Effect of Early Neuromotor Therapy (PT) on Motor Function and Activities of Daily Living in Patients with Acute Stroke

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Abstract: Objective: To observe the effect of early neuromotor therapy (PT) on motor function and activities of daily living (ADL) in patients with acute stroke. Methods: A total of 76 patients with acute stroke admitted to our hospital from February to December 2024 were selected as the research subjects and randomly divided into two groups. One group (control group, 38 cases) received routine rehabilitation treatment, and the other group (observation group, 38 cases) received early neuromotor therapy. The changes in motor function and ADL of the patients were observed. Results: The motor function of the observation group after treatment was higher than that of the control group (P<0.05). The ADL of the observation group after treatment was higher than that of the control group (P<0.05). Conclusion: Early neuromotor therapy for patients with acute stroke can improve patients' motor function and ADL, contributing to their recovery.

Keywords: Early Neuromotor Therapy; Acute Stroke; Motor Function; Activities of Daily Living

1. Introduction

Acute stroke has an extremely high incidence in clinical practice, mainly affecting middle-aged and elderly people. The disease is highly risky, and if patients do not receive timely treatment, it is easy to endanger their lives[1-2]. Under the influence of ischemic and hypoxic symptoms of brain tissue and nerve function, patients are prone to varying degrees of functional impairment, with motor dysfunction being the most common, which directly affects the prognosis of patients. In order to comprehensively ensure the clinical treatment effect of patients with acute stroke, effective treatment measures should be taken in a timely manner to improve patients' motor function and enhance their ADL[3]. This study mainly observed the specific therapeutic effect of early neuromotor therapy.

2. Materials and Methods

2.1 General Data

A total of 76 patients with acute stroke admitted to our hospital from February to December 2024 were selected as the research subjects and randomly divided into two groups. One group (control group, 38 cases) received routine rehabilitation treatment, and the other group (observation group, 38 cases) received early neuromotor therapy. In the control group, there were 20 males and 18 females, aged 56-76 years, with an average age of (63.45±1.64) years. The body mass index (BMI) was 21-25 kg/m², with an average of (22.15±1.35) kg/m². In the observation group, there were 21 males and 17 females, aged 54-77 years, with an average age of (63.67±1.15) years. The BMI was 21-25 kg/m², with an average of (22.15±1.57) kg/m². There was no significant difference in baseline data between the two groups (P>0.05).

2.2 Methods

The control group received routine rehabilitation treatment. After the patient's postoperative indicators stabilized, they were assisted in carrying out motor training, mainly passive training in the early stage, gradually transitioning to active training. The training time and frequency were determined according to the patient's actual situation. The observation group received early neuromotor therapy:

(1) Bedridden period treatment: During the patient's bedridden period, early postural management should be done, and postures should be changed in an alternating manner of supine position, lateral position, and healthy side lying position to play an anti-spasm role. Assist the patient in carrying out passive joint training, including bending and stretching training. At the same time, assist the patient in

carrying out sitting balance training, exercise the lumbar and back muscles, and then transition to body and pelvis control training.
(2) Non-bedridden period training:
Standing and sitting training: First guide the patient to be in a sitting position, then guide the patient to extend both hands forward, slowly tilt the head and trunk forward, shift the center of gravity forward, and slowly extend the knee joint to stand. After standing for 1 minute, sit down again, and repeat for 5 minutes.
Standing balance training: Assist the patient to maintain a standing position, place the patient's center of gravity on the healthy lower limb, and then slowly transfer it to the affected lower limb. This process needs to be carried out with the help of family members or nursing staff to avoid falls and other situations.
Walking exercise: After the patient can maintain standing balance independently, assist the patient in walking training, 30 minutes each time, twice a day.
Up and down stairs training: Guide the patient to gradually carry out up and down stairs training, 20 minutes each time, three times a day.

2.3 Observation Indicators
(1) Motor function assessment: The Fugl-Meyer Assessment Scale was used to assess the changes in motor function of patients, including upper limb function (0-66 points) and lower limb function (0-34 points). The higher the score, the better the recovery of patients' motor function.
(2) ADL assessment: The ADL scale was used to analyze the changes in ADL of patients during recovery, with a score range of 0-56 points. The higher the score, the stronger the ADL of patients.

2.4 Statistical Methods
The corresponding data in the study were analyzed by SPSS 22.0. Measurement data (including motor function, ADL scores, etc.) were expressed as ($\bar{x}\pm s$) and tested by t-test. Enumeration data such as complications were expressed as percentage (%) and tested by chi-square test. ($P<0.05$) indicated that the difference was statistically significant.

3. Results

3.1 Motor Function Assessment
The limb function of the observation group after nursing was higher than that of the control group ($P<0.05$), as shown in Table 1.

Table 1. Comparison of Limb Function Scores between the Two Groups ($\bar{x}\pm s$, points)

Group	Number of Cases	Upper Limb FMA Score		Lower Limb FMA Score	
		Before Nursing	After Nursing	Before Nursing	After Nursing
Observation	38	38.64±3.42	60.05±2.11	10.25±1.26	27.35±1.68
Control	38	38.92±3.35	50.34±2.15	10.33±1.34	21.45±1.98
t	-	0.425	26.425	0.578	25.425
P	-	0.915	<0.001	0.811	<0.001

3.2 Comparison of Self-Care Ability between the Two Groups
Comparing the self-care ability of patients, the ADL scale score of the observation group was higher than that of the control group ($P<0.05$), as shown in Table 2.

Table 2. Comparison of Spinal Function between the Two Groups ($\bar{x}\pm s$)

Group	Number of Cases	Before Intervention	First Month after Intervention	Second Month after Intervention	Third Month after Intervention
Observation	38	32.05±1.45	40.35±1.35	45.26±1.78	48.15±1.45
Control	38	32.11±1.34	35.35±1.26	38.64±1.98	41.26±1.99
t	-	1.245	22.042	19.042	22.052
P	-	0.715	0.001	0.001	0.001

4. Discussion
Patients with acute stroke often have varying degrees of functional impairment and motor function impairment, which directly affects their ADL and is not conducive to their prognosis. During the treatment of patients with acute stroke, effective treatment measures should be taken in a timely manner to help patients recover[4].
Early neuromotor therapy has been gradually applied in the treatment of patients with acute

stroke. After the patient's condition stabilizes, guiding the patient to carry out early neuromotor function exercises in a timely manner, from passive movement to active movement, and helping the patient carry out standing training, walking training, and up and down stairs training, can help the damaged function recover[5-6]. At the same time, in the process of guiding patients to accurately carry out early neuromotor therapy, combining to promote the gradual recovery of patients' damaged functions can help patients gradually adapt to normal life and play a role in improving patients' self-care ability. In this study, the motor function and ADL of the observation group increased after early neuromotor therapy, indicating that under the action of this treatment measure, it can promote the recovery of patients' motor function and help improve the prognosis.

In conclusion, early neuromotor therapy can be carried out in a timely manner in the treatment of patients with acute stroke to help patients recover.

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