

Analysis of Influencing Factors and Nursing Countermeasures for Hypoglycemia in Inpatients with Diabetes Mellitus

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Abstract: Studies have shown that the implementation of targeted nursing countermeasures can significantly reduce the incidence of hypoglycemia in inpatients with diabetes mellitus, improve patients' quality of life, and promote the stable control of their condition. This paper conducts an in-depth analysis on the influencing factors of hypoglycemia in inpatients with diabetes mellitus and the corresponding nursing countermeasures. It expounds the main factors affecting hypoglycemia in inpatients with diabetes mellitus, and then puts forward effective nursing countermeasures. The purpose is to provide valuable references for promoting the innovative development of clinical nursing work.

Keywords: Inpatients with diabetes mellitus; Hypoglycemia; Influencing factors; Nursing countermeasures

Online publication: Nov 10, 2025

1. Introduction

Diabetes mellitus is a common chronic metabolic disease, and its incidence is on the rise worldwide ^[1]. According to the data released by the Chronic Disease Center of the Chinese Center for Disease Control and Prevention in June 2025, the number of diabetes patients in China had exceeded 230 million by 2023, accounting for a quarter of the global diabetes patient population. These data fully highlight the urgency and necessity of diabetes prevention and control. With the continuous development and improvement of modern medical technology, the survival period of diabetes patients has been significantly prolonged. However, during the specific treatment process, hypoglycemia, as one of the common acute complications of diabetes, has a great impact on patients' physical health and life safety, especially for inpatients with diabetes mellitus.

Due to complex conditions, differences in patients' own factors, and the need for frequent adjustments of treatment plans, the risk of hypoglycemia is gradually increasing. When hypoglycemia occurs, patients may experience symptoms such as palpitations, dizziness, and cold sweats. In severe cases, symptoms such as coma, brain damage, and arrhythmia may occur, and even the patient's life safety may be threatened. Therefore, in-

depth analysis of the influencing factors of hypoglycemia in inpatients with diabetes mellitus and the adoption of effective nursing countermeasures are of great significance for maintaining the health of diabetes patients and reducing the incidence of hypoglycemic symptoms.

2. Analysis of influencing factors for hypoglycemia in inpatients with diabetes mellitus

2.1. Patient-related factors

2.1.1. Age factor

With the continuous increase of age, the function of various organs in the human body gradually declines. Especially for elderly diabetic patients, their liver glycogen storage and decomposition capacity decrease significantly, making it difficult for them to effectively cope with fluctuations in body glycogen ^[2]. In addition, as age increases, the body's ability to perceive hypoglycemia also weakens, leading to delayed detection of hypoglycemic symptoms and thus an increased risk of hypoglycemic events. This perception ability is closely related to the nervous system. As age grows, the human nervous system degenerates, preventing patients from receiving early warning signals of initial hypoglycemia. Therefore, targeted nursing countermeasures and intervention methods should be adopted for hypoglycemic patients of different age groups to effectively reduce the incidence of hypoglycemic symptoms.

2.1.2. Diabetes duration factor

With the prolonged duration of diabetes, patients' islet function continues to weaken, which further impairs their own blood glucose regulation ability ^[3]. Long-term hyperglycemia may cause irreversible damage to pancreatic β -cells in patients' bodies, thereby further affecting blood glucose regulation function. On top of that, patients with a long disease course often experience metabolic disorders, such as abnormal lipid metabolism and abnormal protein metabolism, which also increase the risk of hypoglycemia. Furthermore, patients with a long disease course usually take blood glucose-lowering drugs or inject insulin to regulate blood glucose. However, once the drug dosage or treatment plan changes, the risk of hypoglycemia will increase.

2.1.3. Comorbidity factor

Inpatients with diabetes often suffer from other underlying diseases besides diabetes, such as hypertension, renal insufficiency, and liver dysfunction. These underlying diseases also affect the effective regulation of blood glucose ^[4]. For example, if an inpatient with diabetes has renal insufficiency, it will be difficult for the patient to clear insulin from the body, prolonging the action time of blood glucose-lowering drugs and increasing the risk of hypoglycemia. Furthermore, certain chronic diseases like hypertension require patients to take medications for condition control, and these medications may interact with blood glucose-lowering drugs, thereby reducing the blood glucose control effect. Therefore, during the nursing process, the physical condition of inpatients with diabetes should be scientifically evaluated, and personalized nursing plans should be formulated to effectively reduce the occurrence of hypoglycemic symptoms.

2.2. Treatment-related factors

2.2.1. Medication factor

Inpatients with diabetes often use medications during treatment, which is one of the main causes of

hypoglycemia. Different types of blood glucose-lowering drugs have different mechanisms of action. Taking some of these drugs may cause a rapid drop in blood glucose, especially when the dosage is improper or meals are not taken on time ^[5]. Moreover, when some new-type blood glucose-lowering drugs are used in combination with other medications, drug interactions may occur, thereby increasing the risk of hypoglycemia. Therefore, during nursing care, medical staff should select appropriate types and dosages of drugs based on the patient's condition severity to reduce the incidence of hypoglycemic symptoms.

2.2.2. Dietary factor

Diabetes treatment is closely related to dietary control ^[6]. A scientific and reasonable diet plays an important role in maintaining the balance of blood glucose in the human body. For inpatients with diabetes, factors such as an unscientific diet structure and irregular eating can also increase the risk of hypoglycemia.

2.2.3. Exercise factor

Proper physical exercise can strengthen the body and improve insulin sensitivity in diabetic patients. However, excessive exercise can lead to hypoglycemia. Once inpatients with diabetes exercise excessively, a large amount of glucose in the body will be consumed. If energy is not supplemented in a timely manner, hypoglycemia is very likely to occur. Other than that, some patients have a gradual decline in physical function due to long-term lack of appropriate exercise, which affects the stability of blood glucose.

2.3. Nursing-related factors

2.3.1. Blood glucose monitoring factor

Blood glucose monitoring is one of the effective methods to detect patients' blood glucose levels, adjust treatment plans, and prevent hypoglycemia ^[7]. If nursing staff have problems such as insufficient monitoring frequency or non-standardized operation during blood glucose testing for inpatients with diabetes, it will affect the formulation of treatment plans and the identification of hypoglycemic symptoms. Additionally, some nursing staff lack professional literacy and are not proficient in operating new-type blood glucose monitoring equipment, which hinders the improvement of blood glucose testing quality.

2.3.2. Health education factor

Some nursing staff have problems in health education. They fail to explain in detail knowledge about hypoglycemia, such as its symptoms, hazards, and inducing factors, to inpatients with diabetes. This leads patients to pay no attention to dietary, exercise, and medication standards in daily life and treatment, thereby increasing the incidence of hypoglycemia.

3. Effective nursing countermeasures

3.1. Strengthen patient assessment and develop individualized nursing plans

To improve the nursing effect for inpatients with diabetes mellitus, it is essential to conduct a thorough assessment of the patient's condition ^[8]. A comprehensive understanding and evaluation should be made of factors such as the patient's age, disease duration, and comorbidities. For elderly patients, special attention should be paid to the degree of organ decline and the weakening of their ability to perceive hypoglycemia, so as to develop personalized

and refined nursing plans for them. For patients with a long disease course, the focus should be on evaluating their metabolic status and islet function, and targeted nursing countermeasures should be formulated based on their actual needs.

If the patient has other comorbidities, a comprehensive analysis of how these diseases affect the blood glucose regulation mechanism is required, and a more scientific and reasonable nursing plan should be developed on this basis. In short, patient assessment should be strengthened, and personalized and refined nursing plans should be formulated according to the actual situation and diverse needs of each patient.

3.2. Standardize pharmaceutical management to ensure medication safety

In clinical nursing work, nursing staff play an important and crucial role, especially in pharmaceutical management, where they must strictly follow medical orders to perform all operations ^[9]. In practice, nursing staff should first conduct information verification, including checking the type, dosage, and administration time of medications. They can only proceed with medication administration after confirming that all information is correct. At the same time, nursing staff should provide medication guidance, clearly informing patients about the mechanism of action of the drugs, potential side effects, and scientific administration methods. This ensures patients fully understand and helps them recognize the importance of taking medications as prescribed. When there is a change in medication dosage or type, nursing staff should promptly communicate with the attending physician, comprehensively assess the patient's condition, and develop personalized nursing measures based on the actual situation. Besides, a sound pharmaceutical management recording system should be established to keep detailed records of the patient's medication status, thereby providing more reliable medical security for patients.

3.3. Enhance dietary guidance to maintain blood glucose stability

Diet is one of the important factors leading to hypoglycemia. In this regard, nursing staff should develop a scientific and reasonable dietary plan for patients based on factors such as their weight, exercise volume, and condition ^[10]. The plan should include reasonable food collocation to ensure balanced nutrition while maintaining stable blood glucose. At the same time, nursing staff should emphasize the importance of regular eating to help patients develop good eating habits and avoid situations such as overeating, delayed meals, or missed meals. For patients using blood glucose-lowering drugs, medication guidance should be provided to ensure they eat on time after insulin injection. If they cannot eat on time, they should promptly communicate with the attending physician or nursing staff to facilitate the adoption of effective measures.

3.4. Provide scientific exercise guidance to avoid exercise-induced hypoglycemia

Inpatients with diabetes should fully recognize the importance of exercise and receive scientific guidance and support on exercise to avoid hypoglycemia caused by excessive exercise. Nursing staff should formulate personalized exercise plans for patients, taking into account their physical condition, disease duration, and age. For elderly patients or those with weak physical fitness, high-intensity exercise should be avoided. Low-intensity activities such as walking and jogging are recommended, and exercise duration should also be shortened to prevent excessive blood glucose consumption from prolonged exercise. For patients with a short disease duration and good physical fitness, exercise volume can be increased gradually, but sudden strenuous exercise must be avoided.

In terms of exercise type, aerobic exercises such as tai chi and jogging are recommended. These exercises not only improve patients' physical fitness and strengthen cardiopulmonary function but also enhance insulin

sensitivity. In addition, nursing staff should inform patients of precautions before and after exercise. For example, patients should check their blood glucose level before exercise; if blood glucose is low, they need to supplement energy before starting exercise. After exercise, they should also replenish water in a timely manner and eat appropriately to prevent hypoglycemia.

3.5. Strengthen blood glucose monitoring for early identification of hypoglycemia

Nursing staff should attach great importance to blood glucose monitoring for patients and formulate personalized blood glucose monitoring plans based on the patient's condition and treatment plan. The frequency of blood glucose monitoring should be increased for critically ill patients to ensure timely detection of abnormal blood glucose and reduce the occurrence of hypoglycemia. At the same time, nursing staff should continuously learn and train through various methods, such as participating in special training, online courses, and reading books, to ensure proficient use of new blood glucose monitoring equipment and ensure the authenticity and accuracy of monitoring results. In daily nursing work, they should also pay attention to observing subtle changes in the patient's body, such as whether early hypoglycemic symptoms (e.g., dizziness, palpitations, fatigue) appear. Once detected, effective intervention measures should be taken to prevent hypoglycemia. Besides, nursing staff should maintain good communication with patients' family members and caregivers, popularize the importance of blood glucose monitoring to them, and guide them on how to cooperate with monitoring work correctly.

3.6. Improve health education to enhance patients' self-management ability

Based on the patient's educational level and acceptance ability, nursing staff should use simple and easy-to-understand language to conduct health education for patients and their family members. The educational content should include the pathogenesis of diabetes, treatment methods, symptoms of hypoglycemia, and the importance of diet, so as to strengthen patients' awareness and help them develop good habits. At the same time, regular activities such as health mutual-aid groups and health seminars can be organized to encourage patients to share their disease experiences and self-management skills, promote mutual learning, and enhance patients' confidence. In addition, nursing staff can create short videos of the educational content and upload them to new media platforms such as Douyin, Kuaishou, and Weibo for health education. This expands the coverage of education and ensures that all patients can master health management skills and improve self-management ability. Meanwhile, nursing staff need to pay attention to the patient's psychological state, promptly alleviate anxiety or fear caused by the disease, and enhance their confidence in overcoming the disease.

4. Conclusion

In conclusion, the occurrence of hypoglycemia in inpatients with diabetes mellitus is the result of the combined effect of multiple factors. To improve the effectiveness of nursing care and protect patients' health, nursing staff should deeply recognize the hazards of hypoglycemia, conduct in-depth analysis of the factors causing hypoglycemia, and formulate personalized nursing plans according to the different conditions of patients. By doing so, the quality of nursing work can be improved, and high-quality nursing services can be provided to patients.

Disclosure statement

The authors declare no conflict of interest.

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