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Evidence-Based Practice of Nutrition Management in Chronic Heart Failure Patients Based on Knowledge-to-Action Transformation Model

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Abstract

Objective: To develop a best-evidence-based optimal nutrition management plan for patients with chronic heart failure, apply it in clinical practice, and evaluate its effectiveness. **Methods:** Use the KTA knowledge translation model to guide evidence-based practice in nutrition management, and compare the nutritional status, cardiac function status, quality of life, and quality review indicators of chronic heart failure patients before and after the application of evidence. **Results:** After the application of evidence, the nutritional status indicators (MNA-SF score, albumin, hemoglobin) of two groups of heart failure patients significantly increased compared to before the application of evidence, with statistically significant differences ($p < 0.05$), The indicators related to cardiac function status (LVEF, NT-proBNP) showed a significant decrease compared to before the application of evidence ($p < 0.05$), The MLHFQ quality of life scale scores significantly decreased after the application of evidence, with all differences being statistically significant ($p < 0.05$). **Conclusion:** The KTA knowledge translation model provides methodological guidance for the implementation of evidence-based practice for heart failure patients. This evidence-based practice project is beneficial for improving the outcomes of malnutrition in chronic heart failure patients and is conducive to standardizing nursing pathways, thereby promoting the improvement of nursing quality.

Keywords

Chronic Heart Failure, Knowledge Transformation Mode, Nutrition Management, Evidence-Based Practice

1. Introduction

Heart failure (referred to as "heart failure") is the severe and terminal stage of the development of various heart diseases. There are more than 9 million patients with heart failure in China, and it is still on the rise, and its high mortality rate, high hospitalization rate and high medical expenses have caused heavy burdens on families and society [1]-[3]. Multiple studies have confirmed that malnutrition is an independent predictor of adverse outcomes for patients [4] [5]. Malnutrition is a common clinical phenomenon among heart failure patients and is significantly associated with mortality risk [6]. Scientific nutrition management can alleviate the symptoms of heart failure, reduce the readmission rate, and improve the adverse outcomes of patients [7] [8]. KTA (knowledge-to-action) transformation mode is an important practice mode of evidence-based nursing, which is divided into 2 stages and 9 steps of knowledge synthesis and knowledge application [9] [10], and is a dynamic cycle process from knowledge to practice. Therefore, this study, guided by the knowledge transformation model, integrated global evidence, made localized decisions, applied the best evidence of nutrition management to the clinic and evaluated the effect, so as to provide reference for the construction of standardized nutrition management programs for patients with chronic heart failure.

2. Objects and Methods

2.1. Research Method

This study is a quasi-experimental study.

2.2. Subjects

Select 426 patients with chronic heart failure who were hospitalized in the Department of Cardiology at Jingzhou First People's Hospital from January 2023 to October 2023 as the study subjects. Inclusion criteria: Participants were CHF patients ≥18 years of age. Exclusion criteria: serious failure of other organs, tumors, mental disorders and other diseases.

2.3. Methods

2.3.1. Knowledge Synthesis

A multidisciplinary evidence-based practice group was established, consisting of 12 members. Among them, 4 are nurses and 8 are other professionals. The PI-POST principle was applied to formulate evidence-based questions. Research subjects: Inpatients with CHF aged ≥18 years; Intervention measures: Nutritional management related measures; Professionals: Clinical personnel; Study outcomes: Patients' nutritional status, cardiac function status, quality of life; Evidence application site: Cardiology ward of the First People's Hospital of Jingzhou City; Evidence types: Guidelines, evidence summaries, systematic reviews, expert consensus.

1) Querying Knowledge

According to the "6S" evidence model, the database was searched top-down, and high-level evidence such as clinical decisions, guidelines, and expert consensus was searched first. We searched the literature of the guidelines network of Cardiology (ACC/ESC/JACC/AHA/HFSA), Cochrane Library, Medline, Evidence-Based Health Care Database (JBI), CNKI, Wanfang Database, and VIP database. Literature inclusion criteria: The study subjects were hospitalized CHF patients ≥18 years old. The study contents were guidelines, evidence summary, clinical decision-making and systematic review related to nutritional management in patients with chronic heart failure. The language was Chinese and English.

2) Knowledge integration

Two researchers independently evaluated, summarized and extracted the best evidence for the included literature. The guidelines use AGREE II evaluation, evidence summary, clinical decision to trace the original literature, according to the type of original literature using JBI Evidence-Based Health care Center for different types of research quality evaluation tools for quality evaluation. Quality was also evaluated using the JBI Evidence-based Health Care Center System Evaluation tool.

3) Knowledge Output

Finally, 13 articles, 6 guidelines, 5 consensus articles and 2 systematic reviews were included. The nutritional management of patients with chronic heart failure was divided into 6 parts and 27 best evidences were extracted. For evidence derived from the guidelines, the level and strength of evidence recommended by the guidelines are directly adopted; for evidence derived from evidence summary and clinical decision-making, the team members use the JBI evidence pre-grading system to grade the evidence by tracing the original text and intensive reading, and determine the strength of recommendation in combination with the JBI evidence pushing strength grading principle, as shown in Table 1.

2.3.2. Knowledge Application

1) Identify the gap between the best evidence and clinical practice

Construct the best evidence review indicators and determine the review methods, see Table 2. Conduct the first round of baseline review for 240 CHF patients from January to May 2023, with the following review indicators: Indicator 1—Training rate of medical staff and patients' nutrition knowledge is 12%; Indicator 2—Utilization rate of nutrition management support system and assessment tools is 10.41%; Indicator 3—Rate of formulation of "individualized" nutrition management plans for patients is 28.5%; Indicator 4—Implementation rate of departmental follow-ups is 56.54%. as shown in Table 2.

2) Introducing knowledge into specific situations

FAME structure was used to evaluate the feasibility, suitability, clinical significance and validity of the evidence. Organize stakeholders to hold FAME demonstration meeting, attended by a total of 10 experts, including department director, head nurse, nursing backbone, clinicians and nurses. Evidence materials will be sent to participants before the meeting. Experts will fully discuss and vote on each

Table 1. Summary of the best evidence for the nutritional management.

class	content of evidence	The evidence level	Recommended level
Nutritional screening and assessment	1) Nutritional screening is recommended for all patients with chronic heart failure	Ia	A
	2) Nutritional assessment of HF patients at risk of malnutrition is recommended	Ia	A
	3) The use of the Heart Failure-specific MicroNutrition Evaluation Scale (MNA-HF) is recommended to evaluate the nutritional status of patients with HF	Ib	B
	4) It is recommended that nutritionists should be involved in the nutritional assessment	IIa	B
	5) Nutritional assessment should include the New York Heart Association cardiac function classification, biochemical data, medical examination, drug use, nutrition-related physical examination, and the patient's food and related history	Ia	A
	6) Compared with other universal nutrition screening tools, the nutritional risk index in old age was the best predictive of adverse outcomes of heart failure	IIIb	B
Nutrient	7) Protein		
	7.1) It is recommended to consume sufficient high-quality protein, which should account for more than 2/3 of the total protein	IIa	B
	7.2) It is recommended that protein intake should be personalized, with a minimum protein intake target of 0.8 g/(kg d), but confirmed malnutrition or cachexia and a protein intake target of at least 1.1 0.8 g/(kg·d)	Ia	A
	7.3) Recommended intake of protein in HF patients is 1.2 - 1.5 g/(kg·d)	IIb	B
	8) Sodium		
	8.1) Patients with advanced heart failure should receive fluid intake <1.5 - 2.0 L per day regardless of severe hyponatremia (blood sodium <130 mmol/L)	Ib	B
	8.2) It is recommended that water sodium intake in HF patients should be individualized and sodium or fluid intake is not routinely restricted. General sodium intake should be 2 - 3 g/d and fluid volume should be 1 - 2 L/dL	Ia	A
	8.3) Recommended sodium intake guidance for all patients with HF	IIIa	B
	8.4) Strict sodium restriction is not required in patients with mild or stable heart failure	IIa	B
	8.5) Patients with acute episodes of chronic heart failure associated with volume overload should limit sodium intake by less than 2 g/d	IIIb	B
	8.6) For severe elderly patients with heart failure, it is recommended not to adhere to the "salt limited diet", but according to the nutritional status and dietary habits, the daily salt intake at about 6 g to enhance the appetite of the patients	Ib	B

Continued

	9) Potassium		
	9.1) Patients with heart failure with long-term use of diuretics should pay attention to the presence or absence of hypokalemia	Ia	A
	9.2) Patients with hypokalemia and heart failure should eat more potassium-rich food or take oral or intravenous potassium supplements	IIa	A
	10) Iron		
	10.1) It is recommended to test iron markers in HF patients to identify iron deficiency; if the first assessment of iron status is normal, test heart function grade ~ once every 6 months and once a year	IIa	B
	10.2) Patients with heart failure combined with iron deficiency should be considered for iron therapy, whether with or without anemia	IIIb	B
	10.3) Oral iron supplementation is recommended in patients with HF and iron deficiency	IIIb	B
	11) The trace elements		
	11.1) In the absence of deficiency indications, additional micronutrients to improve cardiac function	IIa	B
	11.2) Routine vitamin E supplementation is not recommended for the prevention or adjunctive treatment of patients with heart failure	IIIb	B
	11.3) It is recommended that HF patients consume at least the daily dietary intake of vitamin B1	IIb	B
Energy requirement	12) It is recommended to use indirect calorometry to measure the daily energy needs in patients with heart failure	IIb	B
	13) When indirect calorimetry cannot be completed, use ideal weight based energy calculations of 25 - 30 kg cal/(kg·d)	Ia	A
Liquid intake	14) Fluid intake in HF patients with severe hyponatremia should be less than 2 L/d, and fluid volume in patients with severe heart failure is limited to 1.5 - 2.0 L/d	IIa	B
	15) The individualized principle should be followed when making a fluid intake plan, considering the patient's weight, heat and humid weather, as well as the presence of nausea, vomiting and diarrhea	Ia	A
	16) In heart failure is advised to avoid excessive drinking; in patients with heart failure associated to alcoholic cardiomyopathy	Ib	B
Nutritional support	17) Nutritional support in HF patients with malnutrition is recommended to improve outcomes in patients with HF	Ia	A
	18) A Mediterranean dietary pattern high in vegetables, fruits, whole grains, fish, nuts, and legumes was recommended as the basic dietary pattern for chronic HF	Ib	B
	19) Patients with high risk of severe heart malnutrition (e.g., NRS-2002 score 3) should receive active nutritional supportive therapy, such as serum albumin supplementation	Ib	B

Continued

	20) Nutrition support methods: oral eating, enteral nutrition, and parenteral nutrition. It is recommended to choose appropriate methods individually or individually according to different situations	IIb	B
Health education and follow-up	21) It is recommended to assist individualized exercise rehabilitation in the process of nutritional support for patients with heart failure. Regular aerobic exercise can help improve symptoms and improve activity endurance	IIIa	B
	22) Health education can improve patients' self-management ability and treatment compliance. Education mainly covers basic knowledge of heart failure, dietary energy and protein intake, sodium and fluid intake, physical activity, self-monitoring body quality and symptoms, etc.	Ia	A
	23) It is recommended that health education be taught in various forms, using written, oral, pictorial, video and/or electronic tools	Ib	B
	24) It is recommended to teach patients to self-monitor body quality and intake: fixed time every day (after waking up in the morning, before dressing, after defecation, before eating) and accurately record body quality	IIIa	B
	25) Establish files to recommend telephone follow-up within 3 days of discharge for CHF patients and home visits within 7 - 10 days	Ib	A
	26) Establish a follow-up system for CHF patients to develop medical and health records for patients; follow-up methods include outpatient follow-up, community visit, telephone follow-up, home monitoring, etc., with the best follow-up method considering medical conditions, patients' requirements and self-management ability	Ib	B
	27) Patients develop individualized discharge plan and follow-up services: generally follow-up every 1 - 2 months after stable disease, and the follow-up frequency should be increased, once every 2 weeks	Ia	A

Table 2. Review criteria and review methods.

Review Criteria	Review object	Review method
1) Healthcare workers receive training related to nutrition management for chronic heart failure	Doctor, nurse	Review training records and assessments
2) Nutrition Management Support System	Doctor-patient relationship	Review training records and assessments
3) Nutritional management plans for patients with chronic heart failure reflect "individualization"	Survey form	Interview, review quality inspection form
4) The department has a standardized follow-up system and implements it	Nurse, patient	Interview, review system files

piece of evidence according to FAME structure during the meeting, and finally decide to introduce all the best evidence into clinical practice.

3) Assessment of obstacle factors and selection, tailoring and implementation

of intervention measures

Analysis of barriers and action strategies based on CFIR, see Table 3.

Table 3. Analysis of obstacle factors and action strategies.

Obstacle factors	Countermeasure group	Action strategy
1) Insufficient emphasis on nutritional management for heart failure patients by healthcare providers and patients	Strategy One: Establish a multidisciplinary management team for CHF patients led by specialist nurses	1) Establish MDT nutrition management team to determine the responsibilities and division of members; 2) Conduct training and special lectures on nutrition management knowledge for nurses, doctors and nutritionists; 3) Hold regular team meetings to discuss the progress and existing problems of the project, analyze the reasons and put forward suggestions for improvement
2) Lack of nutritional management support system	Countermeasure Two: Improve the Nutritional Management Support System	1) Develop a flowchart for nutritional management of hospitalized patients, forming a closed-loop management chain; 2) Develop specialized forms to standardize checklists
3) Lack of systematic personalized nutrition management plans	Strategy Three: Develop individualized nutrition management plans for CHF patients	1) Conduct nutritional screening and assessment, monitor body weight; 2) Develop weekly meal plans based on caloric needs
4) Patients lack nutritional management supervision system after discharge and returning home	Strategy Four: Implement online and offline nutrition management follow-up based on Internet Plus	Establishing a nutritional management system for hospitalized patients with chronic heart failure

4) Application of monitoring knowledge and evaluation of the effect after application of knowledge

In the process of evidence-based practice, monitoring the application of knowledge and the evaluation of the effects after knowledge application.

5) Maintaining the application of knowledge

Make the best evidence into a plan and standardized process to maintain the best evidence in clinical application.

2.4. Evaluation Method

Conducted a second round of baseline review for 186 CHF patients from June to October 2023, continuously tracked the compliance of medical staff with best evidence, and compared the nutritional status, cardiac function status, and quality of life of two groups of heart failure patients before and after the application of evidence.

2.5. Statistical Methods

SPSS26.0 statistical software was used for data processing. Quantitative data were expressed as "mean ± standard deviation", and T-test was used for inter-group mean comparison. Statistical data were obtained by chi-square test with two

independent samples. Test level $\alpha = 0.05$, $p < 0.05$ was considered statistically significant difference.

3. Results

1) Comparison of general information between two baseline reviews of patients, including age, gender, and degree of heart failure, see Table 4.

Table 4. Patient general baseline data.

group	Example number	age	sex		cardiac functional grading		
			man	woman	heart function II level	heart function III level	heart function IV level
Baseline review	240	61.09 ± 8.21	142	98	115	87	38
The Second round of review value	186	64.24 ± 6.22	82	104	73	82	31
χ^2/t		0.695	2.100		1.652	1.22	2.21
p		0.423	0.147		0.568	0.684	0.745

2) Comparison of compliance with the application of best evidence among healthcare professionals, including the rate of training in nutrition knowledge for healthcare professionals and patients, the rate of use of assessment tools, the rate of formulation of nutrition management plans, and the rate of follow-up implementation, see Table 5.

Table 5. Compliance with the best evidence application among healthcare workers (n, %).

Baseline review	number	Training rate of nutrition knowledge for medical staff and patients	Assess Assessment tool usage rateusage	Nutrition Management Plan Development Rate	Follow-up implementation rate
The first review	240	28 (11.67)	25 (10.41)	68 (28.33)	135 (56.25)
The second review	186	186 (100)	161 (86.56)	152 (81.72)	161 (86.56)
χ^2		327.11	243.99	117.25	45.16
p		<0.001	<0.001	<0.001	<0.001

3) Comparison of nutritional status, cardiac function, and quality of life between two groups of heart failure patients before and after the application of evidence, see Table 6.

4. Discussion

1) The general data of the patients included in the two baseline reviews were comparable.

In this study, 240 patients were selected for the first baseline review before

Table 6. Nutritional status, cardiac function status, quality of life comparison.

group	number	Nutrition-related indicators			Index related to cardiac function		quality of life
		MNA-SF grade	albumin (g/L)	Hemoglobin (g/L)	LVEF (%)	NT—proBNP (pg/mL)	The MLHFQ scale score
Before the application of evidence	240	8.70 ± 2.36	30.38 ± 1.02	11.25 ± 1.85	32.38 ± 5.76	633.78 ± 66.55	78.26 ± 15.73
After the application of the evidence	186	12.6 ± 3.16	41.43 ± 1.18	13.05 ± 2.30	49.43 ± 6.15	386.75 ± 84.86	47.65 ± 18.92
t		−7.21	3.258	5.258	−1.01	2.95	−3.17
p		<0.001	<0.001	<0.001	0.000	0.000	<0.001

evidence application, and 186 patients were included for the second baseline review.

It can be concluded that the patients at both baseline reviews were not statistically different in sex, age, or degree of heart failure ($p < 0.05$) and were comparable.

2) Evidence-based nursing practice can improve the compliance rate of healthcare professionals in reviewing indicators.

Our country faces barriers related to nurses in implementing evidence-based nursing practice in clinical settings, including lack of awareness, knowledge, and skills, increased workload, and poor compliance [11]. The results of this study showed that the second baseline review after the application of the evidence, The training rate of nutrition knowledge of medical staff and patients, the utilization rate of nutrition management plan and the implementation rate of follow-up were significantly improved, which were statistically different from those before the application of evidence ($p < 0.05$). Therefore, following the application of evidence, has significantly improved compared to before the application of evidence. This is consistent with the findings of Wang [12], indicating that under the guidance of evidence-based practice frameworks, formulating plans that are suitable for the implementation in complex hospitals can significantly enhance the execution capabilities of healthcare teams. The main reasons are, on one hand, this study included the nursing managers and key nurses of the cardiology department of our hospital in the evidence-based nursing team. Nurses were trained in nutritional management knowledge and skills by professionals in the relevant fields within the team. The entire nursing staff of the cardiology department was led to participate in the evidence-based nursing practice project for nutritional management of patients with chronic heart failure, which improved the nurses' knowledge and skills related to nutritional management. On the other hand, the researchers identified barriers and facilitators from the perspectives of different stakeholders. They held group meetings with members from multiple disciplines to tailor the best

evidence, devise strategies for overcoming barriers, and develop a practical evidence-based practice protocol.

3) Evidence-based nursing practice can improve malnutrition outcomes in patients with chronic heart failure

Malnutrition can trap CHF patients in a cycle of malnutrition, inflammation and cachexia, And once cachexia occurs, it is difficult to reverse the course of the disease. Therefore, it is necessary to pay attention to the nutritional status of patients while treating heart failure, actively screen and intervene to improve the prognosis of patients [13]. The results of this study showed that the nutritional status, cardiac function status and quality of life of HF patients were significantly improved after the application of evidence-based evidence, which is consistent with the findings of chen [14]. The main reasons include, conducting nutritional risk screening for CHF patients upon admission helps to identify those with a high risk of malnutrition; Based on comprehensive information such as height and weight, age and gender, and disease condition, personalized nutrition support programs are formulated, personalized nutrition support prescriptions that are most compatible with the nutritional needs, dietary habits, and nutritional risk factors of nursing objects are designed, and personalized nutritional support is provided, which can improve the prognosis of patients and reduce the incidence of malnutrition in patients with heart failure.

5. Summary

Under the guidance of the KTA knowledge translation model, this study summarized the best evidence for nutritional management of patients with chronic heart failure and translated it into practice, developing an actionable nutritional management plan to improve the execution rate among healthcare professionals. Effective interventions can improve the nutritional status, cardiac function, and quality of life of patients with chronic heart failure. This study, as evidence-based practice, requires strong support from administrators and doctors, as well as high cooperation from patients to be completed. During the research process, some patients did not pay enough attention to the relationship between nutritional support and disease, which caused certain resistance to the practice of this study. Therefore, in subsequent studies, qualitative research on patients' nutritional needs can be conducted first, and then personalized nutritional intervention plans can be developed in combination with evidence-based protocols, followed by a new round of evidence-based practice.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

[1] Heart Failure Group, Chinese Society of Cardiology, Heart Failure Professional Committee, Chinese Medical Doctor Association, Editorial Committee of Chinese Journal

of Cardiology (2018) China Heart Failure Diagnosis and Treatment Guidelines 2018. *Chinese Journal of Cardiovascular Disease*, **46-48**, 760-789.

[2] Ma, L.Y., Wang, Z.W., Fan, J., *et al.* (2023) Key Points of China Cardiovascular Health and Disease Report 2022. *Chinese Journal of General Medicine*, **26**, 3975-3994.

[3] Heidenreich, P.A., Bozkurt, B., Aguilar, D., *et al.* (2022) 2022 AHA/ACC/HFSA Guideline for the Management of Heart Failure: A Report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. *Circulation*, **145**, e895-e1032.

[4] Sze, S., Pellicori, P., Zhang, J. and Clark, A.L. (2018) Malnutrition, Congestion and Mortality in Ambulatory Patients with Heart Failure. *Heart*, **105**, 297-306. https://doi.org/10.1136/heartjnl-2018-313312

[5] Li, W.J., Li, S.R., Sun, M.C., *et al.* (2021) Prediction of Prognosis of Hospitalized Patients with Chronic Heart Failure by Nutritional Risk Index in Elderly Patients. *Chinese Journal of General Medicine*, **24**, 2955-2961.

[6] Kim, S.E., Azarian, M., Naik, A.D., Park, C., Horstman, M.J., Virani, S.S., *et al.* (2024) What Is the Additive Value of Nutritional Deficiency to VA-FI in the Risk Assessment for Heart Failure Patients? *The Journal of nutrition, health and aging*, **28**, 100253. https://doi.org/10.1016/j.jnha.2024.100253

[7] Wickman, B.E., Enkhmaa, B., Ridberg, R., Romero, E., Cadeiras, M., Meyers, F., *et al.* (2021) Dietary Management of Heart Failure: DASH Diet and Precision Nutrition Perspectives. *Nutrients*, **13**, Article 4424. https://doi.org/10.3390/nu13124424

[8] Miyajima, I., Yatabe, T., Kuroiwa, H., Tamura, T. and Yokoyama, M. (2020) Influence of Nutrition Support Therapy on Readmission among Patients with Acute Heart Failure in the Intensive Care Unit: A Single-Center Observational Study. *Clinical Nutrition*, **39**, 174-179. https://doi.org/10.1016/j.clnu.2019.01.010

[9] Graham, I.D. and Tetroe, J. (2007) Some Theoretical Underpinnings of Knowledge Translation. *Academic Emergency Medicine*, **14**, 936-941. https://doi.org/10.1111/j.1553-2712.2007.tb02369.x

[10] Rycroft-Malone, J., Bucknall, T. (2010) Models and Frameworks for Implementing Evidence-Based Practice: Linking Evidence to Action 22. John Wiley & Sons Ltd., 82-102.

[11] Fu, Y., Wang, C., Hu, Y. and Muir-Cochrane, E. (2020) The Barriers to Evidence-based Nursing Implementation in Mainland China: A Qualitative Content Analysis. *Nursing & Health Sciences*, **22**, 1038-1046. https://doi.org/10.1111/nhs.12763

[12] Wang, L.Z., Chen, Y.E., Li, Q., *et al.* (2024) Evidence-Based Practice for the Prevention and Care of Eye Complications in ICU Patients. *Chinese Journal of Nursing*, **59**, 781-788. (In Chinese)

[13] Hong, Y., Wang, X.H., Ju, Y., *et al.* (2020) Qualitative Study on Malnutrition Perception in Patients with Heart Failure. *Journal of Nursing Science*, **35**, 87-89, 105. (In Chinese)

[14] Chen, F.F., Ye, L.X., Zhou, L.M., *et al.* (2024) Construction and Application of In-Hospital Nutrition Management Program for Patients with Chronic Heart Failure. *Chinese Nursing Management*, **24**, 145-151. (In Chinese)