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ABOUT COVER

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ORIGINAL ARTICLE

Observational Study

Effect of comprehensive nursing on the quality of life and swallowing function in individuals diagnosed with ischemic stroke

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Abstract

BACKGROUND

Ischemic stroke (IS) is a widely recognized disease characterized by high prevalence, mortality, morbidity, disability, and recurrence rates. It ranks prominently in terms of mortality, constituting 60%-80% of stroke cases.

AIM

To explore the impact of comprehensive nursing care on the quality of life and swallowing function in individuals diagnosed with IS.

METHODS

This study comprised 172 patients with IS admitted to our hospital between February 2018 to March 2021. The participants were divided into two groups, namely the control group (n = 80) receiving routine care and the research group (n = 92) receiving comprehensive care. Various assessment scales, including the standard swallowing function assessment scale (SSA), National Institutes of Health Stroke scale (NIHSS), European stroke scale (ESS), self-rating anxiety scale (SAS), self-rating depression scale (SDS), Barthel index (BI), and the motor function assessment scale (MAS), were employed to evaluate the improvement in swallowing function, neurological deficits, clinical outcomes, anxiety, depression, daily living activities, and motor function before and after care. Furthermore, the study compared the occurrence of adverse reactions during the nursing period, life quality before and after the intervention, rehabilitation compliance, and nursing satisfaction between the two groups.

RESULTS
After the nursing intervention, the research group exhibited significantly improved SSA and NIHSS scores compared to the control group ($P < 0.05$). Moreover, both groups demonstrated significant reductions in SAS and SDS scores ($P < 0.05$), with the research group showing more obvious advantages ($P < 0.05$). Compared to the control group, the research group displayed significantly better ESS, BI, and MAS scores ($P < 0.05$), coupled with a lower incidence of adverse reactions ($P < 0.05$). Additionally, the research group demonstrated markedly higher levels of life quality, rehabilitation compliance, and nursing satisfaction compared to the control group ($P < 0.05$).

CONCLUSION
Comprehensive nursing effectively improved swallowing function, quality of life, and patient satisfaction, highlighting its clinical significance.

Key Words: Comprehensive nursing; Stroke; Swallowing function; Quality of life; Patient satisfaction

Core Tip: In this study, the effect of a comprehensive nursing model on ischemic stroke (IS) patients and their swallowing function were analyzed. This model could provide more choices for nursing plans for patients suffering from IS.

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INTRODUCTION

Ischemic stroke (IS) is a widely recognized disease characterized by high prevalence, mortality, morbidity, disability, and recurrence rates. It ranks prominently in terms of mortality, constituting 60%-80% of stroke cases[1]. In 2019, there were 12.22 million new cases of stroke globally, with 7.63 million being classified as IS, 3.41 million as intracerebral hemorrhages, and 1.18 million as subarachnoid hemorrhages[2]. The incidence of IS has been on the rise in recent years, aligning with the aging of the population[3].

Despite clinical treatment, patients with stroke often experience lingering sequelae such as speech disorders, impaired limb movement, and sensory disorders. Swallowing dysfunction, attributed to true or pseudobulbar palsy, is a prevalent complication of IS, significantly affecting patient quality of life[4].

Current clinical nursing measures predominantly focus on treatment cooperation and monitoring the patient's recovery and is lacking in comprehensive nursing strategies. This deficiency adversely affects the pace of patient recovery[5]. Therefore, there is a critical need to formulate a scientifically sound and appropriate nursing plan for patients with IS that holds significant clinical relevance.

Comprehensive nursing intervention represents a relatively comprehensive nursing model grounded in patient-centered care, encompassing diverse aspects of patient well-being, including both physiological and psychological dimensions. Its successful application across various diseases has been documented[6,7]. For instance, a study[8] demonstrated that implementing comprehensive care models for chronic diseases effectively enhanced patients' health and increased nursing satisfaction. Another study[9] indicated that the adoption of a comprehensive care model in patients with hip fractures significantly contributed to their recovery. Despite the proven effectiveness of comprehensive nursing interventions in addressing multiple aspects, there is a notable gap in research focusing on their impact on improving the swallowing function of individuals with IS.

This study aimed to analyze the efficacy of the comprehensive nursing model in patients with IS by evaluating its influence on their swallowing function. The findings hold the potential to broaden the spectrum of available nursing plans for individuals with IS.

MATERIALS AND METHODS

Clinical information

A total of 172 patients with IS who were treated at Hengyang Maternal and Child Health Hospital between February 2020 and March 2023 were selected for this study. Among them, 100 were males and 72 were females, with an average age of 63.71 ± 4.25 years. The duration of illness ranged from 10-28 d. Eighty patients, receiving care under the conventional nursing model, constituted the control group, while the research group comprised 92 patients who received comprehensive nursing based on the care provided in the control group. The inclusion criteria encompassed patients meeting the

diagnostic criteria for IS and aged between 55 years and 75 years. The exclusion criteria involved patients lacking self-care ability, those with malignant tumors, severe liver and kidney dysfunction, and severe coagulation dysfunction, and those unwilling to cooperate with the study. Ethical approval was received by the Ethics Committee of the Hengyang Maternal and Child Health Hospital, adhering to the principles outlined in the Declaration of Helsinki. Consent for this study was obtained through signed informed consent forms from patients and their families.

Care methods

All patients received conventional treatment for IS. Patients in the control group underwent conventional nursing care, employing specific methods as outlined below: (1) Provision of routine psychological intervention and health education for patients and their families to alleviate anxiety; (2) Close monitoring of the patient's blood pressure, consciousness, limb function, muscle strength, dietary habits, urine and stool output, electrolyte levels, complete blood count, and coagulation function, to establish a basis for treatment decisions; (3) Assessment of the patient's baseline condition and overall status, followed by the implementation of targeted nursing measures in collaboration with the treatment plan; and (4) Instruction and supervision of patients in adhering to various treatments as prescribed by the doctors, engagement in rehabilitation training during the recovery period, and scheduled follow-ups with the hospital after discharge.

Patients in the research group underwent treatment with a comprehensive nursing model based on the control group, involving specific measures detailed as follows: (1) Psychological care. First, a positive nurse-patient relationship was established, gaining the trust of patients to comprehend their condition and understand individual characteristics, living conditions, and social background. Subsequently, targeted psychological counselling and comfort were provided to address individual situations, fostering confidence in overcoming the disease and ensuring close collaboration with nursing guidance. Active communication, care, and respect were maintained, encouraging patients to express their feelings. Their thoughts were attentively listened to, avoiding any words or actions that might provoke distress, and endeavored to fulfil their normal needs. Patients exhibiting positive treatment effects were encouraged to share their experiences to promote optimism and alleviate depression and fear; (2) Early health education intervention. Patients received explanations about the primary causes, progression, and outcomes of stroke. Additionally, details about the treatment plan, functions, adverse reactions, and precautions associated with the prescribed medications were provided. The importance of patient cooperation, the necessity of rehabilitation training, and its impact on future life were also communicated during this early health education intervention; (3) Directed patients to engage in early physical exercise rehabilitation training, incorporating ipsilateral stimulation. All nursing tasks, including assistance with washing, eating, and measuring vital signs, were executed on the ipsilateral side. This involved communication, handholding, and guiding the patient's head towards the affected side, while avoiding intravenous infusion in the affected limb. Emphasis was placed on good limb placement and regular position changes every 2-3 h, particularly focusing on the affected side. Special activities, such as supine position maintenance, bed exercise training, and limited grasping movements were advised to a limited extent. Grasping actions involved fixing the affected wrist joint in an extended position and instructing patients to make fists simultaneously. Wrist extension exercises were performed by maintaining the wrist in an extended position, discouraging sagging. Joint finger extension exercises used four fingers to hold the affected hand's thenar, abducting the thumb, and supinating the forearm to stretch spastic spasm fingers automatically. Other exercises included supination exercises, finger-to-finger exercises, bridge exercises, passive joint exercises, and sit-up training. Sit-up training encouraged patients to transition from a side-lying position to a sitting position using the healthy leg to push the affected one, achieving a 90° flexion in the hip joint, with the affected hand placed on an adjustable desk instead of hanging to the side; and (4) Swallowing function training primarily comprised basic exercises such as empty swallowing. Muscle training for the lips, soft palate, tongue, and larynx involved activities such as abdominal breathing, combined with stimuli such as cold objects, puffing, and finger sucking. Additionally, feeding function training and pronunciation practice, starting from syllables such as "ah" to small words and progressing to short sentences, were implemented. This training aimed to coordinate exhalation and vocal cord vibration, combined with verbal guidance and other training. Throughout the process, careful attention was given to ensure that the patients experienced no fatigue or pain, and progress was gradual. After 4 wk of nursing, both groups underwent evaluations based on the indicators.

Observation index

The standard swallowing function assessment scale[10] was used to assess the improvement in patient swallowing function. The neurological deficit of patients before and after nursing was evaluated using the National Institutes of Health Stroke scale (NIHSS)[11], with a total score of 42 (higher scores indicating more severe neurological deficits). Clinical outcomes were assessed using the European stroke scale (ESS)[12], with a full score of 80 points (higher scores indicated better physical condition). Patient anxiety and depression were gauged using the self-rating anxiety scale (SAS) and self-rating depression scale (SDS), respectively[13]. Activities of daily living were scored using the Barthel index[14], with a total score of 100 points (scores categorized as ≥ 60, self-care; 41-60, required considerable assistance; < 40, needed extensive care; < 20, complete dependence). The motor function assessment scale by Janet H. Carr and Roberta B. Shepherd was used for motor function assessment, with a total score of 54 points (higher scores indicated better motor function)[15]. The occurrence of adverse reactions, including reflux, aspiration, fever, and pulmonary infection, was compared between the two groups during the nursing period. The generic quality of life inventory-74[16] was used to evaluate the life quality of patients before and after the intervention across four scoring dimensions, namely physical, social, psychological, and role, with a full score of 100 points per dimension (higher scores indicating better quality of life). Patients' rehabilitation compliance was assessed using a self-made questionnaire, with a full score of 100 points. Scores below 60 were considered "non-compliance," scores of 60-79 were considered "partial compliance," and scores ≥ 80 were considered "complete compliance." The rehabilitation compliance rate was calculated as the sum of the complete compliance and partial compliance rates. Nursing satisfaction was evaluated using the "nursing satisfaction ques-

tionnaire" developed by our hospital, categorized as very satisfied, satisfied, or dissatisfied, with the nursing satisfaction rate calculated as the percentage of the sum of very satisfied and satisfied individuals out of the total.

Statistical analysis

In this study, statistical analysis of the collected data was conducted using the Statistical Package for Social Sciences version 26.0 software package. GraphPad 6 software was employed for the creation of necessary figures. The independent sample *t*-test was used for between-group comparisons, while the paired *t*-test was used for before-and-after nursing comparisons. The χ^2 test was used for data counting. Measurement data were presented as the mean ± SD, and statistical significance was set at $P < 0.05$.

RESULTS

General information

The two groups were comparable, showing no significant differences in sex, age, body mass index, and disease type ($P > 0.05$; Table 1).

Comparison of swallowing function and neurological deficits between the two groups before and after nursing

There was no significant difference observed in the NIHSS score and swallowing function between the two groups before nursing ($P > 0.05$). However, the NIHSS score and swallowing function score significantly improved in both groups after nursing, with the research group demonstrating a more obvious improvement ($P < 0.05$; Figure 1).

Comparison of ESS scores between the two groups before and after treatment

Minor differences were observed in ESS scores between the two groups before nursing ($P > 0.05$). After nursing, both groups exhibited a significant improvement in ESS scores ($P < 0.05$), with the research group achieving a higher score ($P < 0.05$; Table 2).

Comparison of negative emotion scores between the two groups before and after nursing

The SAS and SDS scores did not exhibit a significant difference between the two patient groups before nursing ($P > 0.05$). However, after nursing, the research group demonstrated significantly lower SAS and SDS scores compared to the control group ($P < 0.05$; Figure 2).

Assessment of daily living ability and motor function in the two groups

No significant difference was observed in daily living ability and motor function between the two groups before nursing ($P > 0.05$). After nursing, both groups demonstrated a significant improvement in daily living ability and motor function ($P < 0.05$), with the research group exhibiting a more substantial improvement compared to the control group ($P < 0.05$; Figure 3).

Comparison of the incidence of adverse reactions between the two patient groups

In the research group, 1 patient experienced reflux, 2 patients had a fever, and 1 patient had a pulmonary infection, resulting in an adverse reaction incidence of 4.35%. In contrast, the control group exhibited higher numbers, with 3 cases of reflux, 3 cases of aspiration, 4 cases of fever, and 3 cases of pulmonary infection, yielding an adverse reaction incidence of 16.25%. This indicated that patients in the research group were less likely to experience adverse reactions ($P < 0.05$; Table 3).

Comparison of patient quality of life between the two groups after nursing

Following nursing, the scores for role function, physical function, psychological function, and social function in the research group were 72.32 ± 2.54, 71.27 ± 2.64, 73.42 ± 2.65, and 72.55 ± 2.43, respectively. In contrast, the control group's corresponding scores were 62.78 ± 2.42, 62.54 ± 2.33, 63.12 ± 2.98, and 61.73 ± 2.14. The research group exhibited a more obvious advantage in all indexes related to quality of life ($P < 0.05$; Table 4).

Comparison of rehabilitation compliance assessment between the two groups

In the research group, there were 68 patients classified as completely compliant, 22 patients as partially compliant, and 2 patients as non-compliant, resulting in a rehabilitation compliance rate of 97.83%. Conversely, in the control group, the numbers were 32 patients, 30 patients, and 18 patients, respectively, leading to a rehabilitation compliance rate of 77.50%. The rehabilitation compliance rate in the research group was significantly higher than that in the control group ($P < 0.05$; Table 5).

Comparison of nursing satisfaction between the two groups

In the research group, 72 patients expressed being very satisfied, 19 patients were satisfied, and 1 patient was dissatisfied with nursing care, resulting in a nursing satisfaction rate of 98.91%. In comparison, the numbers in the control group were 43 patients, 20 patients, and 17 patients, respectively, yielding a nursing satisfaction rate of 78.75%. Patients in the research group provided significantly more positive feedback than those in the control group ($P < 0.05$; Table 6).

Table 1 General information in the two groups, *n* (%)

Factors	Research group, *n* = 92	Control group, *n* = 80	χ^2 value	*P* value
Sex			0.023	0.880
Male	53 (57.61)	47 (58.75)		
Female	39 (42.39)	33 (41.25)		
Age (yr)			0.032	0.857
≥ 63	61 (66.30)	52 (65.00)		
< 63	31 (33.70)	28 (35.00)		
BMI (kg/m^2)			0.001	0.977
≥ 23	55 (59.78)	48 (60.00)		
< 23	37 (40.22)	32 (40.00)		
Underlying disease			0.028	0.956
Diabetes mellitus	25 (23.21)	22 (20.37)		
Hypertension	31 (25.00)	26 (27.78)		
Hyperlipidemia	36 (28.58)	32 (27.78)		
Smoking			0.001	0.983
≥ 400	47 (51.09)	41 (51.25)		
< 400	45 (48.91)	39 (48.75)		
Education level			0.069	0.793
Middle school not completed	57 (61.96)	48 (60.00)		
Middle school completed	35 (38.04)	32 (40.00)		
Nutrition status			0.011	0.915
Good	41 (44.57)	35 (43.75)		
Fair	51 (55.43)	45 (56.25)		

BMI: Body mass index.

Table 2 Comparison of the European stroke scale scores between the two groups before and after treatment, mean ± SD

Factor	Research group, *n* = 92	Control group, *n* = 80	*t* value	*P* value
Before nursing	61.28 ± 5.82	61.32 ± 5.72	0.045	0.963
After nursing	78.19 ± 6.11	69.33 ± 5.92	9.624	< 0.001
t value	9.22	8.75		
P value	< 0.001	< 0.001		

DISCUSSION

This study investigated the effect of comprehensive nursing care on the quality of life and swallowing function in patients with IS. The findings revealed that comprehensive nursing significantly enhanced the swallowing function, quality of life, and nursing satisfaction of patients. These results hold clinical significance and provide valuable insights for practical application.

Acute IS is characterized by a sudden onset and a heightened risk of disability, particularly in the elderly population. The current demographic shift towards an aging society in our country accentuates the severity of this issue, making acute IS a leading cause of mortality and disability among residents[17,18]. IS encompasses stroke resulting from ischemia and hypoxia as well as acute cerebral infarction caused by hemorrhage, carrying a substantial fatality rate and unfavorable prognosis. Additionally, it is often accompanied by serious complications, including swallowing dysfunction.

Frequently, patients face challenges in self-care related to dietary intake, compounded by a lack of comprehensive understanding among family members who might inadvertently employ incorrect feeding methods, leading to insufficient intake and the inadvertent entry of food into the respiratory tract. Such actions could contribute to diminished

Table 3 Comparison of the incidence of adverse reactions between the two groups, *n* (%)

Adverse reaction	Research group, *n* = 92	Control group, *n* = 80	χ^2 value	*P* value
Reflux	1 (1.09)	3 (3.75)		
Aspiration	0	3 (3.75)		
Fever	2 (2.17)	4 (5.00)		
Lung infection	1 (1.09)	3 (3.75)		
Adverse reaction rate	4 (4.35)	13 (16.25)	6.806	0.009

Table 4 Comparison of the quality of life between the two groups after nursing, mean ± SD

Item	Research group, *n* = 92	Control group, *n* = 80	*t* value	*P* value
Role function	72.32 ± 2.54	62.78 ± 2.42	19.01	< 0.001
Physical function	71.27 ± 2.64	62.54 ± 2.33	17.26	< 0.001
Psychological function	73.42 ± 2.65	63.12 ± 2.98	20.85	< 0.001
Social function	72.55 ± 2.43	61.73 ± 2.14	24.74	< 0.001

Table 5 Comparison of rehabilitation compliance assessment between the two groups, *n* (%)

Rehabilitation compliance	Research group, *n* = 92	Control group, *n* = 80	χ^2 value	*P* value
Complete compliance	68 (73.91)	32 (40.00)		
Partial compliance	22 (23.91)	30 (37.50)		
Non-compliance	2 (2.18)	18 (22.50)		
Rehabilitation compliance rate	90 (97.83)	62 (77.50)	17.20	< 0.001

Table 6 Nursing satisfaction comparison between the two groups, *n* (%)

Nursing satisfaction	Research group, *n* = 92	Control group, *n* = 80	χ^2 value	*P* value
Very satisfied	72 (78.26)	43 (53.75)		
Satisfied	19 (20.65)	20 (25.00)		
Dissatisfied	1 (1.09)	17 (21.25)		
Nursing satisfaction rate	53 (98.91)	63 (78.75)	18.57	< 0.001

resistance, slow recovery, respiratory tract infection, pneumonia, and other complications[19,20]. While the swallowing function might naturally recover over time, the process is often protracted, and there is currently no specific therapeutic drug available. Therefore, timely and appropriate treatment, along with diligent care and rehabilitation exercises, are crucial approaches to facilitate the rehabilitation of patients with acute IS[21].

In this study, the comprehensive care model was employed for patients with IS. It was observed that in comparison to those receiving conventional care patients in the research group exhibited more significant recovery in both swallowing function and neurological deficit function. Within the framework of the comprehensive care model, targeted rehabilitation training guidance was individually tailored based on each patient's dysfunction, facilitating enhanced recovery of their swallowing function[22]. Additionally, research[23] has indicated that improvements in swallowing function could help restore neurological function and improve the quality of life in patients with stroke.

Further comparisons were made between the ESS scores, daily living activities, and motor function of the patients in the two groups. The results revealed that although both groups demonstrated improvement in these functions after nursing, patients in the research group experienced more pronounced recovery. This suggests that the application of our comprehensive care model is more effective in improving clinical outcomes, daily living abilities, and motor function.

Beyond the inherent challenges posed by the disease itself, factors such as functional disability, diseased location, educational background, economic status, and living conditions can exacerbate patients' negative emotions[24]. The comprehensive nursing model implemented a series of measures to address these negative emotions, including targeted psychological counselling and comfort tailored to individual circumstances. This approach aimed to help patients build confidence in overcoming their disease and foster close cooperation with nursing guidance. Notably, the observed

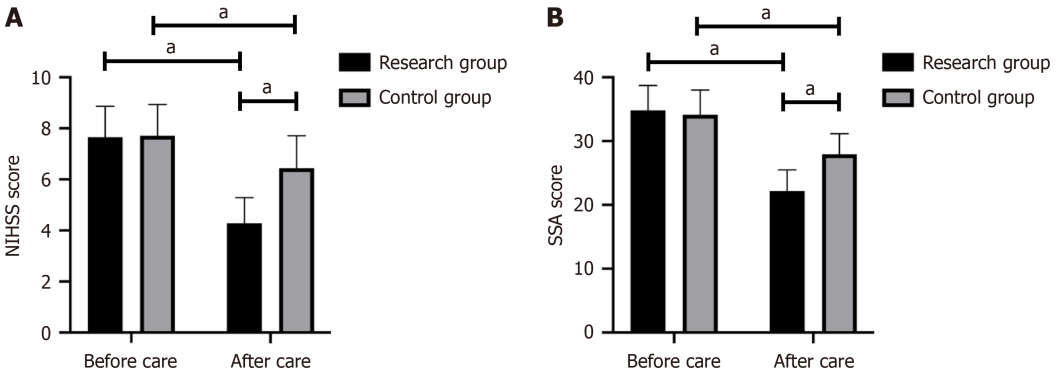

Figure 1 Comparison of swallowing function and neurological deficits in the two groups before and after nursing. A: National Institutes of Health Stroke scale scores; B: Standard swallowing function assessment scale scores for swallowing function. $^{a}P < 0.05$. NIHSS: National Institutes of Health Stroke scale; SSA: Standard swallowing function assessment scale.

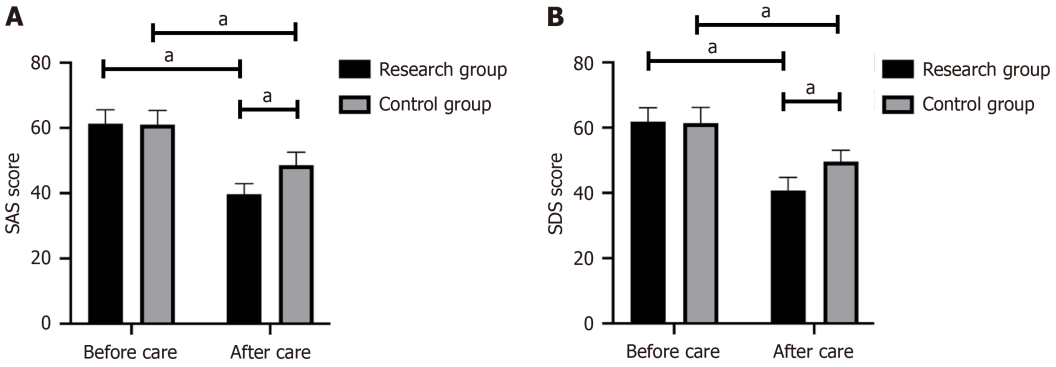

Figure 2 Comparison of negative emotion scores between the two groups of patients before and after nursing. A: Self-rating anxiety scale scores; B: Self-rating depression scale scores. $^{a}P < 0.05$. SAS: Self-rating anxiety scale; SDS: Self-rating depression scale.

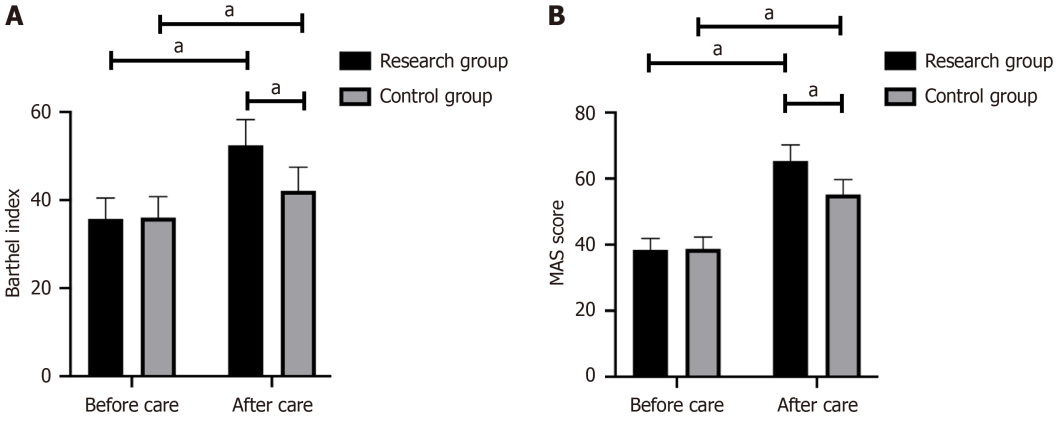

Figure 3 Assessment of daily living ability and motor function of patients in two groups. A: Comparison of Barthel index scores of daily living ability; B: Comparison of motor function assessment scale scores. $^{a}P < 0.05$. MAS: Motor function assessment scale.

improvements in the SAS and SDS scores for patients in the research group were more significant than those in the control group. Consistent with previous findings[25], our study suggest that the application of comprehensive care models in clinical settings effectively mitigates negative emotions in patients.

This study also underscored that after nursing interventions, the research group exhibited a significantly lower incidence of adverse reactions compared to the control group. Moreover, the specific assessments conducted revealed markedly enhanced quality of life among patients in the research group. After analyzing the components and benefits of comprehensive care, it was observed that patients receiving symptomatic care underwent regular limb massages to prevent venous thrombosis and bedsores in the lower limbs, which is particularly crucial for bedridden patients. For those with impaired activities of daily living, basic life exercises were administered to expedite adaptation to their physical conditions, enhance physical ability, and reduce the incidence of adverse reactions.

Additionally, a comparative analysis was conducted on rehabilitation compliance and nursing satisfaction between the two groups. The findings indicated significantly higher levels of rehabilitation compliance and nursing satisfaction among patients in the research group. This implies that the implementation of a comprehensive nursing model could improve nursing compliance in patients with IS through a series of psychological interventions, rehabilitation guidance, and symptomatic care. Consequently, this approach effectively contributes to the improvement of psychological and social functions, alleviation of stroke symptoms, enhancement of quality of life, and ultimately, elevated patient care satisfaction.

This study had several limitations. First, the small sample size introduced a potential element of chance into our findings, emphasizing the need for future multicenter and large-sample studies. Second, the absence of comparisons with other nursing models makes it somewhat premature to definitively conclude whether the comprehensive nursing model is the most suitable approach for patients with IS. Future research will incorporate a broader range of nursing models for a more comprehensive comparison. Additionally, considering the differences in pathophysiology, prognosis, and clinical features between patients with lacunar and non-lacunar infarcts, such as variations in age, hypertension, and length of hospital stay[26], it is imperative to investigate the effect of comprehensive nursing on the quality of life and swallowing function in patients with lacunar *vs* non-lacunar infarcts.

CONCLUSION

In conclusion, the implementation of comprehensive nursing for patients with IS was effective in enhancing swallowing function, alleviating negative emotions, facilitating patient recovery, and improving the overall quality of life. These positive outcomes underscore the potential for clinical application and merit widespread promotion. Future research endeavors should include multicenter and large-sample studies to comprehensively investigate the effect of various nursing models on patients with IS. Additionally, it is essential to explore the specific effects of comprehensive nursing on the quality of life and swallowing function in individuals with lacunar and non-lacunar infarcts.

ARTICLE HIGHLIGHTS

Research background

Ischemic stroke (IS) is a widely recognized disease characterized by high prevalence, mortality, morbidity, disability, and recurrence rates. It ranks prominently in terms of mortality, constituting 60%-80% of stroke cases.

Research motivation

Although comprehensive nursing interventions have been shown to be effective in multiple aspects, there is still a significant gap in the research on their improvement of swallowing function in patients with IS.

Research objectives

This study aimed to analyze the efficacy of the comprehensive nursing model in patients with IS, evaluating its influence on their swallowing function. The findings hold the potential to broaden the spectrum of available nursing plans for individuals with IS.

Research methods

The National Institutes of Health Stroke scale (NIHSS), European stroke scale (ESS), self-rating anxiety scale (SAS), self-rating depression scale (SDS), Barthel index (BI), and the motor func-tion assessment scale (MAS), were employed to evaluate the improvement in swallowing function, neurological deficits, clinical outcomes, anxiety, depression, daily living activities, and motor function before and after care, respectively. Furthermore, the study compared the occurrence of adverse reactions during the nursing period, life quality before and after the intervention, rehabilitation compliance, and nursing satisfaction between the two groups.

Research results

After nursing intervention, the standard swallowing function assessment scale and NIHSS scores of the study group were significantly improved compared with those of the control group, and the SAS and SDS scores of the two groups were significantly lower than those before treatment. The ESS, BI and MAS scores of the study group were better than those of the control group, and the incidence of adverse reactions was lower than that of the control group. The quality of life, rehabilitation compliance, and nursing satisfaction of the study group were higher than those of the control group, and the differences were statistically significant.

Research conclusions

Comprehensive nursing effectively improved the swallowing function of IS patients, relieved IS patients' negative emotions, promoted the recovery of IS patients, and improved the life quality of IS patients.

Research perspectives

Future studies will incorporate a wider range of care models for a more comprehensive comparison.

FOOTNOTES

Author contributions: Hu HF and Sang YF contributed to the conception and design of the study, acquisition of data, and analysis and interpretation of data; Xiao YQ contributed to the drafting the article and making critical revisions related to the relevant intellectual content of the manuscript; All authors validated and approved the final version of the article to be published.

Institutional review board statement: This study was approved by the Ethics Committee of Hengyang Maternal and Child Health Hospital (No. 202001151).

Informed consent statement: All study participants, or their legal guardian, provided informed written consent prior to study enrollment.

Conflict-of-interest statement: The authors declare that they have no competing interests.

Data sharing statement: Data supporting the findings of this study are available upon reasonable request from the corresponding authors.

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