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Practical Study on the Application of a Home Rehabilitation Nursing Program to People Recovering from Cerebral Infarction in the Community

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Abstract: *Objective:* To explore the actual intervention effect of a home-based rehabilitation nursing program on patients in the recovery period of cerebral infarction (CI) in the community. *Methods:* Research period: April 2025 to April 2026; the research subjects were a total of 78 patients in the recovery period of cerebral infarction. The 78 research samples were divided into groups through computer-based random allocation. The results showed that there were 39 cases in each group, the control group and the observation group. The control group received routine clinical community nursing intervention, and the observation group received personalized home rehabilitation nursing intervention based on routine nursing. The study explored the effects of the two intervention groups. *Results:* After 3 months of nursing intervention, the FMA score and BBS score of the observation group were significantly improved $P < 0.05$. After 3 months of intervention, the SS-QOL score of the observation group was higher, and the comparison showed $P < 0.05$. The observation group had higher recognition and satisfaction with nursing intervention, comparison $P < 0.05$. *Conclusion:* Carry out home rehabilitation nursing intervention for patients in the recovery period of cerebral infarction in the community, which can effectively improve the patients' limb movement function and body balance ability, and comprehensively improve the patients' daily quality of life and satisfaction with nursing services.

Keywords: Cerebral infarction; Recovery period; Home rehabilitation care; Community care; Motor function; Quality of life

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1. Introduction

Cerebral infarction is a relatively common cerebrovascular disease in clinical practice. This disease mainly occurs in middle-aged and elderly people, and is characterized by high morbidity, high disability rate, and long recovery time [1]. After most patients receive acute-phase symptomatic treatment in the hospital, their

vital signs can return to stable levels, but they will have functional impairment problems such as impairment of limb movement, decreased balance ability, and decreased ability to take care of themselves, requiring long-term and sustained rehabilitation intervention. Traditional community routine care mainly relies on basic health guidance and medication reminders. The intervention content is relatively simple, the rehabilitation is not targeted enough, and it is difficult to match patients' individual functional recovery needs. Most patients will experience irregular training and slow progress in functional recovery during home rehabilitation. Some patients even experience degradation of limb function, which has a serious impact on daily work and life [2]. Home rehabilitation care takes the patient's family as the main scene, and formulates rehabilitation intervention content suitable for the home environment based on the patient's condition and physical condition, which can make up for the shortcomings of conventional community care [3]. This study focuses on exploring the clinical application effect of personalized home rehabilitation nursing intervention to optimize the continuous rehabilitation nursing model for patients with cerebral infarction in the community. It is summarized as follows:

2. Materials and methods

2.1. General information

Research time: April 2025 to April 2026. The research subjects were a total of 78 patients in the recovery period of cerebral infarction. The 78 research samples were divided into groups through computer-based random allocation. The results showed that there were 39 cases in each group, the control group and the observation group. The control group included 21 male and 18 female cases, respectively. The overall age range was 52-79 years old, with an average of (65.36 ± 5.28) years old. The duration of the disease was 1 to 6 months, with an average of (3.25 ± 1.06) months. Hemiplegic limbs: 20 cases on the left side and 19 cases on the right side. The observation group included 22 male and 17 female cases, respectively. The overall age range was 51-80 years old, with an average of (66.12 ± 5.43) years old. The duration of the disease was 1 to 6 months, with an average of (3.31 ± 1.12) months. Hemiplegic limbs: 18 cases on the left side and 21 cases on the right side. The baseline data of the 2 groups were statistically tested, and the comparison was $P > 0.05$.

Inclusion criteria: (1) Diagnosed with cerebral infarction through cranial CT or MRI imaging examination; (2) Vital signs are stable and consciousness is clear; (3) There are varying degrees of limb movement dysfunction and balance dysfunction; (4) Communication ability is normal.

Exclusion criteria: (1) accompanied by cerebral hemorrhage, brain tumor, severe craniocerebral trauma; (2) organ failure; (3) cognitive impairment, mental abnormality, aphasia and other problems; (4) congenital malformations of limbs, unhealed fractures, and severe joint disease.

2.2. Method

The control group received routine rehabilitation nursing intervention in the community. Nursing staff visited the home once a month for follow-up visits. They conducted daily health supervision by telephone, informed patients of the dosage, time of taking and common adverse reactions of various drugs, reminded patients to take drugs on time and regularly, and explained the drinking habits during the recovery period of cerebral infarction. Relevant knowledge about food, work and rest, and basic home protection is provided, and patients are briefly informed that they can carry out physical activity training, and reminded to pay attention to preventing common problems such as falls, pressure sores, and lung infections while at home; the patient's physical recovery is recorded once a month, and basic care questions raised by patients and their families are

answered.

The observation group implements personalized home rehabilitation nursing intervention. The nursing staff provides door-to-door guidance once a week and online supervision through WeChat every day to track the patient's rehabilitation progress throughout the process.

(1) Individualized functional assessment and staged rehabilitation plan formulation: After the patient is enrolled, the nursing staff conducts a comprehensive home rehabilitation assessment. Based on the patient's age, physical tolerance, home environment, and family care conditions, the rehabilitation process is divided into the initial adaptation stage, the mid-term strengthening stage, and the later consolidation stage, and an exclusive staged rehabilitation plan is developed for each patient. At the same time, a home rehabilitation manual is issued to patients and their families, marking the key points and precautions of each stage of training, and matching it with practical pictures and short videos to facilitate comparison and practice at home.

(2) Dimensional limb movement and balance function home training: (a) In the early stage of rehabilitation, for patients with weak limb muscles and unable to move independently, family members assist in passive training, twice a day, 20 minutes each time, including limb joint flexion, extension, rotation, and abduction training. Bobath's handshake training is also carried out, instructing patients to cross their fingers and place the thumb of the affected side on top, and slowly lift their upper limbs to improve the mobility of upper limb joints and prevent shoulder joint adhesion. (b) In the middle stage of rehabilitation, after the patient's muscle strength has recovered, he transitions to active training and carries out bridge exercises. The patient is instructed to lie flat and bend his knees, slowly lift his hips and hold them for 3 to 5 seconds before lowering them. This is done in 3 groups a day, 15 times each, to strengthen the core muscles of the waist and hips. At the same time, fine movement training of the hands is carried out. Through everyday movements such as picking up soybeans, twisting bottle caps, and threading beads, train for 15 minutes a day to improve the coordination and flexibility of the hands. (c) Balance function training begins with basic standing training, instructing patients to stand against a wall or rely on a walker, and gradually transitioning to independent standing without assistance, twice a day, each session lasting 10 minutes. In the later stage, patients can perform training such as slow walking, standing in place and shifting the center of gravity to gradually improve the balance and stability of the body.

(3) Targeted home intervention for swallowing and language functions: For patients with swallowing dysfunction, doctors treat them by conducting pharyngeal cold stimulation training. Patients need to use sterile ice cotton swabs to gently rub the throat wall before daily meals to stimulate the swallowing reflex, each time lasting 10 seconds. Doctors also need to guide patients to adjust the compensatory posture of the head and neck forward, which will reduce the risk of aspiration when eating. For patients with reduced language function and unclear pronunciation, this article recommends the implementation of step-by-step language training. The training begins with imitating the pronunciation of a single syllable and a single Chinese character, practicing mouth postures in front of the mirror every day for 15 minutes each time, and gradually transitions to reading common words and short sentences aloud and interacting in daily family environments. Doctors encourage patients to proactively express their needs in order to activate language neural functions continuously.

(4) Refined home diet and lifestyle care: This article develops a personalized home diet plan for patients, strictly controls sodium and oil intake, increases the intake of high-quality protein, dietary fiber, and

vitamins, and adjusts food properties according to the patient's swallowing ability. Nursing staff need to guide patients to develop regular work and rest habits, ensure adequate sleep every day, avoid staying up late and overexertion, reasonably arrange training and rest time according to the body's tolerance, and avoid high-intensity and overload training. At the same time, family members are also guided to modify the home environment, clear debris on the floor, lay anti-slip mats, and install handrails to eliminate potential safety hazards in home rehabilitation.

(5) Psychological counseling and family support intervention: Patients recovering from cerebral infarction are prone to negative emotions such as anxiety, depression, and low self-esteem due to limited limb functions and reduced self-care abilities, which in turn reduces patients' enthusiasm for rehabilitation training. When conducting follow-up visits and online supervision, nursing staff should take the initiative to communicate with patients, understand their psychological conditions, listen carefully to patients' demands, give positive encouragement to patients on their daily recovery progress, and help patients build confidence in recovery. Medical staff will also guide family members to accompany and cooperate, allowing family members to actively participate in the patient's rehabilitation training process, assist patients in completing daily training, and create a good home rehabilitation atmosphere, thereby improving patients' compliance with long-term rehabilitation.

(6) Dynamic follow-up and program adjustment: The nursing staff establishes the patient's exclusive home rehabilitation file, conducts weekly visits to evaluate the patient's functional recovery, completes a monthly scale re-evaluation, and adjusts the intensity and content of training in a timely manner based on the patient's recovery progress to ensure the pertinence and effectiveness of the rehabilitation intervention. At the same time, a 24-hour consultation channel is opened to answer various questions encountered by patients and their families during home rehabilitation at any time.

The intervention period of both groups lasted for 3 months.

2.3. Observation indicators

The limb motor function is evaluated by the Fugl-Meyer Motor Function Assessment Scale (FMA). The higher the score, the better the limb motor function. Use the Berg Balance Scale (BBS) to evaluate the body's balance ability. The higher the score, the stronger the balance ability. It is evaluated through the Stroke Special Quality of Life Scale (SS-QOL). The higher the score, the better the quality of life after stroke. A self-made nursing satisfaction questionnaire is used for evaluation, with each dimension ranging from 0 to 25 points, and the total score ranging from 0 to 100 points.

2.4. Statistical methods

The SPSS26.0 software was used to process the data involved in the study. Measurement data were expressed as "mean ± standard deviation (SD)" and tested by "t"; count data were expressed as "[n/(%)]" and tested by "χ^2". $P < 0.05$ indicated that the difference was statistically significant.

3. Results

3.1. Comparison of FMA scores and BBS scores

After 3 months of nursing intervention, the FMA score and BBS score of the intervention group were significantly improved, with $P < 0.05$ (**Table 1**).

Table 1. Comparison of FMA scores and BBS scores (mean ± SD, points) between the two groups

Group	n	Upper limb FMA score		Lower limb FMA score		BBS rating	
		Before intervention	After intervention	Before intervention	After intervention	Before intervention	After intervention
Control group	39	38.26 ± 4.15	45.32 ± 4.28	18.65 ± 2.36	23.16 ± 2.45	22.36 ± 3.52	31.58 ± 3.65
Observation group	39	37.98 ± 4.06	52.16 ± 4.35	18.42 ± 2.28	27.85 ± 2.39	22.15 ± 3.48	39.86 ± 3.72
t	--	0.301	7.000	0.438	8.557	0.265	9.922
P	--	0.764	0.000	0.663	0.000	0.792	0.000

3.2. SS-QOL score comparison

After 3 months of intervention, the SS-QOL score of the observation group was higher, and the comparison showed $P < 0.05$ (**Table 2**).

Table 2. Comparison of SS-QOL scores between two groups (mean ± SD, points)

Group	n	SS-QOL total score before intervention	SS-QOL total score after intervention
Control group	39	126.35 ± 10.28	168.52 ± 11.36
Observation group	39	125.89 ± 10.15	195.68 ± 12.05
t	-	0.199	10.242
P	-	0.843	0.000

3.3. Comparison of nursing satisfaction scores

The observation group had higher recognition and satisfaction with nursing intervention, comparison $P < 0.05$ (**Table 3**).

Table 3. Comparison of nursing satisfaction scores between the two groups (mean ± SD, points)

Group	n	Service attitude	Rehabilitation guidance professionalism	Timeliness of follow-up	Problem-solving efficiency	Total score
Control group	39	20.15 ± 2.16	19.86 ± 2.23	20.32 ± 2.08	19.93 ± 2.11	80.26 ± 6.35
Observation group	39	23.62 ± 1.25	23.51 ± 1.32	23.75 ± 1.18	23.48 ± 1.26	94.36 ± 4.28
t	-	8.683	8.796	8.957	9.021	11.499
P	-	0.000	0.000	0.000	0.000	0.000

4. Discussions

The recovery period after cerebral infarction is a critical stage for the recovery of patients' neurological and physical functions. Brain nerves have a certain degree of plasticity. Under the stimulation of continuous and standardized external intervention, damaged neural pathways can be gradually repaired and reconstructed, thereby improving the patient's limbs, language, balance and other functions [4]. In the past, conventional care was mostly used for patients with cerebral infarction in the community. Although it can meet the basic medical consultation needs of patients and help patients avoid basic medication risks and life risks, the care content is relatively simple and lacks targeted functional rehabilitation intervention. Most home patients will reduce the frequency of rehabilitation training or even stop training due to problems such as non-standard

training methods and lack of professional guidance, which ultimately leads to slow recovery of limb function. Some patients will also experience muscle atrophy, joint stiffness, and continued decline in balance function, seriously affecting the patient's long-term quality of life [5]. Home rehabilitation nursing relies on community nursing resources, is based on the patient's home rehabilitation scenario, and formulates intervention content that is consistent with the patient's actual physical condition and living environment. This nursing model focuses on the patient's functional recovery and continues to provide professional rehabilitation support to the patient through staged and personalized training guidance. It also mobilizes family members to participate in the nursing process and builds a stable and standardized home rehabilitation environment for the patient. It can maximize the repair potential of the patient's neurological and physical functions and help the patient gradually return to normal physical functions and living abilities [6].

5. Conclusion

In summary, home rehabilitation nursing intervention for patients recovering from cerebral infarction in the community can effectively improve the patients' limb motor functions and body balance, and comprehensively improve the patients' daily quality of life and satisfaction with nursing services.

Disclosure statement

The author declares no conflict of interest.

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