

NURSING PERFORMANCE IN PATIENTS WITH CHRONIC RENAL FAILURE AND DIABETES MELLITUS

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Abstract: The goal was to identify the importance of nursing care to the patient with renal impairment and diabetes mellitus. As for the methodology, we opted for a bibliographic review by searching in Latin American and Caribbean Health Sciences (Lilacs), Scientific Electronic Library Online (Scielo) and Nursing Database (BDEF). and Discussion: It was observed that diabetes is a chronic disease that is characterized by changes in glucose metabolism, whether by poor insulin production-type 1, or by resistance to its action, as it has happened in type 2. That the performance of nursing in the care of patients with diabetes mellitus and chronic renal failure is critical, where the professional employs a systematization of nursing care ensuring the patient a whole and individualized care. It is concluded that the nursing team should act in the promotion of health and/or prevention of diseases such as diabetes and their comorbidities. Also, it was observed in this review that the actions of permanent education and orientation of patients for self-care should be intensely promoted by nurses, among this population who, because they have diabetes mellitus, are pre-discredited the risk factors for development of chronic renal failure.

Keywords: diabetes mellitus. Renal failure. Nursing performance.

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INTRODUCTION

Diabetes mellitus (DM), characterized as a chronic and degenerative metabolic disorder and evidenced by chronic hyperglycemia, is pointed out as a public health problem and of high prevalence in a global dimension (WHO, 2019). In Brazil, the situation is no different, and this disease increasingly affects a relevant portion of the population. According to the Ministry of Health (BRASIL, 2013), diabetes causes changes in glucose metabolism, either due to deficient production of insulin – type I, or resistance to its action, as happens in type II.

DM is associated with many comorbidities and a high risk of developing acute and chronic complications, including renal failure (AMORIM et al., 2019). As fundamental organs for the body, the kidneys are responsible for maintaining and sustaining the homeostasis of the human body.

With the progressive cooling of the glomerular filtration rate (GFR) observed in chronic kidney disease (CKD) “and the consequent loss of regulatory, excretory and endocrine functions, all other organs of the human body are compromised” (SILVA et al., 2015, p. 149).

Renal failure (RI) is characterized by the gradual and irreversible impairment of a large number of functional nephrons. High sugar levels overload the kidneys, causing it to filter a larger volume of blood, impairing its functioning and causing kidney diseases, such as diabetic nephropathy (BOUÇA et al., 2021).

The contribution of nursing to renal patients and patients with diabetes mellitus is fundamental. It is this professional who is responsible for guiding diabetic patients and their caregivers and family members regarding self-care for their health, including monitoring blood glucose levels, eating habits, physical activity, and blood pressure (OLIVEIRA et al., 2019).

This research is justified by the importance of discussing the role of nurses in the care of patients with diabetes mellitus with chronic renal failure. It is also justified by demonstrating actions to prevent diabetic nephropathy in patients with diabetes mellitus.

Thus, the research question is: How should nurses act in the care and guidance of renal



patients with diabetes mellitus?

To support the work and answer the research problem, the general objective of this study is: To identify the importance of nursing care for patients with renal failure and diabetes mellitus.

DEVELOPMENT

Methodology

As for the methodology, this research is a bibliographic review of the literature. This methodology was chosen because, according to Gil (2010), it provides the synthesis of knowledge and the inclusion of the applicability of the results of expressive studies in professional and academic practice. This is an exploratory research, applied to a literature review.

The approach is qualitative, focusing subjectively when analyzing the selected articles and discussing the results. This type of approach demands a broad study of the object to be researched, considering the context and characteristics of what one wants to analyze (GIL, 2010).

The search was carried out through the following databases: 1) LILACS; 2) SCIELO; 3) Pubmed; 4) Nursing Database (BDENF). The inclusion criteria were: complete articles, with abstract, results and conclusion, research with humans. Exclusion criteria: Incomplete articles; with more than 15 years of publication; studies that did not contemplate the theme and objectives of the research.

The main authors researched to discuss the results are: Azevedo et al. (2022); Bouça et al. (2021); Carneiro, Santos and Silva (2021); Amorim et al. (2019). Castro (2019); Grossi and Pascali (2009); Mascarenhas et al. (2011); Oliveira et al. (2019), Silva et al. (2015); Vieira et al. (2017).

Scientific articles, theses, dissertations and monographs, as well as books published and indexed, in the last 15 years were selected. The languages selected for the search were Portuguese and English, using the following descriptors: diabetes mellitus, diabetes and renal system, diabetic nephropathy.



Results and Discussions

To know and understand the disease diabetes, it is necessary to conceptualize it and describe its characteristics. Diabetes mellitus (DM), according to the Brazilian Diabetes Society (SBD, 2019), Brazil (2013) and WHO (2019), is a metabolic disease characterized mainly by peripheral insulin resistance, being the main triggering factor for obesity.

According to SBD (2019, p. 19) “diabetes mellitus (DM) consists of a metabolic disorder characterized by persistent hyperglycemia, resulting from a deficiency in insulin production or its action, or in both mechanisms”.

Several authors such as Almeida, Souza and Souza (2013), Mascarenhas et al. (2011), Grossi and Pascali (2009), describe DM as a chronic disease defined by a high glycemic level. As can be read, for example, in the definition of diabetes mellitus:

Diabetes Mellitus is a disease of multifactorial etiology that can be explained by hyperglycemia resulting from the absence or inability of insulin to perform its functions (ALMEIDA; SOUZA; SOUZA, 2013, p. 02).

According to Almeida et al. (2013) and Carneiro, Santos, and Silva (2021), manifestations such as relative chronic hyperglycemia, with alterations in the metabolism of carbohydrates, lipids, and proteins, as well as macrovascular, microvascular, and neuropathic complications are the result of defects in insulin production. These complications are typical of patients with type 1 and 2 diabetes mellitus.

According to the World Health Organization (WHO, 2019), diabetes mellitus (DM) is mainly characterized by the presence of chronic hyperglycemia. This is often accompanied by dyslipidemia, abdominal obesity, hypertension and endothelial dysfunction and kidney diseases.

According to Viana and Rodriguez (2011, p. 291), diabetes “is an endocrine disorder that consists of a defect in the secretion and/or action of insulin produced by the pancreas, manifested by



the inadequate use of glucose by the tissues that causes hyperglycemia in the body”.

The combination of these factors can increase the risk of developing other comorbidities, such as cardiovascular diseases and kidney failure. Still, it is worth remembering that diabetes mellitus can affect people at any age, but it is usually diagnosed after the age of forty (WHO, 2019).

The SBD (2019) classifies type 1 diabetes mellitus as an autoimmune disease due to the destruction of β cells and insulin deficiency of an idiopathic nature. Explaining the particularities of type 1 DM, the Brazilian Diabetes Society explains that: “[...] type 1 diabetes mellitus (DM1) is an autoimmune, polygenic disease resulting from the destruction of pancreatic β cells, causing complete deficiency in insulin production” (SBD, 2019 p, 19). “In symptomatic patients, polyuria, polyphagia, polydipsia, weight loss and visual alterations are common” (VIANA; RODRIGUEZ, 2011, p. 291).

Type 2 diabetes mellitus (DM2) is a complex metabolic disease. It is characterized by a decrease in pancreatic insulin secretion and a decrease in insulin action or insulin resistance in peripheral organs, resulting in hyperglycemia and glycototoxicity (BRASIL, 2013; SBD, 2019).

According to Carlesso, Gonçalves and Moreschi Júnior, (2017) and Carneiro, Santos and Silva (2021), type 2 diabetes mellitus (DM2), also known as adult diabetes, is classified as multifactorial, as it encompasses other elements, involving genetic components, such as family history of the disease and environmental components, such as obesity and sedentary lifestyle. According to these authors, DM2 causes comorbidities such as dysfunctions and failure of several organs, especially eyes, kidneys, nerves, brain, heart, and blood vessels, for example.

According to Viana and Rodriguez (2011) and Brasil (2013), the most common symptoms of DM2 are excessive thirst, frequent urination, and unexplained weight loss. In addition to these, other symptoms may occur, such as excessive hunger, fatigue and wounds that do not heal, where the diabetic foot can be listed. In many cases, the symptoms manifest gradually and slowly, causing the patient not to realize that he is affected by the disease, where he starts to develop other diseases as a result of DM, such as chronic renal failure (SILVA et al. 2015).

In addition to type 1 and 2 diabetes, there is also gestational diabetes. In gestational DM,



it leads to dysfunction of β cells because of hyperglycemic hormones and placental enzymes that degrade insulin, causing resistance to this hormone (SBD, 2019).

According to Nascimento et al. (2020) and Silva et al. (2015), the growth in the incidence of chronic diseases associated with diabetes mellitus is a reality known by public managers and has provoked many discussions among health professionals, and is currently treated as an important public health problem. Regarding renal disease, according to Silva et al. (2015, p. 149):

[...] consists of kidney damage and progressive and irreversible loss of kidney function Chronic kidney disease (CKD) is the presence of kidney damage or reduced level of kidney function for 3 months or more, regardless of the diagnosis. In its most advanced stage, it is called end-stage chronic kidney disease (ESRD), or end-stage kidney disease (ETDR), when there is progressive and irreversible loss of kidney function.

Kidney diseases in diabetics, understood as diabetic nephropathy (DN) are conceptualized, according to Bouças et al. (2021), Azevedo et al. (2022) and Mascarenhas et al. (2011) as a syndrome characterized by specific glomerular lesions added to the gradual increase in urinary albumin. In addition, it is associated with the presence of arterial hypertension and cooling of the glomerular filtration rate. The syndrome, according to Azevedo et al. (2022, p. 3615) “it is one of the main complications that affects patients with type 2 Diabetes Mellitus”.

According to Bouças et al. (2021, p. 81): “Although DN is a pathological process exclusive to DM, 25 to 50% of patients do not have increased renal albumin excretion, thus contradicting the classic definition of kidney disease attributed to this pathology”.

According to Viana and Rodriguez (2011), diabetic nephropathy is a “chronic alteration characterized by albuminuria, arterial hypertension and progressive decline in renal function”. The authors also state that this disease “affects about 10 to 40% of patients, and is currently the pathology most associated with new cases of patients with kidney problems who undergo hemodialysis, that is, in patients with end-stage renal failure” (VIANA; RODRIGUEZ, 2011, p. 292).

Corroborating the above-mentioned acrimony, Azevedo et al. (2022, p. 3616) explain that



diabetic nephropathy “is the leading cause of chronic kidney disease (CKD) and end-stage renal disease (ESRD) worldwide”. Thus, it is understood that chronic renal failure in diabetic patients may be directly linked to diabetes mellitus.

Because it is progressive and irreversible, Amorim et al. (2019, p. 577) explain that:

[...] The pathogenesis of DKD is associated with functional and structural changes of different types of renal cells as a response to metabolic stress induced by excessive influx of cellular glucose, through the activation of specific metabolic pathways interconnected with redox imbalance and inflammation.

According to Carneiro, Santos and Silva (2021, p. 12773) “the kidneys are vital organs in the control of the homeostasis of the human body. Therefore, a kidney complication compromises other important organs”. When kidney complications are associated with diabetes mellitus, the damage to the body can be more serious. “Epidemiological data show that, in about 63% of CKD cases, SAH and DM are present” (CARNEIRO; SAINTS; SILVA, 2021, p. 12773).

Regarding the most serious phases of kidney failure, two stand out:

- Clinical or severe renal failure: the patient already suffers from renal dysfunction, presents marked signs and symptoms of uremia, among which anemia, arterial hypertension, edema, weakness, malaise and digestive symptoms are the earliest and most common. It corresponds to the glomerular filtration rate range between 15 and 29 mL/min/1.73 m². (SILVA et al., 2015, p. 150).
- Chronic renal failure: corresponds to the range of renal function in which the kidneys have lost control of the internal environment, which has become sufficiently altered to be compatible with life. At this stage, the patient is intensely symptomatic. Its therapeutic options are methods of artificial blood clearance (peritoneal dialysis or hemodialysis) or kidney transplantation. It comprises a glomerular filtration rate of less than 15 mL/min/1.73 m². (SILVA et al., 2015, p. 150).



With these data and descriptions, both of diabetes mellitus and of chronic renal failure, he begins to understand the role of nursing in the care of patients with these types of diseases.

According to Oliveira et al. (2019), Silva et al. (2015) and Veira et al. (2017), the purpose of diabetes treatment is to maintain good control of metabolism and keep blood glucose levels at adequate values, to promote health and improve the patient's quality of life. For these authors, adherence to treatment for this disease has been a challenge for health professionals, and in the case of this study, it refers to the nurse who participates in the education of patients with diabetes mellitus and chronic renal failure. Also because it is important that the education of the patient, family and other health agents takes place, respectively, and it is up to the nurse to provide this guidance.

At the time of dietary guidance, the Brazilian Diabetes Society (SBD, 2019) informs that the consumption of adequate amounts of carbohydrates, proteins, fats, vitamins and minerals should be emphasized that it is essential for the proper functioning of the body. It is worth remembering that the consumption of proteins such as meat, eggs and cheeses do not contain sugar, but in excess they also alter glycemic values. Fiber intake is essential, as they are components of foods that do not have calories, but fulfill gastrointestinal functions and act in the treatment and prevention of diabetes (SBD, 2019).

Nascimento et al. (2020) understand that another guideline that should be given to patients with DM is to put a physical activity program into their routine, as this results in numerous varieties of physiological and metabolic adaptations. Physical activity is highly recommended by the Brazilian Diabetes Society (SBD, 2019) where they state in their guidelines that patients who maintain an active lifestyle develop glucose tolerance less frequently than in people with a sedentary lifestyle. Hence the importance of this guidance for all patients with diabetes mellitus.

It is important to remember that the role of the nurse is beyond health guidelines. The professional needs to know the patient well to be successful in the orientation. On this, it can be read that:



It is the nurse's responsibility to provide guidance on lifestyle changes and assessment of the potential for self-care, in addition to addressing other risk factors, such as socioeconomic status and level of education [...] (CARLESSO; GATES; MORESCHI JÚNIOR, 2017, p. 117).

Regarding the competencies and functions of nursing with renal patients and patients with diabetes mellitus, Silva et al. (2015, p. 151), state that:

Nursing care has seven different functions: to help; educate; diagnose, follow up and monitor the patient; solve rapidly evolving situations; administer and monitor therapeutic protocols; ensure and monitor the quality of health care and ensure and monitor skills in the organization of health services.

In order to act effectively by nurses to avoid the worsening of renal diseases in patients with diabetes mellitus, Nascimento et al. (2020, p. 5) observe that “planned actions must be based on health education, providing guidance on the risks of serious evolutions”. These actions developed by nurses should start right away in Primary Health Care, with the objective of providing guidance on how to prevent and reduce the progression of chronic renal failure, “considering that interventions carried out correctly and in a timely manner contribute to improving care and consequently improving the clinical prognosis of patients” (NASCIMENTO et al., 2020, p. 5).

According to Silva et al. (2015, p. 150) “The nurse's work is related to health promotion according to the needs of the population, since it is necessary to detect risk groups and guide and point out ways for them to face and adapt to the new lifestyle and their health condition”. Also according to these authors:

[...] it is necessary to develop health promotion activities in an educational way, to reduce the incidence of CKD and improve the quality of life of the population. Nurses play an important role as caregivers and educators, responsible for systematizing and encouraging self-care (SILVA et al., 2015, p. 150).



All the authors cited in this study understand that the care and performance of nurses are directly linked to the education that the professional should pass on to the patient. As can be read in the words of Oliveira et al. (2019): “[...] nurses are essential professionals in health education and can contribute to the prevention of CKD, using their knowledge in the care of diabetic patients [...]”. It is understood, therefore, that health care, care and guidance are also educational practices.

For these actions to effectively happen, it is necessary to have good communication between all team members, which can range from the exchange of reports and opinions, which can be written manually or filled out electronically, in ready-made spreadsheets or using other ways of typing documents (BRASIL, 2013). The Ministry of Health also says that even direct communication with telephone calls to discuss the case can be carried out.

CONCLUSION

The research showed that nurses are professionals who play a relevant role in raising awareness and educating patients with chronic renal failure and diabetes mellitus. The nursing team must act in the promotion of health and/or prevention of diseases such as diabetes and its comorbidities.

In addition, it was observed in this review that continuing education actions and orientation of patients towards self-care should be intensely promoted by nurses. These actions should occur among the population that, because they have diabetes mellitus, are predisposed to risk factors for the development of chronic renal failure.

It is also concluded that educational prevention actions end up reflecting on the improvement of the quality of life of patients with diabetes mellitus and chronic kidney disease. Finally, it is understood that, within Primary Health Care, places of first contact with the patient and the nursing professional, training and improvement courses are necessary, which are offered by government officials or health managers aimed at the technical and scientific improvement of nursing professionals.



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