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Original Article

Value of continuous nursing on self-care ability in community patients with stroke

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Abstract: Objective: To explore the value of continuous nursing on the self-care ability of stroke patients in the community. Methods: A retrospective study of 60 rehabilitating stroke patients was conducted. The patients were admitted in our hospital and were divided into intervention group (receiving continuous nursing) and control group (receiving normal nursing) randomly. The upper and lower limb muscle strength, self-care ability, Activities of Daily Living (ADL) Score, National Institutes of Health Stroke Scale (NIHSS), Simplified Fugl-Meyer Assessment (FMA) Score, and satisfaction of nursing were compared. Results: Before nursing, there were no significant differences in upper and lower limb muscle strength between the two groups ($P>0.05$). After nursing, the upper and lower limb muscle strength of the intervention group was significantly better ($P<0.01$). Before nursing, there was no significant difference in the self-care ability score of the two groups of patients ($P>0.05$). After nursing, the self-care ability score of the intervention group was higher than that of the control group ($P<0.05$). Before nursing, there were no significant differences in ADL, NIHSS and FMA scores between the two groups of patients ($P>0.05$). After nursing, the ADL, NIHSS and FMA scores of the intervention group were higher ($P<0.05$). The overall satisfaction of nursing was significantly higher in the intervention group ($P<0.05$). The incidences of complications were also lower in the intervention group ($P<0.05$). Conclusion: Continuous nursing is beneficial to the rehabilitation of stroke patients as it can effectively improve the psychological conditions of stroke patients. It is worthy of clinical application and promotion.

Keywords: Continuous nursing, stroke rehabilitation, self-care

Introduction

Stroke is a neurological deficit disease, which usually occurs in middle-aged and elderly people. Those people are also high-risk groups of cardiovascular diseases, such as hypertension and ischemic stroke. In the rehabilitation of stroke survivors, there are usually varying degrees of negative feelings, which significantly decreases their recovery speed. Those negative emotions could also affect the recovery of various neurological functions [1]. While nursing has been carried out in the hospital under the conventional nursing model, post-discharge care is often neglected, which sometimes causes problems. It also contributes to the low efficiency of nursing and the failure to provide patients with nursing services. Therefore, community continuous nursing shows its importance. It can not only protect the health and medication safety of stroke patients but also improves the homogenization of basic public health services. Therefore, providing services for such people, while ensuring safety and reliability, has now become an urgent problem for grassroots community health centers [2, 3]. As a novel nursing method, continuous nursing pays more attention to the continuity of care after discharge, which can timely and effectively prevent or reduce the negative emotions of stroke patients and reduce complications [4]. Research has shown that implementing continuous nursing results in a strong increase in the capacity of self-care to rehabilitate patients with stroke [5]. However, most researchers often focused on family nursing, while the effect of community health centers is rarely studied [6].

Based on this, this study mainly explored the nursing effects of community continuous nurs-

ing for stroke patients who have been discharged from the hospital.

Materials and methods

General information

This was a retrospective study including 60 stroke patients who came to Heping Hospital Affiliated to Changzhi Medical College for nursing from July 2019 to July 2020. According to various nursing models, they were divided into either intervention groups or control groups. In the control group, due to pulmonary infection, 1 patient was re-admitted to the hospital. A total of 59 rehabilitating stroke patients, including 30 in the intervention group and 29 in the control group, were finally studied. Informed consent form has been signed by all enrolled patients. This study was approved by the Ethics Committee of Changzhi Medical College.

A comparative review of the related stroke patient data was performed after obtaining informed consent from the patients and their families to ensure the reliability of this study. The data from the two groups were found to have no noticeable differences and were comparable.

Inclusion and exclusion criteria

The inclusion criteria were as follows: (1) Patients were first diagnosed with stroke by clinical examinations (such as MRI and/or head CT) and the diagnosis met the criteria established by the 1996 Chinses National Conference on Neurological Cerebrovascular Diseases [7]. (2) Patients were conscious, had no barriers to communication, and displayed no intellectual disability (NEVISE scores >24). (3) Before the disease onset, patients were able to take care of themselves. (4) The participation of patients in this study was voluntary.

The exclusion criteria were as follows: (1) Patients with extreme aphasia and cognitive impairment. (2) Patients with quadriplegia and previous cerebrovascular diseases. (3) Patients with psychiatric illness or impaired consciousness. (4) Patients with serious disorders of the heart, lung, liver, kidney, malignant tumors, or other medical diseases. (5) Patients were unwilling to receive follow-ups. (6) Patients who were dead or suffered from severe complications.

Methods

Control group: Community nurses applied standard discharged community nursing in the control group for stroke survivors, such as issuing health manuals to explain stroke recovery, and offering professional rehabilitation advice.

Intervention Group: Continuous nursing interventions were implemented by the intervention group as follows:

First, the community health center, which is primarily composed of community physicians and community nurses, formed a WeChat group. All the participants had been trained to learn appropriate communication skills.

Second, based on the previous phase, a preliminary nursing plan was developed. The nursing plan was revamped and gradually strengthened. Because of their disease or family conditions, many stroke patients may have certain negative feelings. To mitigate the negative psychology of such patients, communication was carried out by nurses with stroke patients.

Third, a WeChat group of patients with stroke was created, which allowed patients with stroke to interact and discuss the recovery situation with each other in order to be more familiar with the knowledge and skills of stroke rehabilitation [8].

Fourth, the staff offered psychological therapy during the entire recovery process, promptly outlining specific coping strategies and medical facts to stroke patients. The interaction was also conducted via WeChat. The team gave assistance and advice to stroke patients.

Fifth, patients were adviced to exercise properly. The patients' diets were strictly regulated, and they were advised to maintain a good sleep so that they could recover as quickly as possible. Owing to their own condition or family situation, many rehabilitating stroke customers may experience some negative feelings in the nursing process. Therefore, patients were more regularly approached and interacted, mitigating the psychological adverse effects of stroke rehabilitation [9].

Sixth, the group management team provided offline peer education and special lectures using WeChat, both answering the questions of

patients and promoting their daily exercise, which was helpful in helping patients with stroke heal and managing associated symptoms and complications.

Outcome measurement

In this study, the two groups of rehabilitating stroke patients were observed and recorded in detail.

General information: Age, gender, bleeding volume, GCS score, etc.

Activities of Daily Living Score (ADL): The test-retest reliability of the Chinese edition of the Adjusted Barthel index is 0.98 and the validity is 0.95. It is easy to use and master and has high sensitivity and specificity. It is a commonly used method of clinical ADL assessment. The degree of ADL defect was described as follows: 0-20 points, extremely severe functional defect; 25-45 points, severe functional defect; 50-70 points, moderate functional defect; 75-95 points, mild functional defect; 100 points, susceptibility to self-care [10].

NIHSS (National Institutes of Health Stroke Scale): It is easy to use the NIHSS scale. Patients can be assessed many times a day. Users will quickly master it, and it has strong repeatability and validity. 42 points is the maximum score. A higher score shows a more severe neurological deficit.

Simplified Fugl-Meyer Motor Function Score (FMA): The table has a total score of 100 points, of which the upper limb motor function section has 33 items, a total of 66 points, and the lower limb motor function section has 17 items, a total of 34 points. Each item is scored into three levels, with 2 points for all implementations, 1 point for some implementations, and 0 points for non-implementation. The higher the score, the better the effect of motor function rehabilitation [11].

When discharged from the hospital, the patient's self-care capacity was registered, including skills in self-care, health literacy, self-responsibility and self-awareness. A higher score reflects a greater capacity for self-care [12].

During the care, adverse reactions were reported. Nausea, constipation and gastrointestinal pain were among the adverse reactions. Adverse reaction incidence = (adverse reaction patient) number/total case number × 100%.

Before discharge, the satisfaction survey questionnaire was distributed to patients. In this study, the Cronbach's alpha scale coefficient was 0.91. The questionnaire was to determine the satisfaction of nursing patients. The full score of the questionnaire was 10 points; a score of ≥9 points was classified as very satisfied; a score of 7-8 points was classified as satisfied; a score of <7 points was defined as not satisfied. Rate of nursing satisfaction = (very satisfied + satisfied) number/total number of cases × 100%.

Statistical analysis

A database was established and SPSS 17.0 statistical software was used. The measurement data were tested for normality. Data conformed to normal distribution were expressed as mean ± standard deviation ($\bar{x} \pm sd$) and tested using t-test. The enumeration data were expressed by the number of cases/percentages (n/%) and tested with chi-square (χ^2). $P< 0.05$ indicated that the difference was statistically significant.

Results

Comparison of the baseline data of two groups of rehabilitating stroke patients

It was found that there were no statistical differences in the relevant data between the two groups of patients (all, $P>0.05$). See **Table 1**.

Comparison of FMA scores of upper and lower limb muscle strength between two groups of rehabilitating stroke patients

Before nursing, there were no significant differences in muscle strength of the upper and lower limbs between the two groups of patients ($P>0.05$). After nursing, the score was significantly higher ($P<0.01$). After nursing, the muscle strength of the intervention group was better than that of the control group. The difference was statistically significant ($P<0.01$). The specific results are shown in **Table 2**.

Comparison of the scores of self-care ability between two groups of rehabilitating stroke patients

Before nursing, there was no significant difference in self-care ability between the two groups

Table 1. Comparison of the baseline data of the two groups of rehabilitating stroke patients (n, $\bar{x}$ ± sd)

Item	Control group (n=29)	Intervention group (n=30)	t/χ^2	P
Age (year)	60.3±7.8	60.1±7.8	0.055	0.965
GCS Score	9.15±0.75	9.10±0.72	0.213	0.834
Preoperative blood loss (mL)	38.22±5.82	38.20±5.22	0.013	0.989
Gender			0.141	0.708
Male	21	23		
Female	8	7		

Table 2. Comparison of FMA scores of upper and lower limb muscle strength between the two groups of rehabilitating stroke patients (n, $\bar{x}$ ± sd)

Group	Upper limb strength		Lower limb strength	
	Before nursing	After nursing	Before nursing	After nursing
Intervention group (n=30)	1.40±0.50	3.40±0.50**	1.95±0.60	3.80±0.41**
Control group (n=29)	1.45±0.51	2.55±0.69**	1.90±0.55	2.95±0.69**
t	0.326	4.073	0.271	4.677
P	0.748	0.001	0.789	0.000

Note: Compared with the same group before nursing, **P<0.01. FMA: Simplified Fugl-Meyer Motor Function Score.

Table 3. Comparison of the scores of self-care ability between the two groups of rehabilitating stroke patients (n, $\bar{x}$ ± sd)

Group		Self-care skills	Health knowledge	Self-responsibility	Self-awareness
Intervention group (n=30)	Before nursing	15.61±2.41	16.31±3.41	14.31±3.63	13.45±3.21
	After nursing	33.48±5.46*	45.86±5.98*	25.34±2.34*	36.54±4.56*
Control group (n=29)	Before nursing	15.84±2.63	16.87±3.57	14.67±3.67	13.42±3.36
	After nursing	25.26±2.31*,#	38.47±3.64*,#	15.35±2.04*,#	23.56±4.12*,#

Note: Compared with the same group before nursing, *P<0.05; Compared with the same group after nursing, #P<0.05.

of patients (P>0.05). After nursing, the scores were significantly higher (P<0.05). After nursing, the self-care ability scores of the intervention group were better than those of the control group. The difference was statistically significant (P<0.05). See **Table 3**.

Comparison of ADL, NIHSS and FMA scores between two groups of rehabilitating stroke patients

Before nursing, there was no significant difference in ADL, NIHSS, FMA scores between the two groups of patients (P>0.05). After nursing, the scores were significantly better (P<0.05). After nursing, The ADL, NIHSS, and FMA scores of the intervention group were better than those of the control group (P<0.05). See **Table 4**.

Comparison of complications between two groups of rehabilitating stroke patients

The nursing complications of the intervention group were significantly lower than those of the control group (6.67% vs. 17.24%, P<0.05). See **Table 5**.

Comparison of nursing satisfaction between two groups of rehabilitating stroke patients

The nursing satisfaction of the intervention group was significantly higher than that of the control group (92.50% vs. 75.00%, X^2=4.891, P=0.027). See **Figure 1**.

Discussion

Most of the nursing care in the community for stroke survivors is the follow-up, and health

Table 4. Comparison of ADL, NIHSS and FMA scores between the two groups of rehabilitating stroke patients (n, $\bar{x} \pm sd$)

Group	ADL		NIHSS		FMA	
	Before nursing	After nursing	Before nursing	After nursing	Before nursing	After nursing
Intervention group (n=30)	24.50±5.36	71.00±3.84*	17.80±1.36	10.10±1.17*	20.60±2.46	62.80±8.64*
Control group (n=29)	24.70±5.50	60.00±8.43*	17.80±1.23	13.55±2.16*	20.40±2.50	50.10±7.10*
t	0.095	4.942	0.139	17.131	0.256	3.842
P	0.924	0.000	0.891	0.000	0.800	0.001

Note: Compared with the same group before nursing, *P<0.05. ADL: Activities of Daily Living Score; NIHSS: National Institutes of Health Stroke Scale; FMA: Simplified Fugl-Meyer Motor Function Score.

Table 5. Comparison of complications between the two groups of rehabilitating stroke patients (n/%)

Group	Lung infection	Urinary tract infection	Pressure ulcer	Total incidence
Intervention group (n=30)	2	0	0	2 (6.67%)
Control group (n=29)	3	1	1	5 (17.24%)
t				4.336
P				0.037

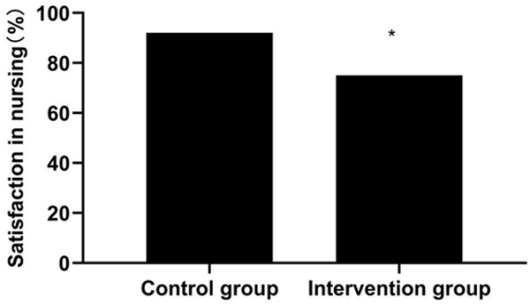

Figure 1. Comparison of patient satisfaction between the two groups. Compared with the control group, *P<0.05.

education is mostly done by the distribution of brochures. Patients with strokes need to learn on their own, and this approach can cause inconveniences. After they have complications, rehabilitating stroke patients can not get timely support and there is very little contact with physicians, which is not conducive to the postoperative rehabilitation of patients with stroke. In the conventional nursing method, because rehabilitating stroke patients actively needed all sorts of knowledge, some nursing advice could not be accomplished in time. There were often cases of untimely nursing care, which led to an unclear health situation of stroke patients [13].

ADL, NIHSS, and FMA scores, the upper and lower limb muscle strength scores, are commonly used for rehabilitating stroke patients in clinical functional rehabilitation assessment scales. This study measured patients' functional recovery accordingly. Studies have shown that continuous nursing interventions in the community for the rehabilitation of stroke patients can provide ongoing, efficient and scientific treatment after discharge, help patients learn the correct training methods for swallowing functions, and facilitate the recovery of patients' swallowing functions [14]. In this study, the upper and lower limb muscle strength, self-care ability, and ADL, NIHSS, FMA scores of the intervention group were better than those of the control group after nursing. The difference was statistically significant, demonstrating that the different functions can be enhanced by continuous nursing and encouraging the rapid recovery of those patients.

Community stroke rehabilitation patients do require a recovery period after discharge, but sometimes due to insufficient hospitalization time and inadequate out-of-hospital rehabilitation, patients have several long-term conditions that have a significant effect on patients' quality of life [15, 16]. Continuous nursing is a scheme that gives services to families of patients in hospital care. Middle-aged and elderly people can now use online social networks such as WeChat to connect with each other to a certain degree through the popularisation of smartphones, which has shown some positive results in terms of prognosis and compliance [17, 18]. Combined with this research, we

found that the self-care potential of patients through community continuous nursing was better compared to the conventional model. The difference was statistically significant.

Problems should be detected and dealt with in time while carrying out continuous nursing treatment for stroke patients in the community, coordinating specialist nurses to provide detailed and structured instruction for patients on a daily basis [19, 20]. For the first time, patients were able to contact nurses, get adequate assistance, and master functional instruction, thus enhancing nursing satisfaction and reducing complications [21]. The findings of this study showed that the overall satisfaction of the intervention group was considerably greater than that of the control group and that the problems were lower than those of the control group.

However, there are also shortcomings in this study and no long-term analysis has been carried out. It is also not clear whether continuous nursing will still affect the capacity to cope, motor function, and neurological function of patients with cerebral hemorrhage on a daily basis after three months of discharge. Besides, this study's sample size was small. The sample size should be increased in subsequent studies to reduce the negative effect of small sample size on the findings.

In summary, an essential aspect of primary community health care centers is to provide ongoing treatment for stroke patients. This study showed that continuous nursing is useful in the community for the recovery of stroke patients and can enhance the psychological status of stroke patients effectively. Consequently, it is worthy of clinical use and promotion.

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Disclosure of conflict of interest

None.

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