# STUDY ON APPLICATION OF CONTINUOUS NURSING IN REHABILITATION PERIOD OF STROKE PATIENTS

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***ABSTRACT***

***Objective:*** *The objective of this paper is to analyze the application effect of continuous nursing in the rehabilitation period of stroke patients.*

***Method:*** *From January to October 2013, in the Department of Neurology, Tianjin Binhai People's Hospital, 120 cases of stroke with hemiplegia were confirmed by clinical diagnosis, and it was divided into 60 cases in the intervention group and 60 cases in the control group randomly. The control group received routine rehabilitation treatment and nursing, and the intervention group carried out continuous nursing on the basis of routine rehabilitation treatment and nursing.*

***Results:*** *The results show that the NIHSS (National Institute of Health stroke scale) scores in the intervention group were lower than those in the control group (P<0.05); the family function scores after 3 months intervention in the two groups were better in the total scores and family length, emotionality, and intimacy in the intervention group. The scores of each dimension were significantly higher than those of the control group, and the difference was statistically significant (P<0.05).*

***Conclusion:*** *Therefore, continuing nursing can effectively improve the neurological function, family function and daily living ability of stroke patients.*

***Keywords:*** *Continuous nursing; Stroke patients, application effect.*

*DOI: 10.19193/0393-6384_2019_1s_83*

***Received*** *October 30, 2018;* ***Accepted*** *February 20, 2019*

## Introduction

Stroke, also known as cerebrovascular disease or stroke, is a clinical syndrome that causes sudden onset, vascular origin, and persistent neurological deficits. Epidemiological survey shows that in China, the annual incidence of stroke is (116-219) per 100,000 people, and stroke is a major disease that threatens the health of residents in China. The incidence rate of this disease is obviously increasing, it not only seriously affects the quality of life of patients, daily life ability and physiological function, but also causes a heavy economic burden on the family and society of patients(1).

In China, nearly 7 million stroke patients are currently surviving, of which the morbidity rate is as high as 75%. Most stroke patients (shown in Figure 1 below) have different degrees of complications, such as speech disorders, motor dysfunction, cognitive impairment, and reduced self-care ability, which can lead to negative psychological problems such as depression and anxiety(2). Evidence-based medicine confirms that effective rehabilitation training is the best way to reduce the disability rate of patients with stroke. Effective rehabilitation training can promote the remodeling of the central nervous system, reduce patient dysfunction, improve daily life, and promote the patient's rehabilitation process, improve the quality of life, improve patient satisfaction, reduce potential nursing care costs, and save social resources. The basic purpose of stroke rehabilitation is to improve

motor function, prevent complications, improve daily life activities, and ultimately enable patients to return to their families and integrate into society. However, the rehabilitation of stroke is a long-term continuous process. Because of the shortage of medical resources and the reimbursement system of medical insurance, the hospitalization time of patients is limited. Many stroke patients have to be discharged into community hospitals or families after a brief period of hospitalization and rehabilitation during the acute stage of the disease[3]. Most of the patients were not completely recovered from the disease when they were discharged, and they were often accompanied by different degrees of motor dysfunction, speech disorders, and cognitive impairment. Many stroke patients lack the basic rehabilitation knowledge and can't realize the importance of rehabilitation. When they return home and wait for natural recovery, they often miss the most favorable recovery time, therefore, patients need long-term care in the community and family after they leave the hospital, as well as the development of rehabilitation nursing work, especially for the implementation of health education for patients, standardizing the correct rehabilitation concept of patients and their families, and improving bad rehabilitation behavior is particularly important.

**Fig 1:** Stroke.

Continuous care is a kind of care provided during the hospital stay and after hospital discharge according to the patient's health needs. When the patient is admitted to the hospital as soon as possible to determine the need to continue to accept nursing of patients after discharge, assessment and health requirements of patients in a clear, contact relevant agencies or departments, implement and evaluate discharge planning[4]. Healthy education is a key factor in continuous care, to some extent, the rehabilitation and prognosis of diseases are affected by patients' knowledge of relevant diseases. According to the teaching goal design consistent with the education content and vivid specific scene, educators have a purpose and plan for learners to provide a safe, controlled simulation environment, stimulate learners' interest in learning, the theory of knowledge evolution as the intuitive content, enabling learners to better understand the learning content. Situational simulation education method emphasizes the situation and simulation, the operability and effectiveness. This study applies the health education pattern of situational continuous nursing of patients with cerebral apoplexy in the process, makes the health education content more interesting, visualization and concretization, promotes patients to master the knowledge and skills, realizes the real meaning of the continuation of the nursing effect and promotes patients returning back to family and society.

## Research methods

### *Research subjects*

The patients who were diagnosed with cerebral stroke and hemiparesis were selected from January 2013 to October 2013 in the Department of Neurology, Tianjin Binhai People's Hospital, and were diagnosed with hemiplegia[5].

### *Research procedures*

In strict accordance with the inclusion and exclusion criteria of this study, 128 patients were initially enrolled and divided into 65 in the control group and 63 in the intervention group using the principle of coin-operating method combined with the minimum imbalance index. Eight cases were shed in the study, and 5 cases were absent in the control group. There were 3 cases in the intervention group, 60 cases in the final intervention group and 60 cases in the control group. The control group was given routine care, and the intervention group was given routine care plus continuation of care. There were 40 males and 20 females in the intervention group, 49 cerebral infarction patients and 11 cerebral hemorrhage patients. The average age was (58.03±6.05) years. The control group included 37 males and 23 females, 46 cerebral infarction patients, 13 cerebral hemorrhage patients, and 1 subarachnoid haemorrhage[6].

The continuous nursing team was composed of neurology physicians, head nurses and stroke specialist nurses, nutritionists, rehabilitators, psychologists, and community nurses, and the group leader was served by the deputy director of neurology.

Before the start of the study, the continuous nursing team was trained for one month using the business study time of the department. The training content includes: continuous nursing model and its covered content, programs, measures, etc.; and methods, links, etc. of contextual health education. The tasks that the team members are responsible for should be figured out, and the specialist nurses are responsible for the patient's nursing work and the implementation of contextual health education for the patients and their families. They cooperate with the doctors to perform comprehensive physical and psychological care and social care[7].

Both groups of patients were given routine neurological care, and they were given standard treatment measures for cerebral infarction or cerebral haemorrhage, followed by the same system rehabilitation treatment, including acupuncture, physiotherapy, hemiplegia rehabilitation training. Patient information should be collected, and a file should be filed, on the first day of admission, the specialist nurse asked the patient and completed the general condition questionnaire including the patient's basic information, socio-cultural background and identify the main caregivers. Within 3 days, ADL(Activities of Daily Living), degree of neurological deficit, balance function, motor function, and degree of depression were evaluated and recorded for the two groups of patients. Intervention group: Continuous care teams organize patients and caregivers to develop long-term and short-term goals for care and rehabilitation programs during and after hospital stay, then each group (chief physician, specialist nurse, psychologist, rehabilitation teacher, etc.) was implemented separately[8].

Control group: Patients were given regular discharge instructions, all oral instructions, including medication guidance, regular monitoring of blood pressure, adherence to rehabilitation training, simple psychological counselling, reasonable diet, lifestyle guidance, and control of disease recurrence factors. The control group didn't perform home continuation care after discharge from the hospital; they only called the patient at the hospital for 1 month and 3 months and urged them to come to the hospital for review. The continuous nursing team members assessed ADL, neurological deficit, balance function, exercise function, and depression. If the patient has a special situation for future hospital review, the follow-up patient will be assessed by the rehabilitator and specialist nurse, and guidance will be given based on the questions raised by the patient[9].

## Results analysis

### *Comparison of motor function scores of the upper and lower limbs of FMA between the two groups before and after intervention*

The scores of the upper and lower extremities of the FMA and the scores of the two groups before intervention were not significantly different (P>0.05). The scores of the FMA scores and the scores of the upper and lower limbs before the intervention were comparable[10]. See Table 1.

| FMA | Intervention group (n=60) | Control group (n=60) | T value | P values |
|---|---|---|---|---|
| Upper limb | 21.27±13.25 | 22.60±17.97 | -0.463 | 0.644 |
| Lower limbs | 14.52±8.27 | 15.62±9.04 | -0.695 | 0.488 |
| Total score | 35.78±20.20 | 38.22±26.07 | -0.571 | 0.569 |

**Table. 1:** Comparison of FMA score before intervention between the two groups.

The FMA scores before and after the intervention in the control group showed that the total scores, upper limb scores, and lower limb scores of the control group were significantly higher (P<0.05) than those after admission[11]. See Table 2.

| FMA | Day 2 of admission | 3 months after discharge | F | P |
|---|---|---|---|---|
| Upper limb | 22.60±17.97 | 32.47±15.06 | 8.874 | 0.000 |
| Lower limbs | 15.62±9.04 | 22.18±7.57 | 8.814 | 0.000 |
| Total score | 38.22±26.07 | 54.65±21.68 | 8.992 | 0.000 |

**Table. 2:** FMA score comparison of control group before and after intervention.

### *Comparison of NIHSS scores before and after intervention in both groups of patients*

On the second day of admission, the NIHSS scores of the two groups showed no significant difference in NIHSS scores between the two groups (P>0.05). At the time of discharge, the NIHSS scores in the intervention group were lower than those in the control group, but the difference was not significant. Statistically significant (P>0.05); 1 month after discharge, the NIHSS scores of the two groups of patients in the intervention group were lower than the control group (P<0.05); NIHSS was discharged after 3 months of discharge[12].

The scores of NIHSS scores in the intervention group were significantly lower than those in the control group, and the difference was statistically significant (P<0.01). See Table 3.

| Time | NIHSS score | | T value | P values |
|---|---|---|---|---|
| | Control group (n=60) | Intervention group (n=60) | | |
| Day 2 of admission | 9.60±4.02 | 9.72±4.22 | -0.155 | 0.877 |
| When out of the hospital | 7.60±3.50 | 8.15±3.53 | -0.858 | 0.393 |
| 1 month after discharge | 6.25±3.27 | 7.55±3.387 | -2.140 | 0.034 |
| 3 month after discharge | 5.15±2.83 | 7.03±3.28 | -3.367 | 0.001 |

**Table. 3:** NIHSS score comparison of two groups of patients with different time points.

***Comparison of family function scores before and after intervention in two groups of patients***

There was no significant difference in the five dimensions between the two groups of patients before the intervention family function scores in the total score and family fitness, cooperation, length, emotion, and intimacy (P>0.05), as shown in Table 4.

| Family functioning | Intervention group (n=60) | Control group (n=60) | T value | P values |
|---|---|---|---|---|
| Fitness | 1.23±0.62 | 1.25±0.60 | -0.150 | 0.881 |
| Cooperation degree | 1.17±0.64 | 1.17±0.67 | -0.000 | 1.000 |
| Growth | 1.15±0.61 | 1.02±0.54 | 1.311 | 0.193 |
| Degree of emotional | 1.10±0.67 | 1.07±0.66 | 0.277 | 0.782 |
| Intimacy | 1.27±0.63 | 1.12±0.52 | 1.413 | 0.160 |
| Total score | 5.92±1.68 | 5.62±1.94 | 0.905 | 0.367 |

**Table. 4:** Family APGAR index score comparison of two group before intervention.

After 3 months of intervention, the family function scores of the two groups of patients in the intervention group were significantly higher than the control group in scores of total scores and family length, affectiveness, and degree of intimacy[13-15]. The difference was statistically significant (P<0.05). table 5.

| Family functioning | Intervention group (n=60) | Control group (n=60) | T value | P values |
|---|---|---|---|---|
| Fitness | 1.43±0.53 | 1.30±0.53 | 1.374 | 0.172 |
| Cooperation degree | 1.50±0.50 | 1.35±0.48 | 1.667 | 0.098 |
| Growth | 1.55±0.50 | 1.20±0.40 | 4.211 | 0.000 |
| Degree of emotional | 1.55±0.50 | 1.32±0.50 | 2.542 | 0.012 |
| Intimacy | 1.47±0.54 | 1.27±0.52 | 2.082 | 0.040 |
| Total score | 7.50±1.27 | 6.45±1.41 | 4.292 | 0.000 |

**Table. 5:** Family APGAR index score comparison of two group discharged from hospital 3 month.

## Conclusion

The results of this study showed that at the time of discharge, patients in the intervention group had higher scores in terms of toileting, movement, and dressing than those in the control group; 1 month after discharge, patients in the intervention group were using the toilet, eating, moving, walking, and dressing. The scores on the total items were higher than those of the control group; at the 3 months after discharge, the scores and total scores of the intervention group were higher than those of the control group, with statistical significance (P<0.05). It shows that the continuation of nursing is effective for improving the ability of daily living in patients with stroke, and the longer it takes to receive intervention training, the better the ability to recover in daily life. After 3 months of intervention in both groups, the three dimensions of the length of the family and the degree of affectiveness in the intervention group were significantly higher than those in the control group. The difference was statistically significant (P>0.05). Continuous nursing can effectively improve the neurological function and daily living ability of stroke patients.

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*Acknowledgement*
This work was supported by Heilongjiang provincial health and Family Planning Commission Research Project No. 2017-134 (Application of the theory of story-based nursing in patients with cerebral infarction).

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