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CASE REPORT NURSING CARE IN Ny. R WITH DIABETES MELLITUS IN THE JABAL RAHMA ROOM OF THE HAJI HOSPITAL MEDAN IN 2023

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ABSTRACT

Background: Diabetes mellitus, or more commonly known as diabetes, is a serious, chronic disease, where glucose levels in the blood increase because the human body cannot produce enough insulin hormones or cannot use the insulin produced effectively (International Diabetes Federation, 2019) . According to WHO (2019), a person is considered to be suffering from diabetes mellitus if the results of checking blood sugar levels show values including fasting blood sugar levels ≥ 126 mg/dl, blood sugar levels two hours after eating ≥ 200 mg/dl, and instant blood sugar levels ≥ 200 mg/dl. Many individuals may not realize they have diabetes in its early stages. According to IDF records in 2015, of the estimated 415 million adults who suffer from diabetes worldwide, around 193 million (almost 50%) are unaware of the condition. In fact, it is estimated that another 318 million adults have impaired glucose tolerance, known as prediabetes, and have the potential to develop diabetes in the future. This figure exceeds the total population of many countries. In Asian countries, more than 50% and even up to 85% of diabetes sufferers experience a similar situation. In Singapore, which has an advanced health care system, this figure is only around 20%.Objective: This research aims to provide nursing care to patients Mrs. R with diabetes mellitus in 2023 Method: The method used is a descriptive method in the form of a case study to explore the problem of nursing care for patients with diabetes mellitus in the Jabal Rahma Room, Haji General Hospital, Medan, using a nursing process approach including assessment, diagnosis, intervention, implementation and evaluation. Results: The research results showed that patients received care for three days with their complaints partially resolved

Keywords: diabetes mellitus, nursing care, signs and sympto

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INTRODUCTION

The pancreas is a body organ that has a rather long shape and is located retroperitonally, in the upper part of the abdomen, in front of the Lumbar Vertebrae I and II. The head of the pancreas is close to the head of the duodenum, while the tail touches the spleen. The pancreas receives its blood supply from the superior lieval and mesenteric arteries. One of the main functions of the pancreas is as an endocrine gland consisting of the islets of Langerhans, groups of oval cells of which there are approximately 1-2 million in the human body. Alpha (α) cells in the islets of Langerhans produce insulin, while other cells produce polypeptides. Structurally, the pancreas is a soft, lobulated organ, divided into:a. The head of the pancreas, the widest part located to the right of the abdominal cavity and in the groove of the duodenum. b. The body of the pancreas, the main part located behind the stomach and in front of the first lumbar vertebra.c. Tail of the pancreas, the sharper part on the left and adjacent to the spleen.

The Langerhans islands have several important functions, including: a. Regulates nutritional homeostasis by controlling insulin secretion.b. Inhibits the secretion of glycogen and pancreatic polypeptide.c. Maintains the balance of glycogen in the body. The pancreas is a body organ that has a rather long shape and is located in the retroperitonium, the upper part of the abdomen, in front of the Lumbar Vertebrae I and II. The head of the pancreas is close to the head of the duodenum, while the tail touches the spleen. The pancreas receives its blood supply from the superior lieval and mesenteric arteries. One of the main functions of the pancreas is as an endocrine gland consisting of the islets of Langerhans, groups of oval cells of which there are approximately 1-2 million in the human body. Alpha (α) cells in the islets of Langerhans produce insulin, while other cells produce polypeptides. Structurally, the pancreas is a soft, lobulated organ, divided into:a. The head of the pancreas, the widest part located to the right of the abdominal cavity and in the groove of the duodenum.b. The body of the pancreas, the main part located behind the stomach and in front of the first lumbar vertebra.c. Tail of the pancreas, the sharper part on the left and adjacent to the spleen. The Langerhans islands have several important functions, including:a. Regulates nutritional homeostasis by controlling insulin secretion.b. Inhibits the secretion of glycogen and pancreatic polypeptide.c. Maintains glycogen balance in the body.

Islets of Langerhans have four types of cells that must be produced, namely: Alpha cells, which account for around 20 to 40% of the total, produce glucagon which acts as a hyperglycemic factor or increases blood sugar levels, Beta cells, which account for around 60 to 80%, function regulate and control blood sugar levels and help glucose enter cells or produce insulin, Delta cells, which produce somatostatin, are responsible for inhibiting the secretion of the growth hormone insulin and gastrin, and contribute about 5 to 15%, F cells, which contain and produce pancreatic polypeptide

The pathophysiology of diabetes is divided into two types: type I diabetes and type II diabetes. Both types experience increased blood sugar levels, but the pathophysiological mechanisms are different. Type 1 diabetes is caused by damage to pancreatic β cells, which interferes with insulin production. This can be caused by the body's autoimmune reaction which attacks the pancreatic β cells, which produce antibodies such as anti-islet cell antibodies (ICA). The reaction between β cells and ICA antibodies causes damage or destruction of pancreatic β cells. Meanwhile, in type II diabetes, damage or

disruption of insulin receptors results in abnormal insulin function. Even though insulin production by pancreatic β cells in the body is normal or even increased, glucose still cannot enter the cells effectively because insulin receptors are resistant or damaged on the cell surface. As a result, glucose that should be metabolized in cells remains circulating in the blood, causing an increase in blood sugar levels (Putri Sagita, 2021). Diabetes can be classified into several types, including type 1 DM, type 2 DM, gestational diabetes mellitus, and other variants of DM (Ikrima, 2019).

Type 1 Diabetes Mellitus is caused by autoimmune damage to beta cells, which generally results in an absolute lack of insulin.The rise in diabetes mellitus is linked to changes in societal lifestyle patterns, particularly among urban residents (Tasman, 2017). Lifestyle shifts, such as high-calorie diets combined with insufficient physical activity, predispose individuals to insulin resistance, ultimately leading to type 2 diabetes (Fatia, 2012). Meanwhile, Type 2 Diabetes Mellitus occurs due to resistance to insulin in peripheral tissues, accompanied by progressive defects in insulin secretion, increased gluconeogenesis production, and is influenced by environmental factors such as obesity, unhealthy lifestyles, and diets high in carbohydrates.Gestational diabetes mellitus is a diabetic condition diagnosed in women during pregnancy, possibly due to glucose intolerance or the first discovery of this condition during pregnancy. The causes may involve genetic abnormalities in beta cell function, disorders of the pancreas (such as cystic fibrosis), or use of certain medications. Diabetes mellitus affects the psychological and social adaptation as well as the physical well-being of patients, leading to a challenging regimen for diabetes management (Younis et al., 2017). Diabetes, one of the oldest diseases known to humans, has the full name Diabetes Mellitus, derived frothe Greek words "Siphow" which means pipe, and "sugar", describing uncontrolled , symptoms, namely the release of sweet urine because it contains sugar (glucose).

According to Sulastri (2022), clinical signs and symptoms of diabetes mellitus include:Polyuria (frequent urination), Polydipsia (often feeling thirsty), Polyphagia (often feeling hungry), Weight loss for no apparent reason. Apart from that, there are also other symptoms, such as: Complaints of weakness and lack of energy Tingling sensation in the hands or feet Susceptible to bacterial or fungal infections Itchy feeling on the skin Blurred vision Slow wound healing, and so on.According to Bachri (2022), complications associated with diabetes are classified as follows: a. Acute and Chronic Complications Hypoglycemia: Occurs when blood glucose levels fall below normal limits due to a lack of glucose in circulating insulin. Hyperglycemia: Occurs when caloric intake exceeds available insulin or glucose utilization, resulting in increased blood glucose levels. Hyperglycemia Hyperosmolar Nonketotic Coma (HHNK): An acute metabolic complication common in older patients with type 2 diabetes mellitus. Diabetic Ketoacidosis (DKA): Occurs when insulin levels are very low, causing hyperglycemia, severe glucosuria, decreased lipogenesis, increased lipolysis, and formation of ketone bodies. b. Chronic Metabolic Complications Chronic complications usually appear 10-15 years after diagnosis of diabetes mellitus and include: Macrovascular Disease (Large Blood Vessels): People with diabetes have a higher risk of developing atherosclerosis, which affects coronary, peripheral and cerebral blood circulation. Microvascular Disease (Small Blood Vessels): Affects the eyes (retinopathy) and kidneys (nephropathy); controlling blood glucose levels is important to delay or prevent microvascular, and macrovascular complications. Diabetic Neuropathy: Damage

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to the kidney blood vessels; The main risk factor is poor control of blood glucose levels. Retinopathy: Increases damage to the small blood vessels in the eyes, can cause blindness if not treated. Proteinuria: The presence of protein in the urine, derived from plasma proteins, is a sign of kidney disease; increased glomerular permeability is the direct cause. Ulcers and Gangrene: Gangrene is the death of some body tissue due to lack of blood supply, which can occur in people with diabetes. According to (Perkeni, 2021), the diagnosis of Diabetes Mellitus (DM) is determined based on examination of blood glucose and HbA1c levels. The criteria for diagnosing DM are as follows: If fasting blood glucose levels reach or exceed 126 mg/dL, this is considered an indication of diabetes. “Fasting” in this context refers to not consuming calories for at least 8 hours before the examination, If blood glucose levels reach or exceed 200 mg/dL two hours after an Oral Glucose Tolerance Test (OGTT) by drinking 75 grams of glucose, it is considered a sign of diabetes, If the blood glucose level reaches or exceeds 200 mg/dL, and there are classic complaints of diabetes or a hyperglycemic crisis, this is considered an indication of diabetes, If the HbA1c level reaches or exceeds 6.5% based on standard methods as determined by the National Glycohaemoglobin Standardization Program (NGSP) Diabetes Control Complications Trial assay (DCCT), this is considered a sign of diabetes.

METHOD

The method used is a descriptive method in the form of a case study to explore the problem of nursing care for diabetes mellitus patients in the Jabal Rahma Room, Haji Hospital Medan, using a nursing process approach including assessment, diagnosis, intervention, implementation and evaluation. Observations were carried out on 26-30 September 2023, there were 3 patients being treated for diabetes mellitus. Among the three patients, one person suffered from diabetic foot wounds on the right side. Primary data refers to information obtained directly by researchers from data sources or study participants. Primary data was collected through interviews and direct anamnesis with family members. This data includes the patient's identity, medical history, daily routine at home, as well as physical examination of the elderly, including measuring blood sugar levels. Meanwhile, secondary information used in this writing was obtained from medical documents or medical records at the Medan Haji General Hospital. This document records patient visits for medical examinations. How to make a case study The technique applied is a descriptive method in the form of report writing case studies that show a problem and its solution three days which is done directly

Interview

-A question and answer process with patients, families and medical staff is carried out to collect subjective data about the care problems faced by patients.

-Observation is the second step in collecting data. Nurses observe patient behavior and health developments. The physical examination is carried out simultaneously with the interview, focusing on the patient's functional abilities. The purpose of a physical examination is to determine the patient's health status, identify health problems, and collect basic data to design a treatment plan. These include: inspection, palpation, percussion, auscultation.

RESULT AND DISCUSSION

In the research results, the role of nurses is very influential in providing care to patients in the process of healing the disease suffered by the patient.

The nursing diagnosis in this case is:

1. blood glucose instability b.d inaccuracy of blood glucose monitoring
2. Disruption of skin/tissue integrity b.d Peripheral neuropathy. Hypothermia related to infectious process
3. Hypothermia related to infectious process
4. Acute pain related to physiological injuring agents blood glucose monitoring

5. Risk of nutritional deficit b.d Inability to digest food
6. Risk of activity intolerance due to unfitness physical status.

1. Observation
• identify possible causes of hyperglycemia due to consuming foods high in sugar
• Identify classic causes of insulin requirement increase.
• monitor blood glucose levels.
• monitor for signs and symptoms of hyperglycemia.
Therapeutic
• provide oral fluid intake.
• consult a doctor if any signs of hyperglycemia persist or worsen.
Education
• educate patients to keep checking their blood glucoseask for adherence to diet and exercise, such as frequent physical activity
• teach diabetes management such as using insulin or oral medication, resulting in the patient knowing how to use insulin and taking oral medication: metformin.

2. Observation
•monitor wound characteristics, color, smell.
•monitor for signs of infection
Therapeutic
•clean with Nacl electrolyte fluid
•schedule position changes
-right tilt left tilt position
Education
•explain the signs and symptoms of infection
•arrange foods that are high in fiber and protein
•recommend wound equipment procedures such as
Collaboration-.
collaborated on the purchase of the antibiotic ceftriaxone

3. Observation
•Identify the causes of hyperthermia and disease processes
•monitor body temperature
•monitor for complications due to hyperthermia
Therapeutic
•provide a cool environment Turn on the air conditioner and open the curtains and windows
•loosen the resulting clothing
•give oral fluids to replace the linea
education
•recommend bed rest
collaboration
•give IV drugs and electrolyte fluids

4. observation
•identify location, characteristics, duration, frequency, quality, intensity of pain
•identification of pain scales, identification of factors that aggravate or relieve pain
therapeutic
•give non-pharmacological techniques
•environmental control increases pain
•Sleep rest facilities
education
•Explain the causes of painful trigger periods
•Explain pain relief strategies, encourage independent monitoring of pain •teach collaborative non-pharmacological techniques
•collaboration in administering analgesic drugs

5. observation
•monitor food and fluid intake and output as well as calorie needs
therapeutic
•Weigh yourself regularly. discuss eating behavior and amount of physical activity.
•make behavioral contracts such as weight targets.
•go to the bathroom if you vomit.
•provide positive reinforcement.
•plan a home care treatment program such as counseling or medical
education.
•Suggest keeping a diary of feelings and food triggers.
•teach proper diet management
collaboration
• collaboration with a nutritionist regarding target weight, calorie requirements and food choices

6 Observation
•Identify interference
bodily functions that result in fatigue
Therapeutic.
•Do passive and/or active range of motion exercises
Education
•Encourage lying down
•Suggest carrying out activities in stages
•Suggest contacting a nurse if signs and symptoms of fatigue do not decrease
•Teach coping strategies to reduce fatigue
Collaboration

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•collaborate with nutritionists about increasing food intake.
evaluation
S: Patient reports still feeling pain., O: Pain scale 4, Blood Pressure: 129/90 mmHg, Temperature: 37.4°C, Respiratory Rate (RR): 22x/minute, Heart Rate (HR): 88x/minute, A: Problem partially resolved, P: Action terminated, S: The patient still feels pain and shows a wound on his right toe, O: Pain scale 4, Blood Pressure: 129/90 mmHg, RR: 22x/minute, Temperature: 37.4°C, HR: 88x/minute, A: Problem partially resolved, P: Action continues, S: Patient reports still having high blood glucose levels., O: Blood glucose level 175 mg/dL, A: The problem has not been resolved, Q: Intervention continues, S: The patient reports that he still experiences difficulty in carrying out activities., O: Blood Pressure: 134/90 mmHg, Temperature: 37.2°C, RR: 22x/minute, HR: 88x/minute, A: The problem has not been resolved, P: Action continues.

CONCLUSION

The conclusion is that nursing care was carried out where the patient was treated in the Jabal Rahma room for three days with
six nursing diagnoses and actions carried out by the room staff and during the three days of treatment the patient had begun to improve slightly from the condition when the patient first came to the Haji Medan General Hospital.

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