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REVIEW

Application of Dorothea Orem's Self-Care Deficit Theory in the comprehensive management of type 2 diabetes mellitus

Aplicación de la Teoría del Déficit de Autocuidado de Dorothea Orem en el manejo integral de la diabetes mellitus tipo 2

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ABSTRACT

The study examined type 2 diabetes mellitus from the perspective of Dorothea Orem's Self-Care Deficit Theory and described how this approach guided nursing practice and research. It explained that self-care was a learned process that sustained life and well-being; when the subject did not meet their self-care demands, a deficit developed that required total or partial compensatory nursing systems and educational support. She reviewed the pathophysiology, noting that hyperglycaemia resulted from peripheral insulin resistance and progressive beta cell dysfunction, which predisposed individuals to chronic complications. He identified common signs and symptoms, classified the disease (type 1, type 2, and gestational), and specified modifiable and non-modifiable risk factors, highlighting the role of overweight, poor diet, and sedentary lifestyle. He described how diagnosis was based on tests such as HbA1c and FPG, and how treatment combined lifestyle modifications with stepwise pharmacological therapies, usually starting with metformin and, depending on the response, insulin analogues or incretin drugs and SGLT-2 inhibitors. He noted that prevention was based on health education, a low glycaemic index diet and regular physical activity. Finally, he developed nursing care focused on education, continuous monitoring, early detection of complications and addressing social determinants, concluding that the Orem model strengthened patient autonomy and optimised clinical and community outcomes.

Keywords: Self-Care; Nursing; Type 2 Diabetes Mellitus; Prevention; Therapeutic Adherence.

RESUMEN

El trabajo examinó la diabetes mellitus tipo 2 desde el marco de la Teoría del Déficit de Autocuidado de Dorothea Orem y describió cómo dicho enfoque orientó la práctica y la investigación en enfermería. Explicó que el autocuidado constituyó un proceso aprendido que sostuvo la vida y el bienestar; cuando el sujeto no satisfizo sus demandas de autocuidado, se configuró un déficit que requirió sistemas de enfermería total o parcialmente compensadores y apoyo educativo. Revisó la fisiopatología, señalando que la hiperglucemia derivó de la resistencia periférica a la insulina y de la disfunción progresiva de las células beta, lo que predispuso a complicaciones crónicas. Identificó signos y síntomas frecuentes, clasificó la enfermedad (tipo 1, tipo 2 y gestacional) y precisó factores de riesgo modificables y no modificables, destacando el papel del sobrepeso, la dieta inadecuada y el sedentarismo. Describió que el diagnóstico se sustentó en pruebas como HbA1c y CTGO, y que el tratamiento combinó modificaciones del estilo de vida con terapias farmacológicas escalonadas, iniciando usualmente con metformina y, según respuesta, con análogos de insulina o fármacos incretínicos y SGLT-2. Señaló que la prevención se apoyó en educación para la salud, alimentación de bajo índice glucémico y actividad física regular. Por último, desarrolló cuidados de enfermería centrados en educación, monitorización continua, detección precoz de complicaciones y abordaje de determinantes

sociales, concluyendo que el modelo de Orem fortaleció la autonomía del paciente y optimizó resultados clínicos y comunitarios.

Palabras clave: Autocuidado; Enfermería; Diabetes Mellitus Tipo 2; Prevención; Adherencia Terapéutica.

INTRODUCTION

Approaching diabetes mellitus from a nursing perspective requires the integration of solid conceptual frameworks that guide both clinical practice and research. Among these, Dorothea Orem's Self-Care Deficit Theory is a fundamental reference for understanding the role of nursing professionals in promoting autonomy, self-care, and the prevention of complications in patients with chronic diseases. Orem argues that self-care is a process inherent to human beings that allows them to maintain life, health, and well-being, and that when individuals fail to meet their own self-care demands, a deficit arises that requires systematic and planned intervention by nursing staff. This framework not only recognizes the patient's capacity as an active agent of their own health, but also positions the nurse as a facilitator and compensator in situations where independence is compromised.

In the specific context of diabetes mellitus, a chronic noncommunicable disease that affects millions of people worldwide, the application of this theory takes on particular relevance. Diabetes represents one of the main public health problems due to its high prevalence, long-term complications, and socioeconomic impact on health systems and families. The management of this disease requires the patient's active participation in blood glucose control, adherence to drug treatment, a balanced diet, and regular physical activity. Therefore, Orem's Self-Care Deficit Theory provides a structured framework for analyzing patient limitations, risk factors, and educational needs so that nursing practice can focus on preventing complications and strengthening individual and collective capacities.

Likewise, by considering the social and community environment in which the diabetic patient lives, Orem's theory makes it possible to see how social determinants of health—such as educational level, availability of resources, access to medical services, and family support—influence adherence to self-care practices. In this way, Orem's conceptual framework serves not only as a guide for clinical care, but also as a research tool that facilitates understanding of the dynamics between the pathophysiology of the disease, symptoms and signs, classification, diagnosis, treatment, prevention, and nursing care. This academic development, based on the integration of theory and practice, offers a comprehensive view of type 2 diabetes mellitus, placing the patient at the center of their health-illness process and nursing as a key agent for support and improvement of quality of life.

DEVELOPMENT

Dorothea Orem's Self-Care Deficit Theory

Dorothea Orem's Self-Care Theory is a conceptual framework in nursing that focuses on the ability of individuals to perform self-care actions in order to maintain their health and well-being. This theory consists of three interrelated sub-theories: Self-Care Theory, which describes how and why people care for themselves; Self-Care Deficit Theory, which explains how nursing can intervene when individuals are unable to meet their self-care needs; and Nursing Systems Theory, which describes how nurses can provide the necessary care through total or partial compensatory systems, or through educational support. Orem argues that self-care is essential for maintaining life and health, and that people develop and learn these practices in their everyday environment, depending on their abilities and circumstances.

Orem's Self-Care Theory is relevant to the research topic, as it promotes autonomy and self-care in disease management. In the context of the research, this theory provides a framework for understanding how people in the Santo Domingo de los Tsáchilas community manage their own care to prevent and control diabetes. By assessing adherence to self-care practices, such as blood glucose monitoring, healthy eating, and physical activity, it is possible to identify which factors influence self-care deficits. In addition, the theory suggests nursing interventions that can be implemented to improve health education and self-care support, which is crucial for reducing the risks associated with diabetes in this community.

Conceptual Framework

Diabetes, clinically known as diabetes mellitus, is classified into two main types: type 1 and type 2. Although there are also specific forms of diabetes caused by other factors, it should be noted that diabetic neuropathy affects more than 50 % of people diagnosed with diabetes after 15 years of living with the disease. This condition predisposes patients to long-term complications in both types of diabetes, which generally do not manifest themselves during the first 5 to 10 years after the initial diagnosis. According to the World Health

Organization, one of the most serious complications that can arise in people with diabetes is the development of ulcers, infections, or even gangrene in the feet. This situation is a consequence of diabetic neuropathy, combined with varying degrees of peripheral vascular disease, caused by the complex interaction of multiple factors triggered by sustained levels of hyperglycemia.[1]

Pathophysiology

Diabetes mellitus is the dysfunction of glycemic homeostasis, mainly due to a relative or absolute insufficiency of insulin secretion by the beta cells of the pancreas and/or insulin resistance in peripheral tissues. In type 1 diabetes, the immune system attacks and destroys the beta cells of the pancreas, leading to total insulin deficiency. In type 2 diabetes, the main mechanisms include insulin resistance, where peripheral tissues, such as muscle and adipose tissue, do not respond adequately to insulin, and progressive beta cell dysfunction,[2] resulting in insufficient insulin production to overcome peripheral resistance. This imbalance in insulin production and action leads to elevated blood glucose levels (hyperglycemia), which over time causes a number of chronic complications such as retinopathy, nephropathy, neuropathy, and cardiovascular disease.[3]

Symptoms and Signs

Diabetes mellitus presents physical signs such as hyperglycemia, polyuria (frequent urination), and unexplained weight loss, especially in type 1 diabetes, due to the body's inability to use glucose as an energy source. Recurrent infections are also common due to a compromised immune system. Symptoms, which are subjective sensations experienced by patients, include polydipsia (excessive thirst), fatigue, blurred vision, slow wound healing, and tingling or numbness in the hands and feet, resulting from nerve damage caused by high blood glucose levels. These signs and symptoms are key indicators in the diagnosis and management of diabetes, reflecting both metabolic impairment and complications associated with the disease.[4]

Classification

Diabetes mellitus is classified into several main types, the most common being type 1 and type 2 diabetes, along with gestational diabetes and other less common types associated with specific medical conditions. Type 1 diabetes is an autoimmune disease in which the immune system destroys the beta cells in the pancreas that are responsible for producing insulin. People with type 1 diabetes depend on exogenous insulin and are usually diagnosed in childhood or adolescence, although it can also occur in adults. The symptoms are abrupt and include polyuria, polydipsia, and weight loss.[5]

Type 2 diabetes is the most common form and is associated with obesity, a sedentary lifestyle, and genetic factors. It is characterized by a combination of insulin resistance and insufficient insulin secretion. This type develops gradually, mainly affecting older adults, although it is also increasing in young people due to the rise in childhood obesity. Management includes lifestyle changes and, in some cases, medication or insulin. Gestational diabetes appears during pregnancy and increases the risk of developing type 2 diabetes in the future. It is crucial to manage it properly to prevent complications in the mother and baby.[6] Other specific types of diabetes include less common forms related to medical conditions such as cystic fibrosis or specific genetic mutations, and require specialized treatments.

Risk factors

Risk factors for type 2 diabetes mellitus include both modifiable and non-modifiable elements that increase the likelihood of developing the disease. Non-modifiable risk factors include advanced age, family history of diabetes, and genetic predisposition. These factors significantly influence the onset of diabetes, especially when combined with other risk factors.[7]

As for modifiable factors, overweight and obesity are the most relevant, as they are directly related to insulin resistance, a key feature in the pathogenesis of type 2 diabetes. An unhealthy diet, rich in sugars and fats, combined with a sedentary lifestyle, also contributes to the development of the disease. Smoking is another important risk factor, as it has been shown to increase insulin resistance and contribute to chronic inflammation, which aggravates the condition. Hypertension and chronic stress are also associated with an increased risk of developing type 2 diabetes. These risk factors can be addressed through lifestyle changes, underscoring the importance of prevention and early intervention.[8]

Diagnosis

The diagnosis of diabetes mellitus is essential to prevent its long-term complications and is based on the identification of abnormally high blood glucose levels. According to the World Health Organization[9], early diagnosis is crucial to avoid the most serious effects of type 2 diabetes. The most effective way to detect it early is through regular checkups and blood tests with a healthcare professional. However, the disease is often diagnosed years after the first symptoms appear, at which point complications may already have developed.

Early detection through regular checkups is crucial, as type 2 diabetes is often diagnosed years after the first symptoms appear, when complications may already be present. One of the most commonly used tests is the measurement of glycated hemoglobin (HbA1c), which quantifies the amount of glucose bound to hemoglobin in the blood. This non-invasive test provides a retrospective view of glycemic control over the past two to three months and is essential for confirming type 2 diabetes mellitus. In addition, the Oral Glucose Tolerance Test (OGTT) is another important diagnostic test that assesses how the body handles an ingested glucose load, providing critical information about pancreatic function and the body's ability to regulate glucose levels.

Treatment

The treatment of type 2 diabetes mellitus (T2DM) is a comprehensive process that addresses both disease management and the prevention of complications. According to the World Health Organization, the Global Diabetes Pact has focused on improving prevention and treatment, with a particular emphasis on low- and middle-income countries, where access to effective treatments may be limited.[10]

A key component of treatment is lifestyle modification, including low-carbohydrate and low-glycemic index diets, which have been shown to significantly improve glycemic control in patients with T2DM. These diets, such as the Mediterranean diet or those rich in protein, help maintain stable blood glucose levels, reducing the need for exogenous insulin and other medications. Along with diet, regular physical activity is essential for diabetes control. Maintaining a high level of physical activity not only improves insulin sensitivity but also decreases the risk of cardiovascular complications and mortality in patients with T2D.[11]

In terms of drug treatment, it is recommended to start with monotherapy, usually metformin, for newly diagnosed patients. However, if glycemic control targets are not achieved with monotherapy, combination therapy is considered. This may include drugs with different mechanisms of action, such as DPP-4 inhibitors, GLP-1 agonists, SGLT-2 inhibitors, or basal insulin, such as long-acting analogs (Detemir or Glargine). These medications have been shown to be effective not only in controlling glucose but also in reducing long-term complications. The choice of combination therapy depends on the efficacy of the drug, its safety profile, and the individual characteristics of the patient, such as the presence of comorbidities or the risk of hypoglycemia.

Prevention

Prevention of type 2 diabetes mellitus is essential to reduce the incidence and complications associated with this disease. Prevention strategies include both lifestyle interventions and risk factor management. A healthy, low-carbohydrate, low-glycemic index diet combined with regular physical activity has been shown to be highly effective in preventing diabetes in people at high risk.[12] These interventions not only help maintain a healthy body weight, but also improve insulin sensitivity, significantly reducing the risk of developing diabetes.

In addition, health education plays a key role in prevention by providing people with the knowledge and tools they need to make informed decisions about their diet, exercise, and glucose monitoring. Studies have shown that educational programs focused on prevention can reduce the risk of developing diabetes by up to 54 % in individuals with impaired glucose tolerance. The prevention of type 2 diabetes should be a comprehensive approach that combines lifestyle interventions with ongoing education and regular monitoring to achieve optimal control of risk factors.[13]

Nursing care

Nursing care for a patient with type 2 diabetes mellitus is essential for the proper management of the disease and the prevention of complications. One of the key aspects is patient education, which includes instruction on the importance of proper diet, regular physical activity, and constant monitoring of blood glucose levels. Nursing staff should guide the patient in planning a low-carbohydrate, low-glycemic index diet that helps maintain optimal glucose control. In addition, it is essential to promote adherence to drug therapy, ensuring that patients understand the importance of taking their medications regularly and administering insulin correctly, if necessary.[14]

Continuous monitoring is another crucial component of nursing care. This includes regularly assessing blood glucose levels, detecting signs of hyperglycemia or hypoglycemia, and monitoring for possible complications such as neuropathy, retinopathy, and kidney disease. Nurses must also be alert to risk factors that could worsen the patient's condition, such as infections, stress, or lack of adherence to treatment, and act proactively to mitigate these risks.[15]

CONCLUSIONS

Diabetes mellitus in light of Dorothea Orem's Self-Care Deficit Theory allows for a deeper understanding of the interrelationship between the pathophysiological aspects of the disease and the care necessary for its comprehensive management. This theory highlights the importance of self-care as a central axis of health, emphasizing that patients, by developing appropriate practices of glycemic control, nutrition, physical activity,

and therapeutic adherence, can prevent chronic complications and significantly improve their quality of life. However, it also recognizes that individual limitations, modifiable and non-modifiable risk factors, and social determinants of health can lead to self-care deficits that make nursing intervention at different levels of compensation essential.

Diabetes mellitus, particularly type 2, represents a global challenge due to its progressive incidence and associated complications, such as neuropathy, retinopathy, nephropathy, and cardiovascular disease. Given this scenario, the application of Orem's theory guides nursing practice toward educational and preventive strategies that are not limited to the hospital setting but extend to the community, integrating health education as a tool for patient empowerment. In this sense, nursing not only acts as a provider of care but also as a promoter of autonomy and responsibility in the management of one's own disease.

The study demonstrates that the Self-Care Deficit Theory provides an ideal framework for addressing the multiple components surrounding diabetes mellitus: from its pathophysiology, symptoms, diagnosis, and treatment to prevention and specific nursing care. This theory offers a solid basis for clinical practice and research, while promoting a holistic, humanized, and patient-centered approach. In a context where diabetes continues to be one of the leading causes of morbidity and mortality worldwide, Orem's contribution is crucial for the development of effective interventions that promote self-care, reduce the burden of disease, and strengthen the strategic role of nursing in contemporary public health.

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None.

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