ANALYSIS OF THE EFFECT OF PEER SUPPORT ON THE LIFE QUALITY OF PATIENTS WITH TYPE 2 DIABETIC NEPHROPATHY

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ABSTRACT

Objective: To investigate and analyze the effect of peer support on the quality of life of patients with type 2 diabetic nephropathy.

Methods: One hundred and eighty (180) cases of patients with type 2 diabetic nephropathy diagnosed and treated in The First Affiliated Hospital of Soochow University, China, from February 2014 to October 2016 were selected and divided into study and control groups by lot. The control group was given routine treatment only, while the study group received additional intervention and peer support. After 6 months of intervention, the scores in diabetic clinical indicators, behavioral indicators and the overall quality of life in the two groups of patients were evaluated.

Results: There was no significant difference in FPG, HbA1c, TAG, TC and other indicators as well as scores in various functions and overall quality of life before and after the intervention in the control group (p > 0.05). FPG, HbA1c, TG, TC and other indicators after intervention in the study group were significantly higher than their levels before intervention. FPG, HbA1c, TG, TC and other indicators as well as scores in various functions and overall quality of life after the intervention in the study group were also significantly higher than those of the control group (p < 0.05) . There was no significant difference in the scores obtained in evaluation of diabetes-related problems and the WHO happiness index, before and after the intervention in the control group (p > 0.05). The scores in diabetes related problems of the study group were significantly lower than those before the intervention, while the scores in the WHO happiness index were all significantly higher than those before the intervention (p < 0.05). However, after intervention, the scores in diabetes-related problems in the study group were significantly lower than those of the control group, while the scores in the WHO happiness index were all significantly higher than those of the control group (p < 0.05).

Conclusion: Peer support influence various clinical indices in type 2 diabetic nephropathy patients. It improves their psychological states, increases their self - management ability and sense of happiness. In addition, peer support improves quality of life of the patients, and so could be recommended for wider clinical application.

Keywords: Type 2 diabetic nephropathy, Patients, Peer support, Quality of life.

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Introduction

Type 2 diabetes mellitus (T2DM) is a common chronic disease. The incidence of this disease is on the increase paralleling the improvement in living standards as well as the positive changes in social and dietary habits[1]. The prevalence of diabetes is one of rapid increase all over the world. In China, adult prevalence was 9.7 % when the total number of patients was 92,400,000, but with a prevalence of 15.5%, the number of patients was 148 million[2]. Diabetes has been identified as one of the five chronic diseases which need urgent prevention and treatment strategies in China[3]. The medical needs of patients with type 2 diabetes have long been addressed by medical institutions, and so doctors

not only undertake the daily management / treatment of patients, but also include health education and nursing guidance. This mode of management puts a lot of demand on the time and energy of the health practitioners. Consequently it is difficult for medical institutions to provide patients with timely and sustained behavioral guidance, health education, follow up attention, chronic disease management and medical support. Hence some patients abandon this orthodox mode of management to seek alternative treatment options that do not control the disease effectively[4]. Through diverse forms, peer support model makes patients with similar disease, physical condition, or experience provide each other substantive assistance physically, socially and emotionall[5].

Results of relevant studies, indicate that peer support model can improve various clinical indices, and self-management ability, thereby substantially reducing negative emotions of patients, and improving their quality of life[6 - 9]. The effects of peer support on the quality of life of patients with type 2 diabetic nephropathy were investigated in this study through the use of peer support method of evaluation.

Research subjects and methods

Study subjects

One hundred and eighty cases of type 2 diabetic nephropathy diagnosed and treated in The First Affiliated Hospital of Soochow University, China, from February 2014 to October 2016 were selected. All cases that satisfied the diagnostic criteria enshrined in the 2010 edition of China's Guidelines for Prevention and Treatment of Type 2 Diabetes were included.

Other inclusion criteria were: (a) residence in the locality for at least one year; (b) willingness to sign informed consent, (c) absence of speech and cognitive impairment, and (d) no severe heart, brain, or nephrotic diseases. Those included were randomly divided into two groups of 90 cases each (study group and the control group). In the study group, 48 cases were males and 42 cases were females, with an average age of 45.8 ± 6.7 years, and the course of disease was 9.2 ± 6.3 years.

In the control group, 47 cases were males and 43 cases were females, with an average age of 44.5 ± 7.2 years, and the course of disease was 8.9 ± 6.6 years.

There was no significant difference in age, gender number and course of disease between the two groups ($p > 0.05$). Thus, the two groups were comparable.

Treatment methods

The control group was treated with routine outpatient management strategy but without the strict lifestyle guidance recommended for patients in the study group. For the purpose of comparison, peer-support program was introduced in the study design. The main concept of the study and its methods of execution were as follows: Physicians in the team were responsible for selecting and training members of the support group. They were also responsible for regular guidance, direction and establishment of the objective and treatment plan, as well as effective evaluation of the patient's disease state. Peer support was expected to help patients appreciate why they should resolve not weaken their determination to control risk factors such as overweight, obesity, inappropriate nutrition and calorie intake, as well lack of physical exercise, smoking, and alcohol consumption[10].

Every 3 to 4 days after the implementation of support, patients in the group were reminded about the rules of the support program on diet, exercise, normative medication, and blood sugar management. In addition, the results of blood sugar tests that were conducted were made available to the doctors, psychological and emotional supports were given to the patients while encouraging the maintenance of health-promoting lifestyle and daily exercise for at least 2 hours. The selected peer patients were trained to have good knowledge of diabetes, nursing care of diabetic patients, and communication skills with their peers and were required to encourage the patients to strictly carry out the intervention plan made jointly by their peer supporters.

Evaluation parameters

The levels of fasting plasma glucose (FPG), HbA1c, triacylglycerol (TAG), total cholesterol (TC) and other clinical and biochemical parameters were measured in the two groups. The self-management behavioral index scale for diabetes mellitus patients, and the World Health Organization (WHO) Happiness Index scale were used to evaluate the associated problems and happiness index of the diabetic patients in order to understand their state and quality of life. The various functional scores and total quality of life scores before and

after the program were compared between the two groups of patients.

Judgment criteria

The various control parameters for diabetes management were based on the standards for compliance published in the 2013 edition of China's Guidelines for the Prevention and Treatment of Type 2 Diabetes (11). The standard values are: FPG 3.9 - 7.2 mmol/L, HbA1c $\leq$ 7%, HDL-C $\leq$ 0.91 mmol/L, and TAG $\geq$ 2.22 mmol/L.

The criteria for evaluation of behavioral indicators were: (a) the diabetes-related problem scale which used to measure and evaluate individual's mental state and emotional disorders with a maximum score of 100 points (high scores indicated more serious emotional disorders, while > 40 points indicated 'severe emotional disorder' which requires special attention); and (b) the WHO Happiness Index scale which reflects the mood and / or happiness of patients suffering from diabetes (a patient with > 50 points was adjudged happy; 28 - 50 points indicated moderately happy, while < 28 points was taken as possible depression.

Statistical analysis

Statistical analysis of the data obtained was performed by using SPSS 19.0 statistical software and the results were expressed as $\bar{\chi} \pm s$. For independent samples, t-test was used for comparison between groups, while and paired t-test was used for intra-group comparisons. Values were considered statistically significant at $p < 0.05$.

Results

Changes in various biochemical and clinical indicators in both groups before and after intervention

Comparison of biochemical indicators

There were no significant differences in FPG, HbA1c, TG, TC, and other assessment parameters before and after intervention in the control group (p > 0.05). The levels of FPG, HbA1c, TG, TC and other indicators of patients after intervention in study group were not only significantly higher than their respective levels before intervention, but also significantly higher than those of the control group (p < 0.05) (Table 1).

Group	Time	FPG (mmol/L)	HbA1c (%)	TAG (mmol/L)	TC (mmol/L)
Control	Before intervention	7.57±1.13	7.78±1.72	1.92±1.35	5.67±1.75
	After intervention	7.63±1.21	7.59±1.82	1.84±1.27	5.12±1.37
Study	Before intervention	7.59±1.08	7.63±1.78	1.94±1.32	5.25±1.24
	After intervention	6.23±0.97*#	6.59±1.15*#	1.39±0.64*#	4.13±1.16*#

Table 1: Comparison of clinical indicators before and after intervention in both groups.
Value significantly different compared with the same group before intervention (p < 0.05); #Value significantly different compared with the control group after intervention (p < 0.05).

Comparison of behavioral index score in both groups before and after intervention

The scores of the patients in diabetes related problem scale and WHO happiness index scale before and after intervention relative to the control group were not different statistically ($p > 0.05$). The scores in diabetes related problem scale after intervention, obtained by the study group were significantly lower than those before the intervention, while the scores in WHO happiness index scale were significantly higher than those before intervention ($p < 0.05$).

However, after intervention, the scores in diabetes related problems scale by the study group were significantly lower than those in the control group, while the scores in WHO happiness index scale were significantly higher than those of the control group ($p < 0.05$) (Table 2).

Group	Time	Scores on diabetes related problem scale	Scores on WHO happiness index scale
Control	Before intervention	48.75±21.68	65.56±10.16
	After intervention	45.31±19.13	67.25±11.04
Study	Before intervention	49.53±15.03	66.12±11.26
	After intervention	33.15±16.18*#	75.13±9.57*#

Table 2: Comparison of behavioral index score in both groups before and after intervention.
$p < 0.05$, significantly different, compared with the same group before intervention; #$p < 0.05$, significantly different, compared with the control group after intervention

Comparison of overall life quality scores before and after intervention in the two groups of patients

There was no statistical significant difference in the functional and overall quality of life scores before and after intervention in the control group ($p > 0.05$). The scores in functions and overall quality of life obtained after intervention in the study group patients were significantly higher than their scores

before intervention, and also significantly higher than those of the control group ($p < 0.05$) (Table 3).

Group	Time	Body functions	Role function	Social function	Overall score
Control	Before intervention	1.6±0.3	1.2±0.2	1.2±0.3	4.2±1.4
	After intervention	1.9±0.2	1.5±0.3	1.5±0.5	5.3±1.2
Study	Before intervention	1.7±0.3	1.3±0.3	1.3±0.4	4.1±1.5
	After intervention	2.9±0.5*#	2.2±0.4*#	2.5±0.2*#	7.2±1.1*#

Table 3: Comparison of overall quality of life scores before and after intervention in the two groups of patients.

*p < 0.05, significantly different, compared with the same group before intervention; #p < 0.05 significantly different, compared with the control group after intervention

Discussion

Rapid development of most economies and the attendant improvement in living standards, have resulted in longevity. Unfortunately some age-associated diseases have to be contented with. Among these diseases is type 2 diabetic nephropathy which has become the third most frequent disease in China after cancer and cardiovascular disease (12). Diabetes and its related complications bring great pain to patients, altering their quality of life and psychological well-being. In these patients inability to regulate blood sugar level, lack of insulin therapy, and poor response/unwillingness to adhere strictly to other management strategies lead to complications[13]. Peer support is a low-cost, flexible and sustainable health management model. Available reports indicate that peer support model is a program of intervention that positively affects the patient's attitude toward his/her illness and encourages communication between patients who are suffering from the same disease. The program also helps them find a sense of belonging and common identity, improves their psychological outlook, and their desire to comply with instructions, leading to pain relief and improvement in overall quality of life[14, 15].

The results obtained in this study are in agreement with these earlier findings and underscore the need to encourage the introduction of this health management strategy in health institutions. In view of the effect of peer support in controlling various clinical and biochemical indices of type 2 diabetic nephropathy as shown in this study, the program can be adopted in the management of other debilitating diseases. Further studies are also needed in order to have a clearer understanding of the molecular changes linked to the improved clinical and biochemical parameters, and the overall psychological well-being of the patients included in this investigation.

References

1) Liu Yungu. Application of peer interaction support model in self-management of patients with diabetes mellitus. International Journal of Nursing 2013; 32 (1): 136-137.

2) YangW, Lu J, Weng J, et al. Prevalence of diabetes among men and women in China. N Engl J Med 2010; 362 (12): 1090-1101.

3) Browning C, Thomas S, Yang Hui, et al. Development of innovative Community chronic Disease Management Model through International Cooperation-report on the achievement of Happy Life Club Project (2). Chinese general medicine 2011; 14 (2A): 345-350.

4) Duncan L, Ahmed T, Li QE, et al. Assessing the value of the diabetes educator. Diabetes Educ 2011; 37 (5): 638-657.

5) Dennis CL. Peer support within a health care context: a concept analysis. Int J Nurs Stud 2003; 40 (3): 321-332.

6) Jiang Yufang, Tan Xiuling, Tang Kaili. Effect evaluation of peer support Model in the Management of Rural patients with Type 2 Diabetes Mellitus. Nursing research 2016; 30 (5): 1660-1661.

7) Wei Wei, Lejia Yi, Ma Longfei. Effect of peer support in the self - management behavior of patients with type 2 diabetes mellitus. Chinese modern medicine application 2015; 9 (20): 261-263.

8) Li Hongchang, Liao Haofeng, Hu Rong. Effect of peers support education in reducing diabetic peripheral blood disease. Journal of Taishan Medical College 2016; 37 (3): 306-307.

9) Liao Xiue. Application of Peer support in the self-management of type 2 diabetic patients in the community. Nursing research 2014; 28 (2): 503-505.

10) Browning C, Thomas S,Yang Hui, et al. Comorbidity of Type 2 diabetes mellitus and the significance of Community intervention-report of Happy Life Club Project (8). Chine Gen Med 2011; 14 (10A): 3189-3192.

11) Chinese Medical Association Diabetes Branch. Guide for Prevention and treatment of Type 2 Diabetes in China (2013 Edition). Chinese Journal of Endocrine and Metabolism 2014; 30 (10): 26-89.

12) Xia Jieqiong, Huang Jin. Current research status on nutritional treatment and health education of diabetic patients in community in China. Chinese Journal of Modern Nursing 2011; 17 (10): 1109-1111.

13) Song Aihua, Han Yuqin, Jia Yun, et al. Application of peer support education in standardized insulin injection in diabetic patients. Nursing research 2014; 28 (36): 4518-4520.

14) Zhang Xiaojia, Jinchang De, Yan Jiang Nan, et al. Oral healthy life quality of elderly patients with diabetes mellitus and its influencing factors. Chin J Nursing

2015; 50 (12): 313-317.

15) Kalra S, Gupta Y, Baruah MP, et al. Saxagliptin and Cardiovascular Outcomes in Patients With Type 2 Diabetes and Moderate or Severe Renal Impairment: Observations From the SAVOR-TIMI 53 Trial. Diabetes Care 2015; 38 (9): 696-705.

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