

## Original Article

# The effect of rehabilitation nursing based on Roy's adaptation theory on the prognoses of acute cerebral infarct patients after intravascular intervention

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Received November 11, 2019; Accepted December 14, 2019; Epub March 15, 2020; Published March 30, 2020

**Abstract:** Objective: To explore the effect of a rehabilitation nursing model based on Roy's adaptation theory on the prognoses of acute cerebral infarct (ACI) patients undergoing intravascular intervention. Methods: A total of 121 ACT patients treated with an intravascular intervention were retrospectively analyzed. They were allocated to the control group (N=60) or the study group (N=61) according to the nursing method used. The control group received conventional nursing, while the study group received rehabilitation nursing based on Roy's adaptation theory. The neurological deficit scores measured by the National Institute of Health Stroke Scale (NIHSS), the activities of daily living tested by the Barthel Index (BI), and the sleep quality and mental states before and after nursing were compared between the two groups. The patients' compliance rates and the incidences of complications were also compared between the two groups. Results: After nursing, the study group's NIHSS scores were significantly lower than the control group's scores ( $P<0.001$ ), but the BI score was significantly higher ( $P<0.001$ ). The results from the comparisons of the dimensions of sleep quality (subjective sleep quality, sleep disturbances, sleep latency, habitual sleep efficiency, sleep duration, and daytime dysfunction) and the mental state domains (tension, depression, confusion, fatigue, and anger) between the two groups show that the scores in the study group were all significantly lower than the scores in the control group (all  $P<0.001$ ). The rates of hemiplegia, cognitive impairment, hematoma, and infection of the patients in the study group were significantly lower than those of the patients in the control group (all  $P<0.05$ ), and the patient compliance rate (regular medication, reasonable diet, exercise, and psychological balance) was significantly higher than it was in the control group ( $P<0.05$ ). Conclusion: The rehabilitation nursing model based on Roy's adaptation theory is significantly superior in restoring neurological function and the activities of daily life in ACT patients after intravascular intervention. It can also improve patients' sleep quality and mental states, increase patient compliance rates, and reduce postoperative complications.

**Keywords:** Roy's adaptation theory, rehabilitation nursing, acute cerebral infarct, intravascular intervention, prognosis

## Introduction

Acute cerebral infarct (ACI) refers to the ischemia, hypoxia, or necrosis of brain tissues caused by a sudden interruption of the blood supply to the brain. The disease often results in neurological deficits, and most of ACI events are considered neurosurgical conditions. Given that ACI is primarily caused by cerebral artery stenosis and occlusion, clinicians have reached the conclusion that the key to the treatment of ACI is to resolve infarction and restore the cerebrovascular recanalization [1]. Intravascular

intervention has been shown to be the most effective method for the management of ACI. Intravascular intervention consists of intra-arterial thrombolysis and mechanical thrombectomy. Its mechanism of action is to restore the recanalization of the cerebral vessels, which leads to improved ischemia-hypoxia in the brain tissues. In addition, it reduces the number of reperfusion injuries, protects the ischemic penumbra in the brain from injury, and ultimately improves neurological deficits and prognoses in patients [2]. However, some researchers have pointed out that the adminis-

tration of urokinase, plasminogen activators, and other agents leaves patients prone to postoperative intracranial hemorrhage and hematoma. Additionally, the intravascular intervention procedure also includes steps such as puncture and postoperative catheter indwelling. As a result, postoperative infection, a common complication, may also occur [3]. Meanwhile, more importantly, after intravascular intervention, a patient's neurological deficits do not improve adequately, which results in limb movement disorders and language dysfunction. There is a tendency to the presence of sequelae such as hemiplegia and cognitive impairment, adversely affecting the patient's ability to perform the activities of daily living. Patients may find it difficult to accept the diagnosis of ACI due to its rapid onset and progression. Moreover, the stimuli resulting from undergoing intravascular intervention in a short time, the lack of knowledge related to ACI and its treatment, and a lack of confidence leave patients prone to severe anxiety, depression and other negative emotions, resulting in declined sleep quality and poor mental states, and ultimately in a worsened prognosis [4, 5]. Therefore, active and effective rehabilitation nursing after intravascular intervention is of great significance in improving prognosis in ACI patients.

In the past, conventional nursing care after intravascular intervention for ACI generally included basic medications, diets, exercise, and other medical advice. These things could improve the prognosis to some extent, but they had little effect on improving the patients' adaptation to the stimuli brought about by the disease [6, 7]. Roy's adaptation theory was a theory developed by Calista Roy that aimed to promote the human body's adaptation to various stimuli present in the environment. The modes of nursing based on the theory have been applied in the clinical practice of many departments, and the results are satisfactory [8]. But currently, rehabilitation nursing based on Roy's adaptation theory is rarely used for ACI patients after intravascular intervention. Therefore, the purpose of the present study was to use a rehabilitation nursing model based on Roy's adaptation theory to manage ACI patients undergoing intravascular intervention and to explore its impact on the prognoses in such patients, with an expectation to provide some guidance for clinical practice [9, 10].

## Materials and methods

### *General information*

This study was approved by the Medical Ethics Committee of The First People's Hospital of Wenling. A retrospective analysis was performed in 121 patients with ACI who underwent intravascular intervention from February 2017 to January 2019 in our hospital. The patients were assigned to the control group (N=60) or the study group (N=61) according to the nursing method adopted.

### *Inclusion criteria*

The patients met the criteria for the diagnosis of ACI specified in the *Guidelines for the Diagnosis and Treatment of Acute Ischemic Stroke in China in 2014* as confirmed by MRI/CT [11]; the patients were older than 18 years old; they received intravascular intervention in The First People's Hospital of Wenling; they had good language competence; the patients and their families signed and provided written informed consents.

### *Exclusion criteria*

Patients who met any of the following conditions were excluded from the study: the presence of intracranial hemorrhage as confirmed by MRI/CT before intravascular intervention, hepatic or renal dysfunction, cardiac insufficiency, allergy to the agents used in intravascular intervention, and mental disorders.

### *Methods*

All ACI patients were closely monitored for ECG, blood pressure and heart rates after the intravascular intervention. The patients in the control group were managed with a conventional nursing model, including diet, exercise, medications, and other medical advice guidance for 4 weeks. Those in the study group were given a rehabilitation nursing model based on Roy's adaptation theory. The relevant details are provided in the following sections.

### *Assessment*

The first-level assessment served to evaluate the patients' behaviors. A professional nurse observed and communicated intimately with a designated ACI patient undergoing intravascu-

lar intervention. With the report of the patient's physiological quality assessment, the patient's neurological function, ability to perform the activities of daily living, sleep quality, mental state, and compliance were evaluated comprehensively to judge if the patients' responses were effective or ineffective.

The second-level assessment served to evaluate the influencing factors. According to the patients' degree of adaptation, the professional, dedicated nurses recorded the things influencing the patients' lessened ability to perform the activities of daily living, their poor sleep quality and mental states, and analyzed the stimulative degrees of the factors (important, relevant, and inherent).

### Diagnosis

According to the results from the first- and second-level assessments, the professional, dedicated nurses sorted out and rated the stimulative factors affecting the rehabilitation of patients according to the patients' four response modes (physiological functions, self-concept, role functions and interdependence), and made the corresponding nursing diagnoses.

### Goal-setting

The goals were to promote the patients' adaptation and to improve their adaptation responses targeted at the four dimensions of physiological functions, self-concept, role functions and interdependence (from ineffective to effective responses).

### Rehabilitation measures

Some appropriate nursing measures were chosen for the primary and relevant stimuli. The first measure was physiological function nursing. Neurological deficits, along with the resulting symptoms of which, including limb movement disorder, language dysfunction and hemiplegia, were major ineffective responses after intravascular intervention in the ACI patients. For the corresponding stimuli, first of all, the physiological functions of the patients was evaluated, and specific training regimens on rehabilitation were developed. If the performer of the regimens was a nurse, the nurse would assist the patients in physical exercise on time

every day. The patients exercised for approximately 10 minutes after breakfast, lunch and dinner every day. After exercise, the nurse instructed the patients to speak, that is, perform language training, for approximately 15 minutes. The language training could be conducted using audio, dialogues, or other forms. If the performer was a family member of the patient, the family member was instructed to improve his or her enthusiasm in cooperation and the relevant skills. Meanwhile, the motor performance of the extremities and language training should not be overdone to avoid generating negative emotions in the patients. Infection, a postoperative complication, was also an important ineffective response. Special attention should be paid to the puncture-site hygiene. Regular disinfection and appropriate antibiotics were taken to avoid infection. The second measure was self-cognitive nursing: The postoperative complication of cognitive impairment was a major ineffective response after intravascular intervention in ACI patients. Firstly, nurses could enhance the patients' awareness of ACI and the effectiveness of its treatment by conducting lectures on ACI and vascular intervention, so that the patients could get a correct recognition of ACI and face up to it. Secondly, the nurses examined the patients' physical functions and analyzed their personalities, so that the patients could have a good understanding of their own body and personalities, could know the sources of their poor mental state, and could solve the problems fundamentally. The third measure was role function nursing. Because of the rapid onset of ACI, the patients are prone to negative emotions such as fatigue, anxiety and depression. A lack of a sense of responsibility was also a major ineffective response. First, a dedicated nurse communicated with the patients intimately, and told them that they were important to their own families and the society, and they should take responsibility for their own families and for society. In this way, their sense of social responsibility would be enhanced. Secondly, the patients were made aware of their role of "patient" and actively faced up to the disease, so that they became more active in the rehabilitation program. The fourth measure was interdependence nursing. For the ineffective responses such as poor sleep quality and mental states in the patients, their sense of security was enhanced by strengthening their depen-

dence. First, the patients' family members were instructed in the importance of companions in promoting the patients' dependence. Second, when communicating with the patients, the dedicated nurse should strive to speak using cordial terms, win their trust, become one who the patients can count on, and enhance their confidence.

### Re-assessment

The first-level and the second-level assessments were continuously used to adjudicate the effectiveness of the nursing measures, and then the procedures of the nursing measures were conducted again.

### *Outcome measures and evaluation criteria*

#### Primary outcome measures

*Severity of the neurological deficits and activities of daily life:* The National Institutes of Health Stroke Scale (NIHSS) was a scale used to evaluate the severity of neurological deficits in the patients, with a total possible score of 58 points [12]. Higher scores indicate worse neurological deficits. The Activity of Daily Living Scale (*Barthel Index, BI*) was used to evaluate the patients' ability to perform activities of daily living. With a total possible score of 100 points, higher scores indicate higher independence [13].

*Sleep quality:* The Pittsburgh Sleep Quality Index (PSQI) was utilized to subjectively rate the sleep quality, sleep disturbances, sleep latency, habitual sleep efficiency, sleep duration, and daytime dysfunction and other dimensions [14]. Each dimension was scored on a scale of 0-3 points, with higher scores indicating worse sleep quality.

*Mental state:* The Profile of Mood States (POMS) was designed to evaluate an individual's mental state in different domains: tension, depression, confusion, fatigue and anger [15]. The higher the score, the worse the mental state. Each domain was scored on a scale of 0-24 grades, with a higher score indicating a worse mental state.

#### Secondary outcome measures

*Patient compliance rate:* The patient compliance rates were evaluated by the criteria for patient compliance evaluation covering regular

medication, reasonable diet, exercise, and psychological balance [16].

*Incidence of complications:* The common complications reported among the patients were hemiplegia, cognitive impairment, hematoma and infection. Hemiplegia was defined as motor disorders of the upper and lower extremities, facial muscles and lower lingual muscles on the same side of the body. The patients' cognitive impairments were rated by the Short Portable Mental State Questionnaire (SPMSQ). The SPMSQ covered 10 problems. A subject with three or more wrong answers to the questions was considered to be suffering from cognitive impairment [17]. If a subject's educational level was primary school or below, four or more wrong answers was considered cognitive impairment. If a subject's educational level was higher than high school, two or more wrong answers was considered cognitive impairment. Hematoma was defined as a cavity formed by surrounding tissues encapsulating blood. Infection was the presence of the inflammation response as a result of the invasion of pathogenic bacteria into the body.

### *Statistical analysis*

All the statistical data in this study were analyzed and processed using the SPSS professional statistical software, version 21.0. The measurements of all the outcomes were expressed as the means  $\pm$  standard deviations and determined using T-tests. The measurements before and after nursing were examined using paired t-tests. All the count data were expressed as rates (n%) and measured using chi-square tests.  $P < 0.05$  was considered to indicate a statistically significant difference.

## **Results**

### *General data*

There were no significant differences in the general data between the two groups ( $P > 0.05$ ), and the details are presented in **Table 1**.

### *NIHSS and BI scores before and after nursing*

The NIHSS and BI scores before nursing were not significantly different between the two groups (all  $P > 0.05$ ). After the nursing, the NIHSS scores of both groups decreased significantly ( $P < 0.05$ ), but the BI scores increased significantly ( $P < 0.05$ ); the NIHSS score of the

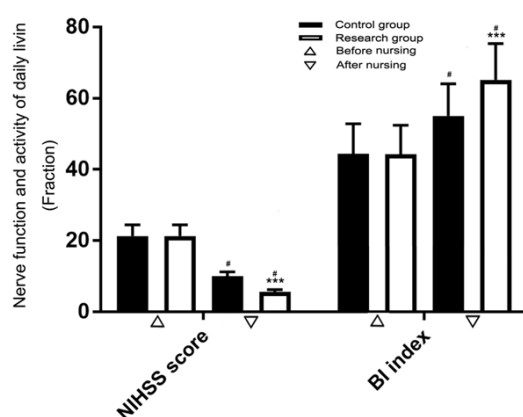
**Table 1.** General data

Group	Control group (n=60)	Study group (n=61)	$\chi^2/t$	P
Gender (male/female)	31/29	32/29	0.008	0.930
Average age	60.9±11.8	60.2±11.1	0.336	0.738
Height/cm	161.34±8.65	161.31±8.36	0.019	0.985
Weight/kg	65.32±10.21	65.01±10.31	0.166	0.868
Educational level [n (%)]				
Primary school	25 (41.67)	26 (42.62)	0.011	0.915
Middle school	27 (45.00)	27 (44.26)	0.007	0.935
University	7 (11.67)	7 (11.48)	0.001	0.974
Disease type [n (%)]				
Arteriole lacunarity	3 (5.00)	3 (4.92)	0.000	0.983
Cardiogenic compliance	7 (11.67)	8 (13.11)	0.058	0.809
Large arterial compliance	50 (83.33)	50 (81.97)	0.039	0.843
Complication [n (%)]				
Diabetes	3 (5.00)	3 (4.92)	0.000	0.983
Hypertension	6 (10.00)	6 (9.84)	0.001	0.976
Hyperlipidemia	1 (1.67)	1 (1.64)	0.000	0.990
Coronary heart disease	7 (11.67)	8 (13.11)	0.058	0.809

**Table 2.** NIHSS scores and BI scores before and after nursing ( $\bar{x} \pm s$ )

Group	NIHSS scores		BI scores	
	Before nursing	After nursing	Before nursing	After nursing
Control group (n=60)	21.32±3.12	10.01±1.22 <sup>#</sup>	44.46±8.43	55.22±9.01 <sup>#</sup>
Study group (n=61)	21.33±3.11	5.58±0.62 <sup>#</sup>	44.33±8.19	65.22±10.24 <sup>#</sup>
t	0.018	25.117	0.086	5.706
P	0.986	0.000	0.932	0.000

Note: compare with before nursing, <sup>#</sup> $P < 0.05$ . NIHSS: National Institutes of Health Stroke Scale; BI: Barthel Index.



**Figure 1.** The NIHSS scores and the Barthel index values were compared between the two groups before and after the nursing. Compared with before the nursing, <sup>#</sup> $P < 0.05$ ; Compared with the control group, <sup>\*\*\*</sup> $P < 0.001$ .

study group was significantly lower than it was in the control group ( $P < 0.001$ ), and the BI score

was significantly higher ( $P < 0.001$ ), as shown in **Table 2** and **Figure 1**.

#### Sleep quality before and after nursing

There were no significant differences in the subjective sleep quality, sleep disturbances, sleep latency, habitual sleep efficiency, sleep duration, and daytime dysfunction scores between the two groups before the nursing (all  $P > 0.05$ ). After nursing, the corresponding scores in all the above dimensions were significantly decreased in both groups (all  $P < 0.05$ ), and the scores of the study group was significantly lower than those of the control group (all  $P < 0.001$ ), and the details are provided in **Table 3** and **Figure 2**.

#### Mental state before and after nursing

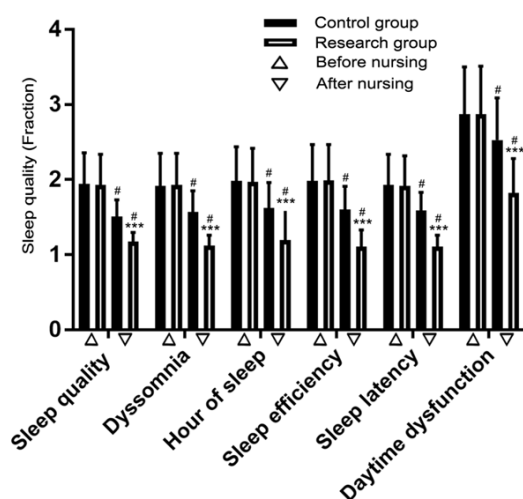
The tension, depression, confusion, fatigue, and anger scores differed insignificantly be-



**Table 3.** Sleep quality before and after nursing ( $\bar{x} \pm s$ )

Group	Control group (n=60)	Study group (n=61)	t	P
Sleep quality (scores)				
Before nursing	1.94±0.42	1.93±0.41	0.132	0.895
After nursing	1.51±0.22 <sup>#</sup>	1.18±0.12 <sup>#</sup>	10.220	0.000
Sleep Disturbances (scores)				
Before nursing	1.92±0.43	1.93±0.42	0.129	0.897
After nursing	1.57±0.28 <sup>#</sup>	1.12±0.14 <sup>#</sup>	11.153	0.000
Sleep latency (scores)				
Before nursing	1.98±0.46	1.97±0.45	0.121	0.904
After nursing	1.62±0.34 <sup>#</sup>	1.20±0.18 <sup>#</sup>	8.472	0.000
Habitual sleep efficiency (scores)				
Before nursing	1.98±0.49	1.99±0.48	0.113	0.910
After nursing	1.60±0.31 <sup>#</sup>	1.11±0.22 <sup>#</sup>	10.012	0.000
Sleep duration (scores)				
Before nursing	1.93±0.41	1.92±0.40	0.136	0.892
After nursing	1.59±0.24 <sup>#</sup>	1.11±0.15 <sup>#</sup>	13.168	0.000
Daytime dysfunction (scores)				
Before nursing	2.87±0.63	2.87±0.64	0.000	1.000
After nursing	2.53±0.56 <sup>#</sup>	1.82±0.46 <sup>#</sup>	7.614	0.000

Note: compare with before nursing, <sup>#</sup>P<0.05.



**Figure 2.** Comparison of sleep quality between the two groups before and after the nursing. Compared with before the nursing, <sup>#</sup>P<0.05; Compared with the control group, \*\*\*P<0.001.

tween the two groups before the nursing (all P>0.05). After the nursing, the corresponding scores in both groups declined significantly (all P<0.05), and the scores in the study group were significantly lower than those in the control group (all P<0.001; **Table 4**; **Figure 3**).

### Complications before and after nursing

The rates of hemiplegia, cognitive impairment, hematoma and infection were not significantly different between the two groups before the nursing (all P>0.05). After the nursing, the corresponding rates in the study group were significantly lower than they were in the control group (all P<0.05; **Table 5**).

### Patient compliance before and after nursing

There were no significantly different patient compliance rates in terms of regular medication, reasonable diet, exercise, or psychological

balance between the two groups before the nursing (all P>0.05). After the nursing, the patient compliance rates in the study group were significantly higher than they were in the control group (all P<0.05, **Table 6**).

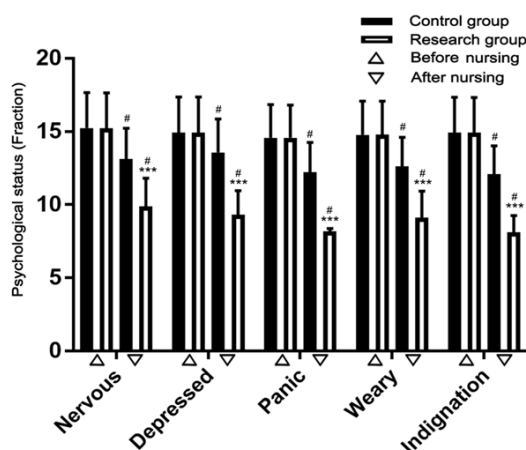
### Discussion

Over the years, with the yearly increase in ACI patients, growing attention has been paid to the improvements in nursing quality after intravascular intervention in ACI patients. Given the low efficiency of conventional nursing programs, China has been committed to exploring more effective nursing models to improve the prognosis of ACI patients with intravascular intervention. The nursing regimen based on the PDCA circulation mode proposed by Chen et al. was applied to manage patients with cerebral infarct, and it was effective [18, 19]. However, in the present study, considering that the poor prognosis after intravascular intervention in ACI patients is mainly caused by the low adaptation to stimuli, the ACI patients did not met the requirements for the PDCA circulation nursing mode. Therefore, we proposed a rehabilitation nursing model based on Roy's adaptation theory.

**Table 4.** Mental state before and after nursing ( $\bar{x} \pm s$ )

Group	Control group (n=60)	Study group (n=61)	t	P
Tension (scores)				
Before nursing	15.24±2.42	15.23±2.41	0.023	0.982
After nursing	13.11±2.12 <sup>#</sup>	9.88±1.92 <sup>#</sup>	8.780	0.000
Depression (scores)				
Before nursing	14.92±2.43	14.93±2.42	0.023	0.982
After nursing	13.57±2.28 <sup>#</sup>	9.32±1.64 <sup>#</sup>	11.754	0.000
Confusion (scores)				
Before nursing	14.58±2.26	14.57±2.25	0.024	0.981
After nursing	12.22±2.04 <sup>#</sup>	8.20±0.18 <sup>#</sup>	15.206	0.000
Fatigue (scores)				
Before nursing	14.78±2.29	14.79±2.28	0.024	0.981
After nursing	12.60±2.01 <sup>#</sup>	9.11±1.82 <sup>#</sup>	10.007	0.000
Anger (scores)				
Before nursing	14.93±2.41	14.92±2.40	0.023	0.982
After nursing	12.09±1.94 <sup>#</sup>	8.11±1.15 <sup>#</sup>	13.699	0.000

Note: compare with before nursing, <sup>#</sup> $P < 0.05$ .



**Figure 3.** Comparison of the psychological states between the two groups before and after the nursing. Compared with before the nursing, <sup>#</sup> $P < 0.05$ ; Compared with the control group, \*\*\* $P < 0.001$ .

The Roy's adaptation theory initially proposed by Callista Roy is a nursing theory germinating in and serving as a nursing practice. Researchers pointed out that the advantages of the nursing model based on Roy's adaptation theory are attaching great importance to every nursing detail and assisting the nurses in achieving overall effectiveness [20]. Freitas et al. used Roy's adaptation theory in home-based nursing for the elderly, resulting in improved comprehensive nursing effects and higher

patient satisfaction [21]. In the present study, according to the unique conceptual framework of Roy's adaptation theory, a rehabilitation nursing model based on Roy's adaptation theory was proposed to address the problems, including neurological deficits, after intravascular intervention in ACI patients. The six-step nursing model, which included the first-level assessment, the second-level assessment, diagnosis, goal-setting, rehabilitation measures and evaluation, was used [22]. The last step was linked to the first step, which showed the systematic benefit of the model. Firstly, the patients received the first-level and second-level assessments in neurological functions, ability to perform activities of daily living, sleep quality, mental state and patient compliance, which laid a foundation for the

subsequent steps (diagnosis, goal-setting, and measures). In this way, the subsequent steps would be more targeted and comprehensive. Then, based on the results of assessments, the patients were diagnosed and the goals were set, which determined the direction of rehabilitation.

Subsequently, the rehabilitation measures (physiological function nursing, self-cognitive nursing, role function nursing and interdependent nursing) were conducted in the patients. It is pointed out that neurological deficits, limb movement disorders, hemiplegia and language dysfunction are the major ineffective responses after ACI in patients, and they are the primary outcomes reflecting the effects of nursing [23]. Next, in the process of physiological function nursing, the patients were required to receive training on both active and passive motor performance of the extremities and on language with the assistance of their own family members. The advantages are significant improvements in the motor performance of the extremities, and language and neurological functions. The results show that the NIHSS scores were significantly lower and the BI scores were significantly higher in the study group than they were in the control group. This proves that the nursing model based on Roy's adaptation theory used in this study offered the

**Table 5.** Complications before and after nursing [n (%)]

Group	Hemiplegia	Cognitive impairment	Hematoma	Infection	Corresponding rates
Control group (n=60)	6 (10.00)	5 (8.33)	5 (8.33)	6 (10.00)	22 (36.67)
Study group (n=61)	4 (6.56)	3 (4.92)	2 (3.28)	3 (4.92)	12 (19.67)
$\chi^2$					4.324
P					0.038

**Table 6.** Patient compliance before and after nursing [n (%)]

Group	Regular medication	Reasonable diet	Exercise	Psychological balance
Control group (n=60)	43 (71.67)	43 (71.67)	38 (63.33)	42 (70.00)
Study group (n=61)	54 (88.52)	55 (67.90)	55 (67.90)	54 (88.52)
$\chi^2$	5.460	6.722	12.243	6.332
P	0.020	0.010	0.000	0.012

significant benefits of improved neurological defects and the patients' ability to perform activities of daily living, which are consistent with the results of a previous studies [24]. Also, disinfection and other methods were used in nursing to avoid postoperative infections. The results indicate that the rates of hemiplegia and infection and other complications were significantly lower in the study group than they were in the control group.

A previous study indicated that an improvement in self-cognition is key to solving the problem of agitation in patients [25]. Therefore, patients were treated with self-cognition nursing, allowing them to recognize their own diseases, treatment methods, physical bodies, and personalities. Improvements in self-cognition broaden the patients' horizons and make them calmer in facing the disease. The findings in the present study demonstrate that the study group scored lower in all dimensions of mental state than the control group, and the incidence of postoperative cognitive impairment was also lower.

In addition, rehabilitation measures also include role function nursing aiming to help the patients assume their responsibilities in their families and society, accept the role of "patients", enhance their enthusiasm and reduce negative emotions. In the present study, a finding showed that the scores of all the dimensions of sleep quality in the study group were lower than those in the study group, suggesting that the improvement in sleep quality was significant in the present study. Sleep disturbanc-

es in the patients might be primarily associated with negative emotions and can be improved with an improvement in their psychological states. Secondly, the patients' prognoses were improved by enhancing their sense of dependence. The nurse

first communicated closely with the patients to relieve their pressure, and then instructed the patients' family members to actively accompany the patients and care about their emotions, so as to enhance the patients' enthusiasm in rehabilitation nursing. Another finding indicates that the patient compliance rate of the study group was higher than it was in the control group, which might be attributed to the fact that the patients in the study group had a stronger sense of dependence and a higher enthusiasm in rehabilitation, suggesting the effectiveness of the nursing. Finally, in the process of nursing, the first-level and the second-level assessments were performed to evaluate the rehabilitation effects. The assessments played a role in continuously improving nursing.

In the present study, the advantage was an innovative application of Roy's adaptation theory in nursing ACI patients undergoing intravascular intervention. The disadvantages were the small sample size and the lack of integrity of the adverse reactions.

In conclusion, the rehabilitation nursing model based on Roy's adaptation theory was used for the management of ACI patients after intravascular intervention. The nursing model can significantly improve patients' neurological functions and their ability to perform daily activities. In this regard, the model is worthy of extensive use in clinical nursing.

#### Disclosure of conflict of interest

None.



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