

The role of health professionals in the treatment and monitoring of patients with diabetic foot: Literature review

Gleison Faria^{1*}, Francisco Leandro Soares de Souza¹, Taís Loutarte Oliveira¹, Jackson Firigolo¹, Cleci da Silva¹, Thauany Ferreira Tavares¹, João Paulo Santos Carvalho¹, Dhieniffer Naiara da Silva¹, Cleonice Pêgo da Silva¹, Douglas Basso Sales¹, Katiany Tamara Andrade Batista¹, Silvano Cristina Nava¹, Deusirene Sousa Rodrigues², Flávia Queiroz², Samira Sbardelatti Regis Pereira³, Letícia Ferreira Gomes³, Cleverson de Oliveira Santos³, Natielen Aparecida de Paula³, Erlon Robson da Silva Rodrigues⁴, Valdair Nunes do Nascimento⁴, Ana Paula da Silveira⁴, Gilberto dos Santos Campos⁴, Isabelly Melissa Nunes⁴, Aline Fontes Alves⁴, Eliseu de Paulo Santos⁴, Daniele Silva de Almeida⁴, Dayane Leite dos Santos⁴, Tatianny Ketlynn Abreu Silva⁵, Jany Felizardo dos Santos⁶, Vanessa Botoni da Silva Nogueira⁷, Giselen Maleski Cargnin⁷, Gabriela Schabatoski dos Santos⁸, Ivanildo Sousa Azevedo⁹, Tatiana Moreira de Almeida¹⁰, Marco Rogério da Silva¹¹, Elizamar de Souza Silva¹², Josiane Alves dos Santos¹², Mateus Duarte Vieira¹², Welesmar Barros dos Santos¹², Cleitineia da Silva Souza¹².

1 Graduated/Undergraduate student at Unifacimed-Faculty of Biomedical Sciences of Cacoal – FACIMED – RO, Brazil. Email: gleisonfaria@hotmail.com*

2 Faculdade Interamericana de Porto Velho- UNIRON – Porto Velho – Rondônia, Brazil.

3 Graduated from Higher Education in Cacoal, FANORTE, Rondônia, Brazil

4 Centro Universitário São Lucas AFYA Educacional - Ji-Paraná, Rondônia, Brazil

5 Faculdade Interamericana De Porto Velho – UNIRON- Porto Velho – Rondônia, Brazil

6 Centro Universitário Luterano de Ji-Paraná - CEULJI/ULBRA – Ji-Paraná – Rondônia, Brazil

7 Nurse at the Claretian University Center - CEUCLAR - Porto Velho – RO

8 Universidade de Rondônia – UNIR – Porto Velho- Rondônia, Brazil

9 Universidade Federal do Amazonas -UFAM – Manaus- Amazonas, Brazil

10 Graduate student at Faculdade Estácio UNIJIPA - Ji - Paraná-RO, Brazil

11 Nurse at the University of Vale do Rio dos Sinos – UNISINOS - São Leopoldo, Rio Grande do Sul, Brazil

12 Nursing student at Universidade Paulista – Ji – Paraná –RO, Brazil

Abstract

Diabetes Mellitus can lead the patient to have several complications, among these complications includes diabetic neuropathy the main cause of diabetic foot which is one of the most common complications of diabetes mellitus evolving to chronic wounds, infections and lower limb amputations, causing great impact in the patient's quality of life. The objective of the work is to evaluate the knowledge of professionals and users about diabetes mellitus, about the preventive care of the diabetic foot, analyze the impact on the quality of life of patients with diabetic foot and amputations and reduce the rates of amputations. The study methodology is descriptive with literature analysis. The results found show that the Diabetic Foot and amputations affect the patient's quality of life, making it impossible to perform their daily activities, family coexistence, leisure causes absenteeism at work, loss of work function. The nurse has a fundamental role in the prevention, education and treatment of diabetes, treatment of chronic wounds, avoiding and reducing amputations. It is concluded that nursing has as its main ally in the preventive process the nursing

consultation, where anamnesis, physical examination accompanied by sensitivity tests are carried out, identifying risk factors for diabetic foot. An ideal program for the prevention of diabetic foot needs to provide health education for the individual with diabetes and their caregivers, for the health teams.

Keywords: *Diabetes Mellitus; Diabetic foot; amputations.*

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I. INTRODUCTION

Diabetes is a syndrome of multiple causes, which is caused by insulin deficiency and/or insulin insufficiency and is characterized by chronic hypoglycemia and alterations in carbohydrate and lipid and protein metabolism. These changes can lead to multiple complications in patients, including the most common diabetic neuropathy, which can lead to long-term changes. Foot sensitivity can lead to the development of a diabetic foot, progress to a total or partial amputation, affecting the patient's quality of life (SBD, 2020).

Diabetes Mellitus is classified according to its etiology and not according to the form of treatment. The WHO and the American Diabetes Association (ADA) classify it into four clinical classes, these classes are DM type I DM type II, other specific types and gestational DM (MARASCHIN et al., 2010).

Destruction of pancreatic beta cells occurs early in life and leads to a lack of total insulin and loss of glucose control. There is no cure for diabetes, but it can be controlled by injecting insulin daily, these are the insulin-dependent people who usually have type I diabetes. Sometimes cells produce insulin, but it is not enough to reduce blood sugar levels and generate energy for the body, this type may have insulin resistance (SILVA-FILHO et al., 2019).

Diabetic foot is one of the most common complications of diabetes (DM). From chronic wounds and infections to lower limb amputations, the impact on personal life can be enormous. Regular foot inspections can provide early recognition and timely treatment of the changes found, thus preventing a large number of diabetic foot complications (BRASIL, 2013).

Diabetic foot according to the definition of the World Health Organization (WHO) is a situation of infection, ulceration or destruction of the deep tissues of the feet, associated with neurological abnormalities and various degrees of peripheral vascular disease, in the lower limbs of patients with diabetes mellitus (SILVA-FILHO et al. al., 2019).

The Diabetic Foot can be classified, according to its etiopathogenesis, into: Neuropathic, vascular (also called ischemic), Mixed (neurovascular or neuroischemic) (BRASIL, 2016).

In Brazil, about 16.8 million individuals have diabetes (International Diabetes Federation - IDF, 2019) and about 46% of them are unaware of this diagnosis (BRASIL, 2020). According to the Ministry of Health, the number of deaths due to this comorbidity has been increasing every year, reaching a total of 65 thousand in 2018. Vigitel (Surveillance of Risk Factors and Protection for Chronic Diseases by Telephone Survey) points out a 1.1% growth in the percentage of diabetes diagnoses among the populations of the country's capitals and the Federal District, between 2010 and 2019, which presented respectively 6.3% and 7.4% (BRASIL, 2020). The IBGE (2012) calculated the mortality rate due to diabetes mellitus per 100 thousand inhabitants, by region in 2011, accounting for 28.6% in the Southeast, 22.6% in the Midwest, 36.6% in the Northeast, South 30.6% and in the North 21.8% (IBGE, 2012).

The diagnosis of Diabetes Mellitus is based on the detection of hyperglycemia. There are four types of specific tests that can be used in the diagnosis: casual blood glucose, fasting blood glucose, glucose tolerance test with a 75 g overload in two hours (TTG) and, in some cases, glycated hemoglobin (BRASIL, 2013). The characteristic symptoms that raise suspicion of DM are: polyuria, polydipsia, polyphagia and unexplained weight loss, in type I DM these symptoms are more acute and can progress to ketosis, dehydration and metabolic acidosis, especially in the presence of acute stress (BRASIL, 2013).

Among these complications is the Diabetic Foot, in which case the diagnosis is clinical, carried out through the evaluation of neurological, vascular and mechanical changes that allow the evaluation and classification of the foot according to the risk of injury. It is recommended that every person with DM performs a foot exam annually, identifying risk factors for ulcer and amputation (ADA, 2013).

Type II DM requires non-pharmacological treatment, supplemented with oral antidiabetic drugs and, eventually, one or two doses of basal insulin, depending on the course of the disease. There are cases that require more complex regimens, such as those with a fractional dose and with insulin mixtures two to four injections a day (BRASIL, 2013).

In view of the above, the general objective of the research is to verify the role of nurses in the care and prevention of patients undergoing limb amputation resulting from complications of diabetes mellitus type I and I.

II. MATERIALS AND METHODS

This study is a comprehensive review that focuses on the investigation, description and analysis of scientific results published in the main nursing journals on the subject of the health professional's role in the care of patients with diabetic foot, from which 23 articles were selected.

The selection of articles was carried out through the online electronic scientific library (SciELO), Google Scholar and the virtual health library database, using the health sciences descriptor (Decs): Diabetes Mellitus; Diabetic foot; amputations. For its selection, the following inclusion criteria were followed: language of publication (Portuguese, Spanish and English), established deadline, 2010 and 2022.

The bibliographic search also uses official documents such as laws, reports, technical manuals and book chapters related to the subject available on the Ministry of Health website.

Bibliographic works without complete texts and those that do not allow a deep reflection of the nursing area on the subject in question are excluded. Data analysis is performed through the description of research and information, analysis of results, compilation of results and evaluation of results on the proposed themes.

III. LITERATURE REVIEW

Diabetes mellitus

Diabetes Mellitus (DM) is a metabolic disorder characterized by hyperglycemia and disturbances in carbohydrate, protein and fat metabolism, resulting from defects in insulin secretion and action. The disease is associated with dyslipidemia, arterial hypertension and endothelial dysfunction (BRASIL, 2013).

Diabetes Mellitus is a chronic disease characterized by absolute or relative absence of insulin (hormone released by the pancreas) in the body, the function of this hormone is to control blood glucose, stimulate the entry of sugar into cells to be metabolized and transformed into energy for the body. Insulin resistance is when the hormone is released in sufficient quantity, but fails to act properly on the cells, which indicates the onset of the disease (SILVA-FILHO et al., 2019).

Classifications of Diabetes Mellitus

Diabetes Mellitus is classified according to its etiology and not according to the form of treatment. The WHO and the American Diabetes Association (ADA) classify it into four clinical classes, these classes are DM type I DM type II, other specific types and gestational DM (MARASCHIN et al., 2010).

Type II diabetes covers about 90% of diabetes cases in the population, type I corresponds to approximately 8%, differentiation does not occur easily and specific tests are sometimes needed to identify the disease, among these tests we can mention antibody levels anti GAD, assessment of pancreatic insulin reserve by means of plasma C-peptide measurement, if the antibody result is positive and the peptide is below 0.9 ng/ml suggest a diagnosis of type I diabetes and when the result is negative antibodies and elevated C-peptide suggest type II diabetes (MARASCHIN et al., 2010; BRASIL, 2013).

Type I Diabetes Mellitus is characterized by the destruction of the beta cells of the pancreas, usually by an autoimmune process leading to a deficiency or absence in the production of insulin by the pancreas since childhood, in this form of DM the rates of destruction of the beta cells of the pancreas can occur from rapidly in some individuals, such as children, and slowly in others, generally in adults (MACIEL et al., 2018). Type I diabetes of autoimmune origin may be associated with other autoimmune diseases such as rheumatoid arthritis, Hashimoto's thyroid, Addison's disease, atrophic gastritis, systemic lupus erythematosus, pernicious anemia, among others (SBD, 2020).

The signs and symptoms of type I DM are: Acidosis (excessive ketones in the blood and high levels of glucose in the bloodstream (hyperglycemia), excessive volume and production of urine (polyuria), excessive thirst (polydipsia), weight loss, weakness and nausea, if untreated, hyperglycemia and acids can lead to diabetic coma (MACIEL et al., 2018).

Diabetes Mellitus type II (DM II) is a syndrome that results from defects in insulin action and secretion, and both mechanisms are related to genetic and environmental factors, diabetes mellitus has become one of the most prevalent diseases worldwide. associated with mortality and vascular complications, neuropathies, blindness, renal failure and lower limb amputations. In this type of DM, the pancreas secretes insulin normally, but there is a large amount of insulin and glucose left in the blood and little glucose in the cells. Excess insulin in the blood deteriorates the beta cells of the pancreas, these destroyed cells can no longer produce insulin, leading this individual to have the need to take insulin and drugs to increase insulin sensitivity (MACIEL et al., 2018).

Gestational Diabetes Mellitus (GDM) is defined as a change in glucose levels during pregnancy, usually occurs in the second or third trimester, the risk factors for GDM is excessive weight gain during pregnancy, more common in pregnant women from the 45 years old (SBD, 2019).

There are other specific types of DM that are less common, such as when the individual has genetic defects in beta cells, insulin action, pancreas, exocrine infections, chemically induced DM by drugs or genetic syndromes (SBD, 2015).

Diabetic Foot is the presence of infection, ulceration and/or destruction of deep tissues associated with neurological abnormalities and various degrees of peripheral vascular disease in people with DM. produce distortions in the normal anatomy and physiology of the feet. The alteration of muscular trophism and bone anatomy of the feet causes the appearance of pressure points, while skin dryness impairs the protective elasticity of the skin and the loss of local circulation makes healing slower and ineffective. Together, these changes increase the risk of foot ulcers, which can progress to more serious complications, such as infections and amputations (BRASIL, 2016).

Diabetic foot can be classified, according to its etiopathogenesis, into:

- Neuropathic.
- Vascular (also called ischemic).
- Mixed (neurovascular or neuroischemic) (BRASIL, 2016).

Peripheral vascular disease (PVD) is quite common in diabetics due to the development of macrovascular atherosclerosis. In general, symptoms may be absent at rest, however, intermittent claudication may manifest when the demand for blood flow increases. In the most advanced stage, symptoms are pain at rest, particularly at night, ulceration or gangrene, limping gait, complaints of pain during gait. In studies carried out, these symptoms were identified in 10% and 15% of individuals with diabetes. Through the dynamic assessment of users' gait, it was possible to show that the prevalence of changes in the distribution of body weight and support base, with a consequent gait pattern modification, were higher than 58% and 67%, respectively (BARROS et al, 2012).

Biomechanical changes in joint structures, muscles and tendons of the foot are common in people with diabetes. These dysfunctions result from motor diabetic peripheral neuropathy (NPD) and peripheral vascular disease (PVD), which, when associated, cause muscle hypotrophy, accompanied by weakness of the stabilizing muscles of the metatarsal phalangeal joints, causing instability and deformities, in addition to altering the biomechanics. foot, resulting in abnormal pressure points and friction with the foot. In addition to causing changes in the distribution of body weight and base of support, these factors are associated with an increased risk of ulcerations and amputations (BARROS et al, 2012).

Diabetic foot is a chronic complication of diabetes mellitus, characterized by infection, ulceration or destruction of deep tissues, associated with neurological abnormalities and various degrees of peripheral vascular disease in the lower limbs, which have great social and economic repercussions, resulting from amputations, that generate work incapacities, absenteeism from work and the high cost associated with its control and/or treatment and its acute and chronic complications. These injuries cause great suffering to patients, causing changes in lifestyle, worsening self-esteem, functional capacity and quality of life, often making it impossible for them to carry out their normal activities. It is known that people with diabetes and heart disease have a worse prognosis, with lower short-term survival, higher risk of disease recurrence and worse response to the proposed treatment (ALMEIDA et al, 2013).

Diabetic patients with foot ulcers had a worse quality of life in all domains evaluated by the SF-36, with the most compromised being those related to functional capacity and physical, social and emotional aspects. They evaluated pain with chronic wounds and concluded that it affects the quality of life of these individuals. Foot ulcers cause suffering, causing changes in the style and quality of life and sleep, making it impossible for individuals to carry out their social, leisure and family activities, in addition to causing absenteeism at work and even loss of functions. workers in a productive age group. To the extent that these patients show some dependence to manage their activities, whether they are at home, at leisure and in social and family environments, their autonomy may be impaired, automatically becoming dependent on their family and friends. Patients with diabetes mellitus with foot ulcers present changes in quality of life, with repercussions in the physical, social and psycho-emotional domains (ALMEIDA et al, 2013).

Diagnosing Diabetes Mellitus

The diagnosis of Diabetes Mellitus is based on the detection of hyperglycemia. There are four types of specific tests that can be used in the diagnosis: casual blood glucose, fasting blood glucose, two-hour 75 g glucose tolerance test (TTG) and, in some cases, glycated hemoglobin. Based on characteristic symptoms that raise suspicion of Diabetes mellitus, among the symptoms are: polyuria, polydipsia, polyphagia and unexplained weight loss, in type I DM these symptoms are more acute and may progress to ketosis, dehydration and metabolic acidosis, especially in the presence of acute stress. There are more vague symptoms that may also be present such as: fatigue, blurred vision and itching.

Symptoms can be present in type II DM, but in this type the individual can be asymptomatic, making the diagnosis difficult, so the suspicion is made by the presence of late complications such as retinopathy, peripheral neuropathy, proteinuria, arteriosclerotic disease or other recurrent infections. (2013).

In the natural history of DM, pathophysiological changes precede the diagnosis of the disease by many years. The condition in which glycemic values are above the reference values, but still below the diagnostic values of DM, is called pre-diabetes. Insulin resistance is already present and, in the absence of measures to combat modifiable risk factors, it often progresses to clinically manifest disease and is associated with an increased risk of cardiovascular disease and complications. In most cases of pre-diabetes or diabetes, the condition is asymptomatic and the diagnosis is made based on laboratory tests (SBD, 2019).

Casual blood glucose is the first test to be requested, as it provides a result in the consultation itself, it is indicated when the person requires an immediate diagnosis and the service has a laboratory with immediate glycemic determination or a glucometer and reagent strips, In this case, the cut-off point indicative of diabetes is greater than or equal to 200 mg/dL in the presence of symptoms of hyperglycemia. In the absence of urgency, it is preferable to request a fasting blood glucose measured in plasma by the laboratory. People with altered fasting glycemia, between 110 mg/dL and 125 mg/dL, because they have a high probability of having diabetes, may require a second evaluation by TTG-75 g. glucose, fasting and blood glucose is measured before and 120 minutes after ingestion. A two-hour post-load blood glucose greater than or equal to 200 mg/dL is indicative of diabetes and between 140 mg/dL and 200 mg/dL indicates impaired glucose tolerance (BRASIL, 2013).

Diabetic foot diagnosis

The diagnosis is clinical, performed through the evaluation of neurological, vascular and mechanical alterations that allow the evaluation and classification of the foot according to the risk of injury. It is recommended that every person with DM performs a foot exam annually, identifying risk factors for ulcer and amputation (ADA, 2013).

The consultation for monitoring people with DM should include a systematic routine for evaluating the protective sensitivity and integrity of the feet with the intention of preventing diabetic foot, during the medical and/or nursing consultation, some aspects of the history are essential for the identification of people at higher risk for foot ulceration (BRASIL, 2016). Several conditions contribute to foot ulceration in the person with DM of which neuropathy is often the most important initiating event.

Risk factors for foot ulcers:

- Prior amputation;
- Foot ulcer in the past;
- Peripheral neuropathy;
- Deformity in the feet;
- Peripheral vascular disease;
- Diabetic nephropathy (especially on dialysis);
- Poor glycemic control;
- Smoking; (BRAZIL, 2016).

Physical exam

The physical examination of the person with DM is very important, since it can detect complications of the disease and identify other conditions that, in association, increase morbidity and mortality and influence treatment. The relevant aspects of the physical examination of the person with DM are: Anthropometric measurements: obtaining weight and height to calculate the body mass index (BMI) and measurement of the abdominal waist (WC), Examination of the oral cavity: attention to the presence of gingivitis, dental problems and candidiasis, BP measurement and heart rate: two BP measurements, separated by at least one minute, with the patient in a sitting position, Neck: thyroid palpation (when type I DM), Cardiac and pulmonary auscultation, Examination of the feet: skin lesions (bacterial or fungal infections), nail condition, corns and deformities. (BRAZIL, 2013).

Evaluation of peripheral arterial pulses and lower limb edema; Fundus examination, neurological examination, foot examination and care. The physical examination of the feet can be divided into four stages: Skin assessment, musculoskeletal assessment, vascular assessment, neurological assessment (BRASIL, 2013).

Skin Reviews

Inspection of the skin should be extensive, including observation of foot hygiene and nail trimming, dry and/or scaly skin, thickened nails and/or onychomycosis, mycotic intertrigo, noting the presence of blisters, ulceration or areas of erythema.

Differences in the temperature of the whole foot or part of it, in relation to the other foot, may indicate vascular disease or ulceration (BRASIL, 2016).

Vascular Assessment

Palpation of the dorsalis pedis and posterior tibial pulses should be recorded as present or absent. In addition to the pulse, it is important to observe the temperature, the hair, the condition of the skin and muscles. When verifying the absence or significant decrease in peripheral pulse, atrophy of the skin and muscles, hair thinning, the need to refer the person to the vascular surgeon should be evaluated (BRASIL, 2013).

Neurological Assessment

The assessment of loss of protective sensitivity is performed with two instruments; the tuning fork of 128 Hz and the Semmes-Weinstein monofilament of 10g. Initially, the monofilament is applied perpendicularly to the skin surface with force.

Enough to bend it over the patient's hand, elbow, or forehead to let them know they're going to be tested. The filament is then applied to the plantar areas of the hallux, and the heads of the 1st and 3rd and 5th metatarsals, not exceeding two seconds. The application is repeated twice at the same site, alternating with at least one simulated application, asking three questions per application site. Sensitivity is considered positive when the patient correctly answers two of the three applications and, absent, if two of the three questions are answered incorrectly (SBD, 2019).

Vibrating perception test with 128 Hz tuning fork. Initially, the tuning fork should be applied over some bony prominence, interphalangeal joint of the fingers, elbow or clavicle of the patient so that he can perceive the type of sensation tested (vibration present versus absence of vibration), it is important to confirm the perception present or absent. The tuning fork must be applied on the dorsal bone part of the distal phalanx of the hallux, without the patient seeing it, perpendicularly and constantly, twice, alternating with at least one simulation. The test is considered positive when the patient correctly responds to at least two of the three applications, and negative, or at risk of ulceration, with two of three incorrect responses. If the examiner finds a negative result in this test and wants to delimit the level of insensitivity, he can also search the medial and lateral malleolus, ascending to the tibial tuberosity. The PAD investigation is performed by palpating the pedal, pedal and posterior tibial pulses and in the decrease or absence of these, peripheral arterial disease is suspected (BRASIL, 2016).

Diabetes Mellitus Treatment

The treatment and follow-up of people with DM must be carried out according to the needs in the integral care of the diabetic, this includes lifestyle changes, metabolic control and prevention of chronic complications. The treatment of diabetes mellitus (DM) consists of adopting healthy lifestyle habits, such as physical activity, balanced diet, smoking cessation and alcoholism, and pharmacological treatment is also necessary. These healthy lifestyle habits are the basis of the treatment of diabetes, and are of fundamental importance in glycemic control, in addition to acting in the control of other risk factors for cardiovascular diseases (BRASIL, 2013).

The treatment of DM aims to maintain glycemic and metabolic control, and patient fidelity to it is essential for the control of associated complications. The patient with DM needs to be guided to follow both the prescription of medications and the changes in lifestyle, which include following a specific diet and the practice of physical activity (BERTONHI & DIAS, 2018).

The clinical management of insulinization in type II DM with multiple daily doses should be primarily performed at the Basic Health Unit (BHU), but it can be performed in a specialty outpatient clinic in specific cases, or with matrix support, if necessary. The person with type I DM, despite being usually accompanied by Specialized Care, must also have their care guaranteed in Primary Care. It is essential that the team knows this population and maintains constant communication with the other levels of care (BRASIL, 2013).

Pharmacological Treatment

The treatment of type I DM, in addition to non-pharmacological therapy, always requires the administration of insulin, which must be prescribed in an intensive regimen, with three to four doses of insulin a day, divided into basal insulin and prandial insulin, whose doses are adjusted. according to capillary blood glucose, performed at least three times a day. This regimen reduces the incidence of microvascular and macrovascular complications. Compared with the conventional treatment of two doses of insulin/day Due to the

greater complexity in the management of these patients, they are usually followed up by specialized care. Type II DM, which affects the vast majority of individuals with diabetes, requires non-pharmacological treatment, usually supplemented with oral antidiabetic drugs and, eventually, one or two doses of basal insulin, depending on the evolution of the disease. Cases that require more complex regimens, such as those with fractional doses and insulin mixtures (two to four injections a day), are generally followed up by specialized care (BRASIL, 2013).

Physiotherapeutic interventions

Early detection and timely treatment of clinical manifestations can prevent half of amputations in individuals with DM, studies have shown that comprehensive educational programs can prevent half of amputation occurrences. Most of the costs associated with DM are related to its complications, which can be reduced and avoided by carefully and regularly evaluating the lower extremities of diabetics. Superficial ulcers or pre-ulcerative lesions on the feet of diabetic individuals with decreased sensitivity caused by diabetic neuropathy constitute 85% of severe cases of hospital admissions (BARRILE SR, et al, 2013).

Balance deficit and the consequent risk of falling is a frequent manifestation among individuals with DM, especially among those with type II DM. The assessment of sensorimotor deficits in the feet is fundamental and important.

The performance of functional tests and the assessment of muscle function, range of motion and sensitivity. It is worth highlighting some of the strategies that can be used for the initial assessment and periodic assessments of patients related to sensory and motor aspects. The dynamometer to measure the maximum isometric strength and the manual muscle function test are used to assess the muscle strength of the lower limbs. In addition to the goniometric being an important resource for measuring the range of motion of the ankle, the possibility of functional assessment of the lower limbs, provision of a nylon monofilament tuning fork (8-9) and a specimen metallic(8) for the evaluation, respectively, of vibratory, tactile and thermal sensitivities is also fundamental for the approach of the patient. Strategies for the assessment of functional capacity are also reported, the six-minute walk test if the sit-up test and balance assessment (PORTES, 2015).

Physiotherapy works to assess the risk of developing diabetic neuropathy and stimulate nerve fiber regeneration. Physiotherapy is also responsible for health education activities, such as providing diabetic patients with general guidelines such as adequate control of diabetes, the importance of monitoring blood glucose, what are their acute and chronic complications, importance of a healthy lifestyle and balanced nutrition, main foot care, use of adequate footwear, correct posture and other information that contributes to an improvement in the patient's quality of life. It also acts in the assessment of the risk of developing diabetic neuropathy and stimulation of nerve fiber regeneration and when the ulcer is already installed, it acts in the treatment of the disease and in the prevention of further complications, with the help of electrotherapeutic resources for the restoration of functional activities. and patient's quality of life (BARRILE SR, et al, 2013).

Diabetic foot wound treatments

There is a lack of knowledge of nurses and nursing technicians on the prevention of diabetic foot and amputations in hospital institutions and Basic Health Units. in addition to the knowledge of protocols to reduce the incidence of these injuries in the hospital environment. The professionals' lack of knowledge requires the need to implement educational campaigns to prevent and care for patients already affected by this problem (BERNARDES LO & JURADO SR, 2018).

Diabetic wounds tend to heal slowly and are often associated with difficult-to-resolve infections that, in most cases, require surgical interventions. This condition is aggravated by the reduced circulation in the lower limbs (especially from the knees to the feet), caused by atherosclerosis, which promotes a reduction in the caliber of the arteries (microangiopathy) and the progressive destruction of the nerves that reach the foot and which, in turn, cause reduced sensitivity (proprioception and epicritic touch) and consequent change in body weight distribution on the plantar surface, favoring the appearance of hyperpressure injuries. Ineffective protection and accidental injuries can cause ulcerations that, in more severe cases, lead to the amputation of part or all of the limb. This is because the feet are vulnerable parts to diabetic complications, as they are daily exposed to repeated trauma (CARDOSO, 2010).

Wound closure is a complex process, depending on several factors, social, economic, nutritional, technical support, however, the factor that interferes with healing is directly related to the elimination of continuous compression on the affected body region. Non-surgical treatments for foot wounds advocate cleaning the wound, debridement, use of ointments and industrialized dressings. It is worth remembering that the prevention and treatment of pressure injuries deserve individualized care, based on prior scientific knowledge and new technologies (BERNARDES LO & JURADO SR, 2018).

Care

Nurses have a fundamental role in the care process, however, they must rethink their practices and academic training, regarding nursing performance and actions, seeking to identify early the risks and complications that affect the individual with diabetic foot. This purpose is achieved when using the nursing consultation as a working tool in order to perform anamnesis and physical examination accompanied by sensitivity tests (BRANDÃO, 2020).

In primary care, nurses play a key role, since they have the first contact with the patient during the nursing consultation, the nurse must carry out the anamnesis, an opportune moment to get to know the patient, the physical examination must be done in detail, the Nursing consultation is very important in the assessment, prevention and treatment. A assistência de enfermagem vai desde o monitoramento da glicemia, realização de curativos até o apoio psicológico. It is the nurse's role to guide patients and family members with Diabetes Mellitus, about the risks of developing diabetic foot, should guide them on the proper use of shoes, on a healthy diet and glycemic control (SILVA-FILHO et al., 2019).

Another strategy to be developed is the educational activity, being aware of its role as an educator in order to seek teaching and encourage self-care, calling attention to preventive care such as daily inspection, hygiene and hydration of the feet, encouraging the practice regular physical activity, blood glucose monitoring, nutritional status assessment, application of warm compresses and proper use of shoes. It is also important to guide users about daily foot washing with warm water, use of water bags, exposure to excessive cold, presence of domestic animals, lifting the feet, and using alcohol on the feet, in addition to being careful not to walk barefoot (BRANDÃO, 2020).

The nurse's role is of great importance for tracking complications to the point of avoiding damage, without sometimes needing large resources for quality consultation, thus keeping the patient in a reasonable prognosis. By providing comprehensive care to the client with diabetic foot, in addition to the participation of family members, they are fundamental means to provide greater adherence to compliance with self-care guidelines, as well as emotional support are key factors for the excellence of treatment (SOUZA et al., 2017).

IV. FINAL CONSIDERATIONS

In the research and analysis of the chosen literature, we found that Diabetes Mellitus is a chronic disease that can lead the individual to have several complications, with diabetic neuropathy being the most common and main cause of diabetic foot. Diabetic foot is the main cause of lower limb amputations. So that nursing can act in a preventive way and avoid the complications of diabetes mellitus, it is necessary to carry out the screening and early diagnosis of the disease, risk assessment, nursing consultation, educational activities, guidelines and health promotion, change of healthy lifestyle and aging taking into account the patient's social and economic conditions in a unique way, these preventive actions facilitate the diagnosis, treatment and prevention of complications.

Diabetic Foot is a serious complication that affects the patient's quality of life, making it impossible for the person to perform their daily activities such as leisure, family life, in addition to causing absenteeism at work and loss of work functions, so the nurse has a fundamental role in prevention, education and treatment of both diabetes and the treatment of chronic wounds, preventing and reducing amputations. Nursing has a great ally in the preventive process, as it uses the nursing consultation as a working tool in order to perform anamnesis and physical examination accompanied by sensitivity tests, thereby identifying risk factors for diabetic foot, encouraging the patient not to abandon treatment.

An ideal program for the prevention of diabetic foot needs to provide health education for the individual with diabetes and their caregivers, for health teams in hospitals and primary health care professionals.

Need a system to detect all people at risk, including annual foot examination of all people with diabetes, improve access to measures to reduce the risk of foot ulceration, such as podiatric care and provision of adequate footwear, quick access to prompt and effective treatment of any foot wound or infection, audit of all aspects of the service to identify and resolve issues and ensure that the local service meets acceptable standards of care, an overall structure designed to meet the needs of patients requiring chronic care, not just attending to patients who seek care when the problem is already installed.

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