recovery of upper limb function.

References

- [1] Zhao N, Li N, Zhang L S, et al. Rehabilitation effect of whole-body vertical vibration training combined with repeated facilitation therapy on lower limb motor function in hemiplegic patients after ischemic stroke [J]. Practical Journal of Cardiac Cerebral Pneumal and Vascular Disease, 2025, 33(04): 69-74.
- [2] Zhang B H, Jiang J Y, Wang W F. Application effect of repeated facilitation therapy combined with neuromuscular electrical stimulation in the rehabilitation of patients with unilateral upper limb dysfunction after stroke [J]. Practical Journal of Cardiac Cerebral Pneumal and Vascular Disease, 2025, 33(04): 75-80.
- [3] Dai Y, Yu Y F, Sun Y J, et al. Meta-analysis of the rehabilitation effect of repeated facilitation therapy on the motor function of stroke patients [J]. Chinese Journal of Convalescent Medicine, 2024, 33(05): 30-35.
- [4] Tao Y Y, Wang X G, Xue X H, et al. Efficacy observation of repeated facilitation therapy in stroke hemiplegic patients [J]. Journal of Chronic Diseases, 2022, 23(09): 1398-1400+1403.
- [5] Wang X G, Tao Y Y, Xue X H, et al. Influence of repeated facilitation therapy on hand function in stroke patients with hypertension and hemiplegia [J]. Journal of North China University of Science and Technology (Medical Edition), 2022, 24(04): 296-300.
- [6] Jiang Z M, Ye X M. Influence of repeated facilitation therapy on lower limb motor function and gait in the sequelae stage of stroke patients [J]. Nursing and Rehabilitation, 2021, 20(02): 82-84.