

Original Article

The effect and impact of high quality nursing intervention in hepatobiliary surgery on the life quality of patients with diabetes mellitus combined with coronary heart disease

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Abstract: Objective: This study aimed to explore the effect and impact of high quality nursing intervention on the quality of life of patients with diabetes mellitus combined with coronary heart disease. Method: 64 patients with diabetes mellitus combined with coronary heart disease were selected as subjects and randomly divided into group A (n=32) receiving routine nursing intervention and group B (n=32) receiving high quality nursing intervention. The baseline data, fasting blood glucose (FBG) before and after 3 months of nursing, blood glucose (P2hBG) and the cardiac index (CI) 2 hours after meals, and the adverse complications of both groups were compared. GQOLI-74 was used to compare the life quality and nursing satisfaction of the two groups. Results: After nursing, FBG, P2hBG, and the incidence of complications of in group B were lower than they were in group A ($P < 0.001$). However, Group B showed a significantly higher cardiac index level, nursing satisfaction and quality of life than group A ($P < 0.001$). Conclusion: High quality nursing intervention is better than routine nursing intervention at improving the blood sugar level and cardiac function of patients with diabetes mellitus accompanied by coronary heart disease.

Keywords: High quality nursing intervention, diabetes mellitus combined with coronary heart disease, quality of life, blood glucose

Introduction

Diabetes mellitus is a metabolic disease characterized by hyperglycemia [1, 2]. As a chronic disease, diabetes mellitus is associated with many complications [3]. Many studies have shown that diabetes mellitus is closely related to cardiovascular disease, and diabetes mellitus is associated with coronary heart disease [4, 5]. Coronary heart disease is caused by diabetes mellitus, and it has a high incidence and mortality, and it seriously threatens people's lives and health [6]. With the continuous development of social economy and the formation of people's lifestyles and unhealthy dietary habits in recent years, the incidence of diabetes mellitus has been rising worldwide, and the incidence of diabetes mellitus combined with coronary heart disease has also been increasing year by year [7]. At present, the treatment for

diabetes mellitus combined with coronary heart disease is usually routine hypoglycemia and interventional therapy. However, adverse complications often occur after interventional surgery, and they have a great impact on rehabilitation [8]. In order to improve the patients' prognoses and quality of life after such operations, appropriate and effective nursing intervention is an important issue in the study of diabetes complicated with coronary heart disease [9]. With the continuous improvement of the medical environment and medical requirements, the concept of nursing has been developing. Various modern nursing modes have been applied in clinical practice, and satisfactory results have been achieved [10]. The research shows that effective nursing measures have a great significance in improving patients' quality of life [11]. The concept of high quality nursing includes putting patients first,

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taking patients as the service center, and continuously improving the level of the nursing service provided by the medical staff [12]. This study focuses on high quality nursing and its impact on the quality of life.

Materials and methods

General Information

The study had a sample of 64 patients with diabetes mellitus combined with coronary heart disease admitted to our hospital from January 2017 to April 2018. They were divided into group A (n=32) and Group B (n=32). Group A was offered routine nursing while group B received high quality nursing. There were 14 males and 18 females in group A, with an average age of (53.25±10.17) years old, and 15 males and 17 females in group B, with an average age of (52.19±11.42) years old. Inclusion criteria: patients were diagnosed with diabetes mellitus combined with coronary heart disease. The diagnostic criteria were in line with the World Health Organization diagnostic criteria for diabetes and coronary heart disease [13]; The exclusion criteria included patients with other complications or with mental disorders. Before this study, the patients and their families were informed in advance, and this study was approved by the Union Hospital, Tongji Medical College, Huazhong University of Science and Technology Ethics Committee.

Nursing method

Group A received routine nursing intervention, including routine nursing for coronary heart disease and diabetes mellitus, and a close observation of the patients' vital signs. Relevant medical and nursing staff guide and advise patients to take medicine.

Group B was additionally provided with high quality nursing intervention as follows.

(1) Diet nursing: Relevant medical staff formulates different dietary plans according to the patients' different conditions. A light diet is preferred, but adequate dietary fiber and a high-quality supply of protein should also be ensured.

(2) Health education and psychological nursing: Relevant medical staff should elaborate on the occurrence, development and treatment of dis-

ease to patients and their families, to make patients have a correct understanding of the diseases, and to alleviate the adverse psychological status of the patients caused by treatment. The patients were informed of the importance of cooperating with the nursing. For patients with adverse emotions, targeted emotional counseling was carried out. Successful healing cases were appropriately described to the patients, as were the patients' families' need to actively encourage patients so that patients can build up confidence to overcome the disease, reduce their psychological burden and improve treatment compliance.

(3) Medication nursing: Patients take medicine strictly according to the doctor's advice. The dosage, method, and precautions should be elaborated to patients and their families before giving them the medicine. If patients have adverse drug reactions, they should be given timely treatment.

(4) Complication nursing: All-round monitoring of patients' blood pressure, blood lipids, blood sugar and other vital signs is carried out. When related adverse complications occur, the medical staff should promptly inform the attending doctor.

Outcome measures

The following factors were compared before and after 3 months of nursing, including the baseline data, the blood glucose control (fasting blood glucose (FBG) [14], postprandial 2 hours blood glucose (P2hBG) [15], and the heart index (CI) [16].

The incidence of complications in the two groups was recorded, including arrhythmia, unstable angina, deep vein thrombosis, vascular restenosis, and oozing from the puncture sites.

The GQOLI-74 Quality of Life Comprehensive Rating Scale was used to compare the quality of life after 3 months of care, including physical health, mental health, social function, and material life [17].

The nursing satisfaction in groups A and B after 3 months of nursing was analyzed using a questionnaire.

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Table 1. The general clinical data of group A and group B

Group	Group A (n=32)	Group B (n=32)	t/X ²	P
Age (years)	53.25±10.17	52.19±11.42	0.392	0.696
Average disease duration (years)	11.36±3.16	11.01±3.68	0.408	0.685
Female (n/%)	18 (56.25)	17 (53.13)		
BMI (kg/m ²)	19.56±2.71	20.03±1.48	0.861	0.393
History of diabetes (n/%)			0.000	1.000
No	0 (0.00)	0 (0.00)		
Have	32 (100.00)	32 (100.00)		
Fasting blood glucose (mmol/L)	4.27±1.56	5.40±0.75	3.693	< 0.001
Blood phosphorus (mmol/L)	1.89±0.23	1.20±0.72	5.164	< 0.001
Renal function				
BUN (mmol/L)	7.25±3.83	6.03±1.64	1.656	0.103
Cr (mmol/d)	4.81±2.80	5.20±1.47	0.698	0.488

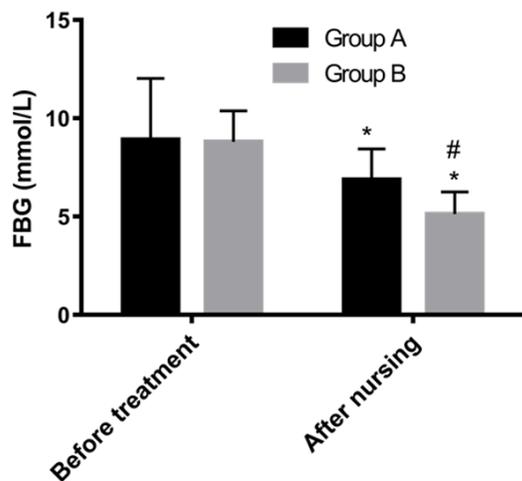


Figure 1. Change of FBG before and after nursing in Group A and Group B. *indicated that the FBG levels of the two groups after nursing were lower than those before the nursing ($P < 0.001$). #indicated that the FBG level of group B was lower than it was in group A after nursing ($P < 0.001$).

Statistical methods

SPSS 19.0 (Asia Analytics formerly SPSS China) was used for the statistical analysis. The count data (n (%)) between the two groups were examined using an X^2 test; the measurement data were expressed in "x ± s". A paired t -test was used for the comparisons before and after treatment in same group, and an independent sample t test was used for the comparisons between the two groups. When the P value was less than 0.05, the difference was statistically significant.

Results

General clinical data of groups A and B

There was no difference in the baseline data, including age, gender, and weight between the two groups ($P > 0.05$) (Table 1).

Blood sugar control and CI comparison before and after nursing in groups A and B

Change of FBG before and after nursing in groups A and B: The FBG levels of group A before and after the nursing intervention were (8.92±3.11) mmol/L and (6.88±1.57) mmol/L respectively; the FBG levels of group B before and after the nursing intervention were (8.81±3.04) mmol/L and (5.13±1.13) mmol/L respectively. The FBG levels of the two groups after nursing were lower than those before the nursing ($P < 0.001$). After nursing, the FBG level of group B was lower than it was in group A ($P < 0.001$) (Figure 1).

Change of P2hBG before and after nursing in groups A and B: The P2hBG levels of group A before and after the nursing intervention were (11.23±2.46) mmol/L and (9.04±1.34) mmol/L respectively; the P2hBG levels of group B before and after the nursing intervention were (11.52±2.38) mmol/L and (7.32±1.26) mmol/L respectively. The P2hBG levels of two groups after the nursing were lower than those before the nursing ($P < 0.001$). After the nursing, the P2hBG level of group B was lower than it was in group A ($P < 0.001$) (Figure 2).

Change of CI before and after nursing in groups A and B: The CI levels of group A before and after the nursing intervention were (1.31±0.46) L/m² and (2.12±0.34) L/m² respectively; the CI levels of group B before and after the nursing intervention were (1.32±0.38) L/m² and (2.46±0.46) L/m² respectively. The CI levels of the two groups after the nursing were higher than those before the nursing ($P < 0.001$). After the nurs-

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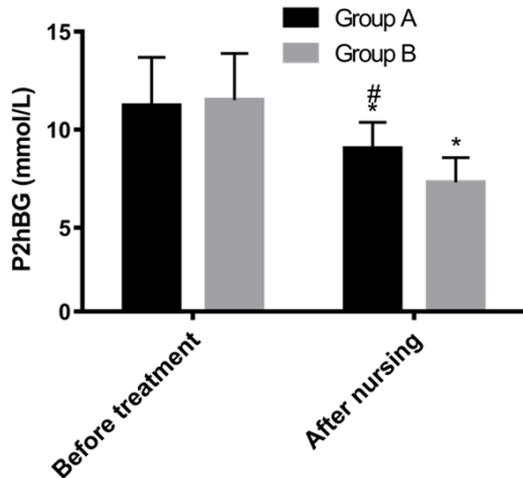


Figure 2. The change in P2hBG before and after nursing in group A and group B. *indicated that the P2hBG levels of the two groups after nursing were lower than they were before the nursing ($P < 0.001$). #indicated that the P2hBG level of group B was lower than it was in group A after the nursing ($P < 0.001$).

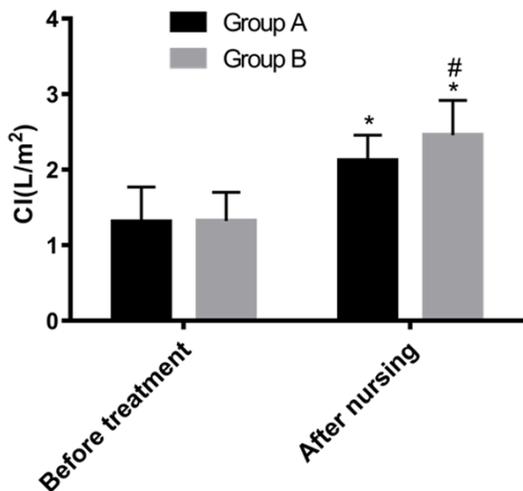


Figure 3. Change in CI before and after nursing in group A and group B. *indicated that the CI levels of the two groups after nursing were higher than those before the nursing ($P < 0.001$). #indicated that the P2hBG level of group B was higher than it was in group A after the nursing ($P < 0.05$).

ing, the CI level of group B was higher than it was in group A ($P < 0.05$) (Figure 3).

Comparison of adverse complications

The total incidence of adverse complications in group B was lower than it was in group A ($P < 0.001$). The adverse complications included arrhythmia, unstable angina pectoris, deep

venous thrombosis, restenosis and local bleeding (Table 2).

Comparison of life quality

The quality of life scores of physical health, mental health, material life and social function in group B were higher than those in group A ($P < 0.001$) (Table 3).

Nursing satisfaction comparison

Group B showed a higher nursing satisfaction than group A ($P < 0.001$) (Table 4).

Discussion

In this study, the general clinical data of all the patients were compared. There was no difference in the baseline data, including age, gender and weight, between the two groups, and the randomized grouping was comparable. First, the blood sugar levels and the CI of the two groups before the nursing and at 3 months after the nursing were analyzed, and the FBG levels of all the patients after the nursing were lower than they were before the nursing. After the nursing, the FBG levels of group B were lower than they were in group A. In addition, the P2hBG levels of all the patients after the nursing were lower than they were before the nursing. After the nursing, the P2hBG levels of group B were lower than they were in group A. FBG and P2hBG are important indicators for monitoring blood sugar levels. FBG and P2hBG are usually abnormally up-regulated in patients with diabetes mellitus combined with coronary heart disease. The purpose of the treatment is to control the patients' blood sugar [18]. Different nursing schemes have different effects on clinical treatment. At present, similar studies have confirmed that high quality nursing intervention is effective at controlling the glucose index [19]. Therefore, we believe that high quality nursing intervention is better for the down-regulation of FBG and P2hBG in patients with diabetes mellitus combined with coronary heart disease. The CI levels of all the patients after nursing were higher than they were before the nursing. After the nursing, the P2hBG level of group B was higher than it was in group A. CI is an indicator of cardiac function. The decrease of CI reflects the blood supply to the body and brain, and it indicated that the cardiac ejection volume decreased [20]. Pa-

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Table 2. Comparison of the adverse complications between group A and group B

Group	Group A (n=32)	Group B (n=32)	χ^2	P
Arrhythmia	2 (6.25)	1 (3.13)	-	-
Unstable angina pectoris	2 (6.25)	1 (3.13)	-	-
Deep venous thrombosis	1 (3.13)	0 (0.00)	-	-
Restenosis	1 (3.13)	0 (0.00)	-	-
Local bleeding	3 (9.38)	0 (0.00)	-	-
Total incidence	9 (28.13)	2 (6.25)	5.379	0.020

Table 3. Comparison of the quality of life between group A and group B

Group	Group A (n=32)	Group B (n=32)	t	P
Physical health	70.65±8.19	80.36±8.45	4.668	< 0.001
Mental health	71.22±8.34	81.25±7.28	5.125	< 0.001
Material life	69.85±7.92	80.26±8.65	5.021	< 0.001
Social function	73.85±8.29	82.72±8.24	4.293	< 0.001

Table 4. Nursing satisfaction of group A and group B

Group	Group A (n=32)	Group B (n=32)	χ^2	P
Very satisfied	10 (31.25)	20 (62.50)	-	-
Satisfaction	5 (15.63)	7 (21.88)	-	-
General	5 (15.63)	4 (12.50)	-	-
Not satisfied	12 (37.50)	1 (3.13)	-	-
Total satisfaction	20 (62.50)	31 (96.88)	11.680	< 0.001

tients with diabetes mellitus combined with coronary heart disease also have cardiac dysfunction due to autonomic nervous disorders, and their CI level is in a declining state [21]. Relevant research on coronary heart disease showed that the effect of high quality nursing intervention is better than that of routine nursing intervention [22]. Therefore, we believe that the effect of high quality nursing intervention is also better than routine nursing intervention on diabetes mellitus combined with coronary heart disease, and high quality nursing intervention can relieve the symptoms of the diseases better. Next, the occurrence of the adverse complications between the two groups was compared, and the total incidence of adverse complications in group B was lower than it was in group A, including arrhythmia, unstable angina pectoris, deep venous thrombosis, restenosis, and local bleeding. Arrhythmia, unstable angina pectoris, deep venous

thrombosis, restenosis, local bleeding, and other adverse complications are risk factors for the recurrence or deterioration of disease [23]. Therefore, we believe that high-quality nursing intervention can improve the prognosis of diabetes mellitus complicated with coronary heart disease better, and it can effectively reduce or prevent the occurrence of adverse complications. The quality of life comparison indicated that the scores of physical health, mental health, material life, and social function of the patients in group B were higher than they were in group A. Physical health and mental health are both important in reflecting the patients' prognoses and conditions, and both are indispensable. A good mental state also promotes patients' physical health [24]. Relevant studies show that high-quality nursing staff adhere to patient-centered principles, and they continuously improve the quality of nursing services. They can satisfy the reasonable requirements of their patients to the greatest extent, and they can improve patients' bad psychological states. This principle has a positive impact on patients' physical health, social function, and so on [25]. Finally, according to the data on the nursing satisfaction of all the subjects, the total

nursing satisfaction of the patients who received high quality nursing intervention was higher than it was in the patients who received routine nursing intervention. Therefore, we believe that in this study, the acceptance and recognition of patients who received high quality nursing intervention were far beyond the acceptance and recognition of the patients who received routine nursing intervention. In recent years, relevant clinical studies have also confirmed that for patients after surgery, the satisfaction of patients who received high quality nursing intervention was higher than for patients who received routine nursing intervention [26].

Some shortcomings exist in this study. For example, no other biochemical indicators were displayed; the nursing plan can be affected by the local medical level, and the results may vary in different areas and with different sam-

ple sizes. For these deficiencies, we will continue to pay attention to the latest relevant research results and review the prognoses of the patients included in the study regularly, to improve the study continuously.

In conclusion, the improvement effect of high quality nursing intervention is better than routine nursing intervention on the glucose levels and cardiac functions of patients with diabetes mellitus combined with coronary heart disease. High quality nursing intervention reduces or prevents postoperative complications to a certain extent, and patient acceptance is also high. High quality nursing intervention is worth popularizing widely in the clinic.

Disclosure of conflict of interest

None.

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