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Effect of Health Management in Raising Awareness Rate of Disease Prevention and Treatment in Patients with Prehypertension

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Abstract

Objective: To analyze the effect of health management on improving the awareness rate of disease prevention and treatment in patients with prehypertension, so as to provide guidance for clinical management of patients with prehypertension. Methods: 108 patients diagnosed with prehypertension in our hospital were divided into a control group and an experimental group. The control group was not given management measures, while the experimental group was given health management. The incidence of hypertension and cognition level of hypertension knowledge were compared between the two groups after management. Results: The incidence of hypertension in the experimental group was 7.41% lower than that in the control group 29.63%. The cognitive level of hypertension in the patients (66.54 ± 1.25) was significantly higher than that in the patients without health management (41.45 ± 2.45), and $P < 0.05$; Conclusion: For patients with prehypertension, the implementation of health management is helpful to improve their cognition of hypertension, master related prevention knowledge, and reduce the incidence of hypertension.

Keywords

Prehypertension, Health Management, Disease Prevention Awareness Rate

1. Introduction

Hypertension, as a highly prevalent cardiovascular disease, is characterized by abnormal and sustained elevation of arterial blood pressure. The prehypertension phase refers to a critical state of blood pressure, and if persistently present, it may induce phenomena such as myocardial remodeling and changes in vascu-

lar structure and metabolic function. Clinical studies have found that the risk of prehypertensive individuals developing hypertension within two years is 3 to 6 times higher than that of individuals with normal blood pressure, concurrently increasing the risk of various cardiovascular diseases [1]. Currently, clinical research primarily focuses on the health management of diagnosed hypertensive patients, with limited attention given to the health management of prehypertensive patients. The emphasis on health management for individuals in the prehypertensive phase needs to be heightened, as some patients progress to hypertension due to a lack of effective health management, resulting in irreversible consequences. In order to address this gap, this study selects prehypertensive individuals as the research subjects, aiming to analyze how to implement health management for this group. The goal is to assist patients in adopting healthy lifestyles and behaviors, thereby minimizing the risk of developing hypertension.

2. Information and Methods

2.1. General Information

From January 2022 to December 2022, a total of 108 individuals at our hospital who were diagnosed with pre-hypertension during their health examinations were selected as the research subjects. After identifying the study participants, they were divided into two groups using a random number table. This involved creating a table containing random digits from 0 to 9, with each digit having an equal chance of appearing. For this study, 54 samples needed to be extracted, and the sampling interval was set at 9. This meant selecting every 9th number from the random number table. The process involved choosing a starting row and column from the random number table, and then sequentially selecting numbers in both row and column order. The selected numbers were then converted into corresponding sample identifiers. The chosen sample identifiers were marked or recorded. This process was repeated until a total of 54 samples were obtained. One group was designated as the control group, and the other as the experimental group, with each group having a total of 54 cases. For the control group, the gender ratio was 14:13, with an age range of 51 to 78 years, and an average age of (65.27 ± 5.15) years. The duration of blood pressure abnormalities ranged from 1 to 12 months, with an average duration of (8.54 ± 2.36) months. For the experimental group, the gender ratio was also 14:13, with an age range of 54 to 79 years, and an average age of (65.21 ± 5.18) years. The duration of blood pressure abnormalities ranged from 1 to 15 months, with an average duration of (8.51 ± 2.32) months. Basic demographic data for both groups showed no significant differences ($P > 0.05$), meeting the requirements for comparison of observation indicators.

Inclusion criteria: All patients met the relevant diagnostic criteria for prehypertension. Specifically, they had not taken any medication that could affect blood pressure. Their systolic blood pressure (SBP) levels were in the range of 130 to 139 mmHg, and diastolic blood pressure (DBP) levels were in the range of

80 to 89 mmHg [2]. All enrolled subjects had not received any prior health education or related medical visits related to hypertension. Both the subjects and their family members were informed about the study and expressed their willingness to cooperate with the research process.

Exclusion criteria: Participants who, in the past month, have undergone treatment for hypertension, exhibited significant organ damage such as heart or liver dysfunction, had coagulation function abnormalities, displayed mental disorders, or withdrew from the study for various reasons during the research period will be excluded from this study.

2.2. Methods

Control group patients, after being diagnosed with pre-hypertension, did not receive any management measures, while the experimental group underwent health management. The implementation details and steps for the health management in the experimental group are as follows.

2.2.1. Establishing Health Management Records

When a patient is diagnosed with pre-hypertension, the establishment of a health management record is initiated. The contents of this record mainly cover: 1) Basic information of the patient (including education level). 2) Patient's Daily Lifestyle, Health Behaviors, and Self-Care Abilities: Documentation of the patient's daily habits, health-related behaviors, and self-care abilities. Inquiry into alcohol and smoking habits, engagement in recreational activities, exercise routines, cultural activities, dietary habits and preferences, medical visit frequency and behavior, and self-management capabilities. 3) Disease-related information. Family history, past medical history, drug allergy history, time of diagnosis of prehypertension, hypertension level, mental health level, hospital-related examination results, and previous physical examination status and results.

2.2.2. Health Management Content

1) Exercise Management: Develop a scientific and regular exercise plan based on the patient's age, physical condition, etc., with the aim of guiding patients to participate in appropriate physical activities to enhance physical fitness and better control blood pressure levels. Therefore, community healthcare workers should guide hypertensive individuals to choose exercise methods that suit their preferences. Aerobic exercise is recommended, with a recommended frequency of 3 - 5 times per week, each session lasting about 30 minutes. Walking, Tai Chi, and other similar activities are suitable. It's important to follow the principle of gradual progression in exercise. If the patient is older, it's advisable for family members to accompany them during exercise. 2) Nutrition Management: Organize systematic learning sessions for patients on dietary knowledge, scientifically choose foods to ensure a balanced nutritional intake, develop regular eating habits, and ensure daily water intake exceeds 1500 ml. The diet for hypertensive patients should focus on low-salt, low-fat intake, with a daily salt intake not ex-

ceeding 6 g. Include vegetables, fruits rich in dietary fiber and vitamins, as well as foods rich in potassium. Avoid pickled and high-calcium foods, and quit smoking and alcohol consumption. 3) Interpersonal Relationship Management: Specialized nurses should regularly organize lectures and activities for patients in their jurisdiction. During these events, patients can discuss and share their experiences in controlling hypertension. Remind family members to care for and support patients, boosting the patient's confidence in treatment. 4) Self-realization: Encourage patients to tap into their own potential, showcase personal strengths, achieve self-goals, and highlight their own values. Patients can be encouraged to engage in activities they enjoy during leisure time, such as square dancing or playing chess, making their lives more fulfilling and discovering their own worth. 5) Health Responsibility Management: Remind patients to pay attention to their health, proactively learn health knowledge, and take responsibility for their health. Hospitals can regularly invite experts and doctors to give lectures on hypertension and conduct educational activities for pre-hypertensive patients. This helps patients understand the difference between pre-hypertension and hypertension and emphasizes that pre-hypertension is reversible. Not actively cooperating with effective intervention methods can lead to irreversible consequences, motivating patients to take responsibility for controlling hypertension. Help patients understand which unhealthy lifestyle and dietary habits can worsen their condition, encouraging them to consciously improve these habits. 6) Stress Management: Pre-hypertensive individuals face pressure mainly from fluctuating health conditions and economic burdens. Healthcare workers should inform patients of the correlation between stress and blood pressure management. Remind patients to learn how to control their emotions in daily life, avoid significant emotional fluctuations, and strive to keep blood pressure stable to prevent progression to hypertension.

2.3. Observe Indicators

1) After 6 months, follow-up was conducted for both groups of patients, simultaneously assessing the incidence of hypertension. The criteria for diagnosing hypertension were referenced from the "Chinese Guidelines for the Prevention and Treatment of Hypertension (2018 Revised Edition)." Specifically, a confirmed diagnosis was made when, in the absence of any medications affecting blood pressure, the measured systolic blood pressure (SBP) level was ≥140 mmHg and/or diastolic blood pressure (DBP) was ≥90 mmHg [3].

2) Before and after the management, the hypertension-related Knowledge, Attitude, and Practice (KAP) questionnaire developed by Zeng Zhaoyuan and Ling was distributed to both groups of patients for an investigation into their knowledge, attitudes, and behaviors regarding hypertension. The questionnaire consists of 24 items, including 10 items in the knowledge dimension (scored from 0 to 10 points), 5 items in the attitude dimension related to hypertension (scored from 0 to 5 points), and 9 items in the behavior dimension related to hyperten-

sion. The total score ranges from 8 to 33 points, with higher scores indicating better performance in that dimension. The questionnaire's Cronbach's α coefficient is 0.688 [4].

2.4. Statistical Methods

In this report, the comparison and analysis of observational indicators were conducted using SPSS 21.0. For the statistical description of disease cognition scores, mean (M) ± standard deviation (SD) were employed, and a t-test was used for comparison. The incidence of hypertension was expressed in percentages (%), and a chi-square test was used for examination. A P-value less than 0.05 indicates a significant difference in the compared data.

3. Results

3.1. Comparison of the Incidence of Hypertension between the Two Groups

After implementing health management for the pre-hypertensive population in the experimental group for 6 months, 4 cases progressed to hypertension, resulting in an incidence rate of 7.41%. In contrast, the control group, consisting of pre-hypertensive individuals who did not undergo any health management, showed 16 cases progressing to hypertension during the 6-month follow-up, resulting in an incidence rate of 29.63%. The hypertension incidence rate in the experimental group (7.41%) was lower than that in the control group (29.63%), and $P < 0.05$, confirming that implementing health management for pre-hypertensive individuals contributes to reducing the incidence of hypertension. Refer to Table 1 for details:

3.2. Comparison of Hypertension Knowledge, Belief and Action Scores between the Two Groups before and after Health Management

Before implementing health education, there were no significant differences in hypertension knowledge, attitudes, and practices (KAP) scores between the two groups ($P > 0.05$). However, after different health education interventions, the experimental group's KAP scores for hypertension were higher than those of the control group, and $P < 0.05$, as shown in Table 2.

Table 1. Comparison of the incidence of hypertension [n(%)].

Group	n	Hypertension Cases	Proportion
Experimental Group	54	4	7.41%
Control Group	54	16	29.63%
χ^2	/	4.442	
P	/	<0.05	

Table 2. Comparison of hypertension knowledge, belief and action scores before and after health education [$\bar{\chi} \pm s$].

Group	n	Before Health Education	After Health Education
Experimental Group	54	33.35 ± 2.36	66.54 ± 1.25
Control Group	54	33.31 ± 2.32	41.45 ± 2.45
t	/	0.045	22.154
P	/	>0.05	<0.05

4. Discussion

Hypertension, as a common chronic disease in communities, has been recognized as a significant global public health issue. According to the latest survey data, the diagnosed number of hypertensive patients in China has reached 330 million. Pre-hypertension refers to blood pressure levels falling between normal and the critical threshold for hypertension. In recent years, the prevalence of pre-hypertension in China ranges from 22% to 65%, displaying a trend towards increasing incidence among younger populations. If pre-hypertension is not timely controlled, it is prone to progress into hypertension, leading to irreversible consequences [5]. Clinical studies have found that the onset of hypertension is associated with genetic factors, vascular diseases, unhealthy lifestyle and dietary habits, lack of exercise, among other factors. Therefore, effective prevention of the progression from pre-hypertension to hypertension is crucial in developing healthy behaviors and avoiding risk factors that elevate blood pressure, ultimately reducing the incidence of hypertension. Health management primarily involves implementing comprehensive and targeted management processes tailored to the specific health risk factors present in an individual or a group.

In this study, the effectiveness of implementing health management for pre-hypertensive patients was analyzed, and a comparison was made with patients who did not undergo health management. The results indicated that the incidence of hypertension within 6 months for patients who received health management (7.41%) was significantly lower than that for patients who did not receive health management (29.63%), with $P < 0.05$. This finding aligns with the research results of scholars such as Sun Zhangping *et al.* [6]. Furthermore, patients who underwent health management demonstrated significantly higher hypertension knowledge, attitudes, and practices (KAP) scores (66.54 ± 1.25) compared to those who did not receive health management (41.45 ± 2.45), and $P < 0.05$. Pre-hypertensive patients who did not undergo health management showed no significant change in their level of hypertension awareness. The regular conduct of hypertension-related knowledge training, lectures, and promotional materials has enhanced the preventive awareness and concepts of pre-hypertensive patients. This plays a crucial role in effectively controlling blood pressure in patients' daily lives.

The findings confirm that implementing health management for pre-hypertensive patients is beneficial in helping them acquire knowledge related to the

prevention and control of hypertension, ultimately reducing the incidence of hypertension. The reasons for this may include the fact that health management primarily targets patients and their families as intervention subjects, applying effective management strategies across six dimensions: exercise, nutrition, interpersonal relationships, self-realization, health responsibility, and stress management. This comprehensive approach assists patients in developing a correct understanding of hypertension, cultivating healthy behaviors, consciously abandoning incorrect lifestyle habits, and better controlling blood pressure levels. As a result, this helps prevent the progression of pre-hypertension into hypertension.

5. Conclusion

In summary, implementing health management for pre-hypertensive patients proves to be beneficial in enhancing their knowledge, attitudes, and behaviors related to hypertension, enabling them to grasp relevant preventive information and thereby reducing the incidence of hypertension. This study contributes to addressing certain gaps in the current research on pre-hypertension management. However, there are several limitations in this research: 1) The selected study subjects were all from our community, making the sample non-representative and limiting the generalizability of the study results; 2) Due to budget constraints, the organization of activities in this study faced limitations such as inadequate venues and facilities. In future research, collaborative efforts with the community and its staff will be strengthened, and the facilities required for health management will be improved.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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