Investigation on the Status of Grasp of Diabetes Knowledge among Community Diabetics

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Abstract: Objective — To understand the cognition of basics on diabetes among community diabetes patients,so as to provide basis for health education on diabetes, so as to achieve the purpose of targeted health education. Methods — A questionnaire survey was conducted on the cognition of diabetes in 64 patients in the community, and data analysis was conducted with SPSS17.0 software. According to the analysis results,the aspects of diabetes health education in the community that should be strengthened were discussed. Results — There was a universal demands by diabetics for health education, especially health education on diet and exercise, and psychological treatment. Conclusion — Through this investigation, it is found that patients pay more attention to drug therapy, ignoring the role of diet control and exercise therapy in blood glucose control, which should be enhanced in the future health education.

Keywords: diabetes, health education, community

Introduction

With the rapid increase of the prevalence of diabetes, diabetes and its complications have become one of the serious diseases threatening human health, which brings heavy burden to society and economy. According to statistics, at present, China has the largest number of people in the world. There were more than 90 million people with type 2 diabetes nationwide last year, with a prevalence rate of 9.7 percent. It is expected to increase to 129.7 million by 2030, so strengthening the prevention and treatment of diabetes has become one of the urgent tasks. In terms of diabetes prevention and treatment strategies, the role of health education for diabetics has been recognized[1]. Efforts should be made in diabetes health education and active cooperation of patients can be good prerequisites for diabetes control. In order to understand the cognition of diabetics in the community and to provide scientific basis for health education in the future, the investigator conducted a field survey of diabetics registered in the community health center. The results are now reported as follows.

1. Data and methods

1.1 Subjects

According to the method of convenient sampling, 70 diabetics who had been diagnosed in the community and recorded in the community health center were selected as the investigation objects.

1.2 Research methods

This study adopts the method of questionnaire survey. The questionnaire was designed by the investigator, and the main content of the questionnaire included the followings as the patients' basic understanding of diabetes, diet control, exercise therapy, drug therapy and self-health care. The questionnaire consisted of 26 questions, including 20 single choice questions and 6 multiple choice questions with 1 point for each single choice question, full marks will be given for correct answers, and no marks will be scored for wrong answers. Besides, 2 points can be obtained for each multiple-choice question, full marks will be given for correct answers, and no marks will be given for multiple answers or missed answers. The total score of the questionnaire was 32. The questionnaire was distributed by the investigator at the home of the respondents and answered by the respondents (for some older respondents with poor vision, the investigator will read the test paper, the patients answered and the investigator filled in on their behalf). A total of 70 questionnaires were sent out, 64 of which were valid, with an effective rate of 91.43%.

1.3 Data analysis methods

SPSS17.0 software was used for data collation and statistical analysis of the original data obtained from the survey.

The statistical methods used include percentage, t test, mean and standard deviation.

2. Results

2.1 General information

Of the 64 respondents, 35 were male and 29 were female. There were 24 younger than or equal to 60 years old, and 40 seniors more than 60 years old. There were 19 junior high school students or below, 45 senior high school students or above. There were 41 patients who had diabetic history of less than 10 years, and 23 patients of more than 10 years.

2.2 Grasp of basics of residents

2.2.1 General situation

To take reference to Table 1 for the scores of the respondents in five aspects of diabetes basics. As can be seen from the table, the accuracy of drug therapy is higher, while the accuracy of diet control and exercise therapy proved at lower level.

Table 1. Accuracy rates of the respondents in five aspects of diabetes

Items	Questions	Correct rate (%)
Drug therapy	4	76.95
Basic Recognition	9	65.28
Self-care	4	60.94
Diet Control	5	29.06
Kinesitherapy	4	24.22

2.2.2 Scoring from each dimension

As shown in Table 2, 82.81% of diabetic patients knew that diabetes was not caused by eating sugar and they could live and work normally even with diabetes, but they had little understanding of the typical symptoms and treatment methods of diabetes, with only 32.81% and 15.62% correct answers. It shows that the basic understanding of diabetes is not enough.

Table 2. Scoring of 64 diabetic patients in basic cognition

Items	Number of people with correct answers	Percentage (%)
Is diabetes caused by sugar input?	53	82.81
Can patients with diabetes have a normal life and work?	53	82.81
Can diabetes be cured radically?	52	81.25
Is diabetes hereditary?	50	78.12
What type of diabetes do you have?	48	75.00
Which is more terrible, hypoglycemia or hyperglycemia?	47	73.44
Can patients with diabetes live a long life?	42	65.62
Typical symptoms of diabetes	21	32.81
How many treatments there are for diabetes?	10	15.62

As shown in Table 3, the score for recognition of dietary control of diabetes among respondents was at low level, and the highest correct rate was only 37.5%, indicating that the respondents' recognition of dietary control of diabetes was seriously inadequate.

Table 3. Scoring for dietary control in 64 diabetic patients

Items	Number of people with correct answers	Percentage (%)
Should I eat when I'm hungry	24	37.50
What kind of food is not suggested ?	24	37.50
Daily calorie allocation	19	29.69
Dietary control refers to the control of staple foods	17	26.56
Wrong statements for diet	9	14.06

It can be seen from Table 4 that the respondents failed to have enough basics about when diabetic patients should exercise with the correct rate of 62.5%. Only 29.69 percent of diabetic patients answered correctly the number of times they exercised per week. The correct rate of exercise items for diabetic patients was 4.69%. The correct answer rate of heart rate control (exercise intensity) of diabetic patients during exercise was 0.00%, and the latter two items were the two items with the lowest grasp rate of this survey. Obviously, there is a serious lack of the basics on diabetes exercise therapy.

Table 4. Scoring for exercise therapy in 64 diabetic patients

Items	Number of people with correct answers	Percentage (%)
When should diabetic patients exercise	40	62.50
How many times should diabetic patients exercise weekly?	19	29.69
Optional sports for diabetics	3	4.69
Control of heart rate during exercise in diabetic patients	0	0.00

It can be seen from Table 5 that the respondents had a good recognition of the drugs they used and the methods of taking them, and the correct rates were 98.44% and 87.5% respectively, indicating that the respondents had a relatively high compliance with the drugs.

Table 5. Scoring for drug treatment in 64 diabetic patients

Items	Number of people with correct answers	Percentage (%)
What hypoglycemic drugs are you taking now	63	98.44
Do you know when to take hypoglycemic drugs?	56	87.50
Do you re-take the medicine as you forget to take during a meal?	41	64.06
If you eat too much of a meal, do you take more medicine	37	57.81

As shown in Table 6, 75% of the respondents had a good recognition of the symptoms of hypoglycemia and could correctly cope with them, but they had a low awareness of blood pressure and blood glucose control in diabetic patients, with only 54.69% and 42.19% correct answers.

Table 6. Scoring for self-care of 64 diabetic patients

Items	Number of people with correct answers	Percentage (%)
What is your response to sudden palpitation,trembling hands and sweats?	48	75.00
How often do you measure your blood sugar	46	71.88
What scope of blood pressure be controlled in among diabetics?	35	54.69
What is the range in which you think blood sugar should be controlled	27	42.19

In this survey, pairwise comparison, gender comparison and comparison of different educational levels were also carried out, but none of them had statistical significance.

3. Discussion

3.1 Insufficient cognition to diabetes and the treatment of diabetes

Diabetes is a chronic metabolic disease characterized by "3 excessive and 1 less", namely, excessive drinking, urination, excessive eating and emaciation (weight loss). Among the typical symptoms, polyuria and polydipsia are mostly seen in "3 excessive". Polyuria and polydipsia develops causality, polyuria is the cause of polydipsia, and polydipsia is the result of polyuria. In other words, it is not for "diuresis by excessive drinking" rather, it is for "excessive drinking caused by diuresis".

Diabetics have high blood sugar, which is very harmful to the body. To protect itself, the body has to expel excessive sugar through the urethra. If the person urine too much, there is bound to have massive lose of the body water, as a result, one will feel thirsty. Hyperphagia is the result of the fact that excessive loss of sugar by urine is caused and the body show malfunction in adjusting sugar with semi-starvation. Consequently, bulimia is caused by lack of energy. Weight loss: Due to insufficient or lack of insulin secretion in diabetic patients, the body fails to make full use of glucose, so that the decomposition of fat and protein is accelerated with the increase of consumption; as a result, weight loss will be inevitable. However, the results of this survey showed that nearly 67.19% (1-32.81%) of the respondents failed to have full recognition of the typical symptoms of diabetes, so the popularization of basics should be strengthened in community diabetes health education.

The treatment of diabetes can be roughly divided into four types: Diet therapy, exercise therapy, drug therapy and psychological therapy. The survey showed that only 15.62% of the respondents answered the questions about the treatment methods correctly, indicating that 84.38% of the respondents knew little about the treatment methods of diabetes, especially about psychological therapy. In fact, in the treatment of diabetes, psychological therapy is an important was as other treatments. Most diabetics will be depressed, thinking of the fact that the disease will accompany for them in all their life. This mentality will weaken the body's immune function, the resistance will be undermined,which is not conducive to the control of diabetes, seriously affecting the treatment effect. Therefore, the education of various treatment methods

should be strengthened in community diabetes health education.

3.2 Insufficient recognition of dietary control methods for diabetes

Diet control is very important with diversified food.Diet structure should be similar to that of normal people.What is different is that the total calories and fat should be reduced with more input of vegetables, fruits. Integration of coarse food and fine food can be adopted. General diabetics eat three meals every day, with fixed food distribution of breakfast, lunch and dinner at 1/5, 2/5, and 2/5 respectively. But this survey shows that nearly 85.9% of the respondents showed uncomprehending understanding of diet, thinking that "sugar-free food can be input safely and there is no need to control diet after taking medicine". As a result, the misunderstanding is common,indicating that the patients had superficial recognition of selection of food varieties, structural adjustment, tailor-made input quantity and estimation of calories. Therefore, the education of dietary control should be strengthened in community health education.

3.3 Uncomprehending cognition of kinesiology by respondents

This study shows that nearly 95.3% of respondents show single attitude on the choice of sports for diabetics. In fact, patients with diabetes should choose suitable sports according to their age, gender, severity of their disease, living environment, interests and hobbies.Common sports are walking, jogging, broadcast gymnastics, Tai chi, ball games, swimming, skating and boating. Among them, walking is the safest choice. Almost all of the participants were completely unaware of the exercise intensity of diabetic patients. The best exercise intensity for diabetic patients: heart rate per minute = 170 − age. In addition to monitoring the heart rate during exercise, we can also judge whether the amount of exercise is appropriate from the individual feeling.

3.4 The respondents had a strong compliance with drug therapy for diabetes

The survey found that the vast majority of diabetes patients gave more agreements to drug treatment for diabetes, and the survey results showed that about 98.44% of the respondents (see Table 5) can fully remember the name, dosage, method and time of the drugs they took with a strong compliance. Only about 40 percent of the respondents were not fully aware of problems such as missing or forgetting to take medication. Diabetes is a lifelong disease, and almost all patients occasionally miss or forget to take their medication. Regular, quantitative and regular medication is the basic requirement to ensure the stability of blood glucose in patients. Occasional drug omissions may cause significant fluctuations or short-term high blood glucose levels. For the sake of safety, timely remedy is the safest and wisest choice to recover the effects of drug omissions on blood glucose. You can also check your blood sugar before taking the drug and adjust your medication according to your blood sugar level. Younger patients can also adjust their blood sugar levels by increasing exercise.

3.5 Ambiguous self-monitoring methods among the respondents for diabetes

The blood pressure and blood sugar of diabetic patients directly reflect the condition of diabetic patients, and the monitoring of blood pressure and blood sugar of diabetic patients can directly reflect the control results of various treatments for diabetes. In order to determine the disease condition of diabetics, patients with diabetes should monitor blood pressure and blood sugar regularly. However, this survey showed that 50% of patients (see Table 6) had a low score on their own blood glucose and blood pressure control. However, large-scale clinical studies have confirmed that poor long-term control of blood glucose can lead to the occurrence of one or multiple complications in diabetic patients, and good control of blood pressure can significantly reduce the morbidity and mortality of macrovascular and microvascular diseases in diabetic patients[2].

In 2004, the Guideline for Diabetes Prevention and Control in China put forward the target of blood pressure control: ≤130/80mmHg, ≤140/90 mmHg for the elderly. The proposed target for blood glucose control means 4.4-6.1mmol/ L of fasting blood glucose, and 4.4-8.0mmol/ L is ideal for non-fasting glucose. Fasting blood glucose ≤7.0mmol/ L, non-fasting ≤10.0mmol/ L proved good results. This is a target for glycemic control in diabetics in general,which failed to be adopted for everyone. Younger patients should be more strict in control of the target. While the targets for some elderly patients, patients prone to hypoglycemia and other patients with a short life expectancy should be made in a more relaxed manner. The specific target value should be determined by the physician according to the patient. This survey shows that the awareness of postprandial blood glucose and blood pressure control in diabetic patients is not enough, so the education in this aspect should be strengthened in community diabetes health education.

Conclusion

In recent years, due to the development of social economy,changes of people's diet and lifestyle and the increase of

the number of aging population, prevalence of diabetes is on the rise accordingly. As mentioned above, there are about 100 million diabetics in China with the most proportion in the world, so it is imperative to popularize basics on diabetes. Health education, as a simple and feasible prevention and control measure, is easier to be understood and accepted by the masses than drugs and other treatments and interventions. As a result,it is easier for implementation. The survey found that the mastery of basics on diet control and exercise therapy in our community needs to be strengthened. Through carrying out health education, people will have a better cognition of diabetes, the awareness rate of community residents on diabetes knowledge can increase. As a result, they will consciously adopt healthy behavior, develop good living habits to reduce the incidence of diabetes complications,thus promoting health and life quality.

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