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Cause Analysis and Nursing Intervention of Sleep Disorder in Elderly Patients with Diabetes

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Abstract: *Analyzing the causes of sleep disorders in elderly patients with diabetes and taking the corresponding nursing measures for intervention help to understand the specific application effect. A total of 120 elderly diabetic patients with sleep disorder are selected as research objects, with a time range from January 2021 to October 2022. They are randomly divided into two groups: the control group (60 cases), who are provided with general care during the nursing process, and the observation group (60 cases), who are given the nursing intervention according to the physical conditions. The two groups are compared on the nursing effect, blood sugar level, and sleep quality, as well as analyzing the factors influencing the patients' sleep. According to the research, the main causes of sleep disorders involve in psychology, environment, physiology and diet; From the perspective of nursing effect, the blood glucose level in the observation group is well controlled, and the nursing effect and the sleep quality are better (P < 0.05). Since many factors may result in sleep disorder in elderly patients with diabetes, it is necessary to provide the corresponding nursing according to the specific reasons in the clinical nursing process, which will reduce the sleep disorder, enhance the patients' life quality and improve the treatment control effect.*

Keywords: *Elderly diabetes; Sleep disorder; Nursing intervention*

1. Introduction

According to the actual situation at this stage, the incidence rate of diabetes in China is relatively high. Resulting from the comprehensive influence of people's lifestyle and eating habits, and the increasing number of elderly people in China, the growth of age, the weak body immunity and the increasing number of basic diseases, the elderly become a high risk group of diabetes[1]. If the incidence of diabetes fails to be effectively controlled, it will cause severe complications and serious damage to the body. In this process, the elderly may suffer from sleep disorder due to the lack of disease-related knowledge and emotional influence[2]. The sleep disorder not only affects the patients' daily life, but also increases their psychological pressure. What's worse, if it fails to be solved for a long time, it will make the disease become more serious and bring great negative effects to the body[3]. Therefore, in clinical practice, it is necessary to actively find out the causes of sleep disorder, and take the corresponding measures according to the specific causes, which will help to improve the patients' sleep quality, develop a positive mental state and control the blood sugar in a good range.

2. Data Source and Research Method

2.1 Data selection

A total of 120 rural elderly patients with diabetes are selected as the research objects, with a time range from January 2021 to October 2022. The grouping method is random, and they are divided into two groups. In the control group, there are 26 male patients and 34 female patients, ranging from 60 to 82 years old. The average age is 68.69 ± 10.62 by calculation; In the observation group, there are 28 male patients and 32 female patients, ranging from 61 to 83 years old. The average age is 69.25 ± 10.71 by calculation. By comparing and analyzing the gender and age data of the two groups, and it is found that the difference is small (P>0.05). Inclusion criteria are: ① The selected cases are diagnosed as diabetes through clinical auxiliary examination and medical history inquiry, and they have the

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problems of sleep disorder of different degrees. ② Over 60 years old, with self-consciousness and normal communication ability. ③ Be informed and agree on the research content. Exclusion criteria are: ① Lack of clinical data. ② Patients with mental illness and serious diseases of important organs. ③ Withdrawal from the research.

2.2 Research Method

In the study of the control group, the nursing of patients in this group are treated with ordinary nursing interventions, including regularly monitoring the blood glucose level, offering detailed instruction on the medication, such as the time and dose, providing the guidance on the diet and exercise according to the specific conditions of the patients, and assisting the patients to develop the good living habits.

In the study of the observation group, the patients in the observation group follow the steps in the nursing process as follows.

(1) Set up a nursing team whose members are senior nurses above N2 and have the rich experience of collecting the relevant information. And the team members are provided with training, including the comprehensive training on knowledge related to diabetes, possible causes of sleep disorder and countermeasures to ensure that the general nursing staff are proficient in the above contents; Before the implementation of nursing, the nurses shall collect the basic information, disease conditions, eating habits and sleeping habits of all patients, on this basis of which they shall comprehensively assess the patient's physical condition, find out the existing nursing problems, and formulate a nursing plan according to the nursing problems. In the follow-up nursing process, they shall care for the patients according to the plan. If any changes occur to the patients, the nursing plan will be adjusted accordingly.

(2) Make a questionnaire to understand the causes of sleep disorders. The nurses shall consult the relevant literature, combine the two organically with clinical practical nursing experience, complete the preparation of the questionnaire for investigating sleep disorders. The questionnaire will be sent to and filled by the patients authentically according to their own conditions. If some patients are older or have low educational level, the nurses shall get the relevant information through oral inquiry and make accurate records[4]. After completing the questionnaire, the corresponding results will be sorted out. From the results, it can be found that the causes of sleep disorders mainly involve the environment, psychology, physiology and diet. Therefore, in the follow-up nursing work, the targeted nursing should be carried out according to the causes of sleep disorders.

(3) Create a quiet and comfortable sleep environment for the patient with the environmental intervention. If the patient's sleep environment is noisy, it will directly affect the sleep quality; And the light is also an important guarantee for a good sleep. The nurses should create a quiet environment in the ward, and adjust the light to a reasonable range according to the patient's living habits; Create a comfortable ward environment by adjusting the temperature and humidity in the ward to a reasonable range; Offer instructions to the patients for increasing their understanding of the ward environment and inform them the infrastructure in the ward, which helps to reduce the sense of strangeness[5].

(4) Intervene the psychological state. Due to the lack of disease knowledge and discomfort brought by the disease, the elderly diabetic patients in rural areas undertake the excessive psychological burden and are easy to gain negative emotions. That the negative emotions fail to be effectively alleviated will cause worries and anxiety to the patients day and night, and it will directly affect the daily sleep and result in insomnia due to the excessive pressure[6]. Therefore, during the nursing process, the nurses shall pay close attention to the patients' psychological state, be aware of the negative emotions through the patients' language, behavior or expression, and adopt the positive language and encouraging behavior to support the patients after a comprehensive evaluation on their psychological state. Specifically, the disease knowledge education to reduce anxiety caused by lack of knowledge allows the patients to understand the origin, development and treatment of the disease; Share the cases with good treatment effect, and increase the patients' confidence in disease treatment; If the patients are worried about treatment costs, the medical staff should inform them of the proportion of medical insurance reimbursement, so as to reduce the patient's worry; If the patient has anxiety caused by the poor blood glucose control, the nursing staff shall analyze the reasons for the poor blood glucose control, and inform the correct behavior according to the reasons, so that the patient can understand that the blood glucose control is closely related to their own behavior[7].

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(5) Intervene the physiology. For the rural elderly patients with diabetes, they spend most of their time in beds, and their sleep time in the daytime is longer, resulting in poor sleep quality at night. Therefore, the nursing staff need to increase the patients' activity time in the daytime; Help the patients to monitor their blood glucose, tell them the importance of blood glucose monitoring, and formulate the corresponding measures according to specific changes in blood glucose values; Instruct the patients to use the drugs correctly and learn to self-inject insulin; Assist the patients to develop the habits of exercise, urge them to perform the corresponding exercises according to their physical conditions in the hospital, and inform them of the importance of exercise for the disease control.

(6) Intervene the diet. Understand whether the patients have any living bad habits such as smoking and drinking. If any, it is necessary to urge the patients to quit smoking or drinking, and influence them from the ideological level to change their behaviors in life; In the daily diet, pay attention to the regular and quantitative eating, and balance the food. The proportions of protein, carbohydrate and fat in diet of diabetic patients are 10%~15%, 60%~70% and 20%~25%, respectively[8]. Eat a light diet and avoid overeating or eating too much spicy food.

(7) Sleep nursing. Offer instructions to the patients for taking a walk or stretching their limbs during the day, which will effectively regulate the glucose metabolism in the body; Reasonably arrange the patients' sleep time to make them fall asleep before 21:00 every night by playing music or lullabies to relax and shorten the time for falling asleep[9].

2.3 Evaluation criteria

Nursing effect. After being intervened by different nursing methods, the patients' blood glucose level is effectively controlled, and the sleep is without disturbance; After nursing, the patients' blood sugar level and the sleep disorder are improved; After nursing, it will be invalid if no improvement in blood glucose level or sleep disturbance is observed.

Blood glucose level. The fasting blood glucose and 2h postprandial blood glucose are measured by the blood glucose meter.

Sleep quality. The Pittsburgh Sleep Quality Index (PSQI) is applied to evaluating the patients' sleep quality, with a full score of 21 points. The higher the score, the worse the sleep treatment[4].

2.4 Statistical analysis

In this study, SPSS20.0 software is adopted to process the relevant data. Measurement data is expressed in ($\bar{x} \pm s$)with t test. Counting data is expressed in percentage (%)with $\chi 2$ test, and $P < 0.05$ indicates that the comparison results are statistically significant.

3. Analysis of Research Results

3.1 Main causes of the patient's sleep disorder.

According to the results of the questionnaire, there are 15 cases of environmental factors, accounting for 25.00%, 32 cases of psychological factors, accounting for 26.67%, 34 cases of physiological factors, accounting for 28.33%, and 24 cases of dietary factors, accounting for 20.00%.

3.2 Comparison of the nursing effects.

The nursing effect of the observation group (96.67%) is significantly higher than that of the control group (73.33%) ($P< 0.05$). See Table 1.

3.3 Comparison of the blood glucose levels between the two groups.

The fasting blood glucose and 2h postprandial blood glucose of patients in the two groups are measured by the blood glucose meter before and after nursing. There is no significant difference in the blood glucose level between the two groups before and after nursing ($P<0.05$). The blood glucose level after nursing is improved on average, but the improvement effect of the observation group is more obvious on the whole ($P< 0.05$). See Table 2.

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Table 1: Comparison of Nursing Effects between the Two Groups [n (%)]

Group	*n*	Significant Effect	Valid Invalid	Total Effective Rate
Control Group Observation Group	60 60	20(33.33) 30(50.00)	24(40.00) 16(26.67) 28(46.67) 2(3.33)	44(73.33) 58(96.67)
χ2 Value *P* Value				6.405 0.011

Table 2: Comparison of Blood Glucose Levels between the Two Groups ($\bar{x}\pm s$)

Group	*n*	Fasting Blood Glucose		2h Postprandial blood glucose	
		Before Nursing After Nursing		Before Nursing	After Nursing
Control Group Observation Group	60 60	10.28 ± 1.34 10.26±1.36	7.47 ± 1.89 6.14±0.64	13.06±1.54 8.35±2.01	10.21 ±2.24 13.09±1.56
t Value *P* Value		0.057 0.954	3.651 0.000	0.075 0.941	2.475 0.001

3.4 Comparison of sleep quality between the two groups.

Pittsburgh sleep quality index is applied to evaluating the patients' sleep quality of the two groups before and after nursing, and the related data are collated and analyzed. It can be seen that the difference of sleep quality scores between the two groups before nursing is small ($P>0.05$), and the score of the observation group after nursing is significantly lower than that of the control group ($P<0.05$). See Table 3.

Table 3: Comparison of Sleep Quality between the Two Groups ($\bar{x}\pm s$)

Group	*n*	Before Nursing	After Nursing
Control Group Observation Group	60 60	15.28 ± 1.12 15.26±1.23	5.56±0.87 3.21 ±0.41
t Value *P* Value		0.066 0.947	13.383 0.000

4. Conclusion

As an endocrine disease, diabetes has a high clinical incidence rate at present. Most diabetic patients are Type 2 Diabetes. According to the results of clinical studies, the probability of Type 2 Diabetes patients suffering from sleep disorders is at a high level[9]. The incidence of sleep disorders not only affects the improvement of patients' disease, but also has a negative impact on their mental state. If they are in the state of sleep disorders for a long time, their body resistance will become low and their mental state will be poor. Therefore, in the process of clinical intervention, it is necessary to pay attention to analyzing the causes of sleep disorders, and provide the corresponding guidance according to the causes, which will help the patients obtain better sleep quality. In this study, a questionnaire is used to collect the causes of sleep disorders. The results show that the main causes are the environment, psychology, physiology and diet. When the patients are in a strange environment or the ward with inappropriate temperature, or in a noisy room, their sleep quality will be directly affected; Secondly, the psychological causes, such as worry about blood sugar level, disease development and hospital expenses, the physiological causes, and few activities in the daytime but much sleep, will result in less sleep at night, numbness of limbs or insufficient daily exercise;

And the last cause is diet, such as drinking or eating too much and failing to get used to the diabetic diet. According to different causes, the corresponding nursing measures shall be given in the nursing process. It can be found that through the implementation of effective nursing measures, the nursing effect of the patients in the observation group is 96.67%, while the nursing effect of the control group is 73.33%. The difference in the control of blood sugar level between the two groups is also significant. The main reason is that in the nursing process, the comprehensive nursing is provided to the observation group. Meanwhile, it attaches great importance to the blood glucose control, and offers the psychological through professional intervention in psychology, physiology, environment and diet. And the patients will also realize the importance of blood sugar control, then change their behavior in daily

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life and achieve effective control of blood sugar level. By evaluating the sleep quality of the patients in two groups, it can be found from the data that the sleep quality has been improved, but overall, the improvement of the observation group is greater than that of the control group. Because the nursing intervention can help the patients to reasonably arrange their sleep time, realize the significance of blood sugar control, improve the disease and enhance the sleep quality. From the contents mentioned above, it can be found that the incidence of sleep disorder is not conducive to improving the condition of the patients with diabetes. Therefore, some necessary nursing interventions should be taken according to the specific causes of sleep disorder in the nursing process.

References

[1] Yuan Yi. Nursing Intervention Effect and Intervention Value on Sleep in Hospitalized Elderly Patients with Diabetic Sleep Disorders [J]. World Journal of Sleep Medicine, 2019, 6 (4): 471-473

[2] Lu Huijuan, Zhang Huili, Zhang Junli. Analysis on the Effect of Nursing Intervention on Sleep of Hospitalized Elderly Patients with Diabetic Sleep Disorder [J]. Capital Food Medicine, 2019, 26 (4): 96

[3] Wen Yajing, Yang Zhongyuan. Causes of Sleep Disorders in Elderly Patients with Diabetes and Nursing Countermeasures [J]. World Journal of Sleep Medicine, 2020,7 (1): 58-60

[4] Liu Meijun. Observation on the Effect of Comprehensive Nursing Intervention on the Improvement of Sleep Disorder in Elderly Patients with Diabetes [J]. Journal of Hebei North University: Natural Science Edition, 2019, 35 (10): 31-32,50

[5] Bi Shuhong, Lian Xiuyan. Clinical Effect of Nursing Intervention on Improving Sleep Disorders in Elderly Patients [J]. World Journal of Sleep Medicine, 2020,7 (2): 242-243

[6] Luo Li. Research on Nursing Progress of Diabetic Sleep Disorder [J]. Medical Diet and Health, 2021,19 (3): 189-190

[7] Li Jing. Analysis on the Effect of Comprehensive Nursing Intervention on Diabetic Patients [J]. Diet, 2019 (4): 124

[8] Yuan Lili, Fu Ting, Gao Ying The Effect of "Knowing, Believing and Doing" Mode on Sleep Quality and Fatigue in Elderly Patients with Diabetes [J]. World Journal of Sleep Medicine, 2020,7 (5): 823-824.

[9] Wei Xiaoyi (Review), Zou Shufang (Revise). Nursing Progress of Sleep Disorder in Diabetes [J]. Journal of Southwest Medical University, 2020,43 (3): 306-309