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Nursing Care For Patients With Post Debridement Diabetic Ulcers With Moist Wound Healing Innovation Interventions At General Ahmad Yani Hospital, Metro City

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ABSTRACT

Background & Objective: Diabetes is one of the problems caused by chronic metabolic disorders characterized by high sugar levels accompanied by metabolic disorders of carbohydrates, lipids, and proteins as a result of insufficient insulin function. The purpose of this study was to determine the effect of moist wound healing on post debridement diabetic ulcers. Descriptive research with a case study approach in multiple cases. **Method:** Data collection methods used surgical nursing care assessment sheets and Bates-Jensen Wound Assessment Tools (BWAT) wound assessment sheets. The study used 2 patients with the same criteria **Result:** The results of nursing care obtained in patient 1 are tissue integrity disorders, instability of blood glucose levels, and knowledge deficits. Patient 2 had problems with tissue integrity disorders, physical mobility disorders, and knowledge deficits. After nursing care was carried out, it was found that in patient 1 there was a decrease in wound score from 40 to 37 after moist wound healing treatment. Instability of blood sugar levels has not been resolved, patients get insulin therapy. The knowledge deficit was resolved on the second day. In patient 2, there was a decrease in wound score from 37 to 35 after moist wound healing treatment. Physical mobility disorders have not been resolved and the knowledge deficit was resolved on the second day. **Conclusion:** Suggestions for patients and families can use the booklet media made by researchers as a guide for wound care, wound observation, diabetic diets, and drug compliance.

Introduction

Diabetes is one of the problems caused by chronic metabolic disorders characterized by high sugar levels accompanied by metabolic disorders of carbohydrates, lipids, and proteins as a result of insulin function insufficiency. Insufficiency of insulin function can be caused by impaired or deficient insulin production by beta Langerhans cells of the pancreas gland, or caused by lack of responsiveness of body cells to insulin.

The International Diabetes Federation explains that Indonesia is the fifth country with the most people with diabetes in the world. Based on the International Diabetes Federation (IDF) report, there are 19.5 million Indonesians aged 20-79 who have the disease in 2021. The first position is occupied by China with 140.9 million people with diabetes. Overall, IDF interpreted that there were 537 million people with diabetes last year. Meanwhile, more than 6.7 million people are expected to die from the disease (Mahdi, 2022).

Data reported by the International Diabetes Federation as many as 9.1-26.1 million people with DM have the potential to develop diabetic ulcers each year (Everett & Mathioudakis, 2020). Compared to the United States and the worldwide prevalence, which ranges between 1.4% and 5.9%, the prevalence of diabetic ulcers in Indonesia is high, as 12% in hospitals and 24% in community settings. In Indonesia, the prevalence of diabetic ulcers is recorded at 15% and often ends in disability and death (Angkasa et al., 2021). In Indonesia, the incidence of diabetic ulcers in DM patients has reached 25% throughout their lives. Diabetic ulcers occur in 15-25% of patients with DM and more than 2% per year between 5 to 7.5% of patients with neuropathy (Sukartini et al., 2023).

In Indonesia alone, data on the prevalence of diabetes mellitus from Riskesdas (2022) showed that the number of people with diabetes in Lampung province amounted to 32,148 people. From the data obtained, people with diabetes take a variety of different treatments, some of these treatments are 82.6% of people with diabetes undergoing treatment with anti DM / OAD drugs from medical personnel, 2.2% use insulin injections, 8.6% use anti DM / OAD drugs from medical personnel and insulin injections, but 6.5% do not undergo any treatment (Riskesdas, 2022).

Uncontrolled diabetes mellitus can cause several complications including complications in the kidneys, complications in the cardiovascular system, and diabetic ulcer complications (Decroli, 2019). The definite impact experienced by decubitus patients is damage to tissue and skin integrity. Damage to tissue and skin integrity is a condition where a person is at risk of damage to the epidermis and dermis tissue in the skin layer, called the risk of skin integrity disorders (Juliathu et al., 2021).

Diabetic ulcers are one of the most burdensome complications of diabetes. Ulcers that do not heal are caused by neuropathy and vasculopathy in peripheral tissues. Diabetic ulcers are a problem that has often arisen now where wounds on the feet of people with diabetes mellitus are caused by an infection that attacks into the subcutaneous tissue. If this diabetic ulcer is not treated properly, the healing process will take a long time, and the risk factors for infection are even higher if the infection is too severe such as peripheral neuropathy, amputation can also be performed to prevent the spread of infection to other tissues (Rahman, 2019). Diabetics with ulcer complications are difficult to manage due to damage to blood vessels to the wound site. As a result, antibiotics, oxygen, food substances, leukocytes, and others are

difficult to reach the location of the ulcer. This situation hinders the healing process and endangers the life of the sufferer (Sukartini et al., 2023).

Some of the ways to treat diabetic ulcers are diabetic wound care, when in the hospital wound care is given to the area that has an ulcer, one of the common ways is to cover the wound with a bandage and replace it regularly or periodically. The next action that will be taken is the administration of antibiotics where the administration of antibiotics aims to prevent infection from spreading, drugs to control blood sugar will also be given to diabetic ulcer patients. Another action that can be taken in patients with diabetic ulcers is debridement (Angriani et al., 2019).

This debridement action is carried out by removing dead tissue from a wound, the dead tissue can be seen, the color looks more pale, light brown and even wet or dry black. The method used to carry out the debridement procedure is the surgical method. The purpose of surgery is to drain pus, minimize tissue necrosis by decompressing compartment pressure in the foot and removing infected tissue (Setiawan Herno et al., 2020).

According to Everett & Mathioudakis (2023) in their research, debridement plays an important role in wound infection control. However, just like other invasive procedures, debridement is also accompanied by several risks of complications such as pain, damage to healthy skin tissue, and infection. If the post debridement wound is not properly cared for, infection will be higher. In patients with diabetes mellitus, diabetic foot disease is more prone to infection and is associated with peripheral arterial disease accelerated by direct damage to nerves and blood vessels due to high glucose levels. Diabetic foot wound healing is also impaired due to the inhibition of the collagen synthesis phase. If this is not treated properly, necrosis can occur again in the area that has been debrided, if this tissue death is widespread, the wounded body part can no longer be saved and must be amputated. As many as 14.3% will die within a year after amputation and as many as 37% will die 3 years postoperatively (Setiawan Herno et al., 2020).

Based on this, the role of nurses is very important in providing post debridement nursing care, especially in wound care. The current method of wound care is moist wound healing, which is more effective than conventional methods because it is easy to install, can adjust to the shape of the wound, easy to remove, comfortable to wear, does not need to change dressings frequently, absorbs drainage, compresses and immobilizes wounds, prevents new wounds from mechanical injury, prevents infection, improves hemostasis by pressing the dressing (Primadani & Safitri, 2021). This method also keeps the wound in a moist condition, thereby increasing the rate of tissue epithelialization, accelerating tissue autolysis, minimizing wound infection, and reducing pain, especially during dressing changes so that wound healing is more effective (Angriani et al., 2019).

Through a pre-survey conducted at Jend. Ahmad Yani Metro City Hospital in May 2024, there were 192 debridement actions with an average of 4 patients per day. From the number of debridement actions and the description that has been previously conveyed, the author is interested in taking a case study on post debridement diabetic ulcer patients with the intervention of moist wound healing wound care innovation at Jend. Ahmad Yani Metro City Hospital in 2024.

Objective

The purpose of this study was to determine the effect of moist wound healing on post debridement diabetic ulcers. Type of descriptive research with a case study approach in multiple cases.

Method

Data collection methods using surgical nursing care assessment sheets and Bates-Jensen Wound Assessment Tools (BWAT) wound assessment sheets. The study used 2 patients with the same criteria.

Results

Assessment is carried out by interview, observation, physical examination, and patient medical record results. Assessment of the first patient showed that the patient came to the emergency room on June 28, 2024 at 06.30 with complaints of a wound on the right leg. Assessment on June 28, 2024 at 14.00 the patient said there was a wound on the right leg, the wound had been ± 10 days. The wound appeared because it was hit by a standard motorcycle. The patient said he had blood sugar since 14 years ago. The patient said he was weak. The patient's GDS was 349 mg%. Debridement and amputation were performed on June 26, 2024 at 20.00 WIB and finished at 20.45 WIB. There was a wound on the dextra pedis. The wound condition after the debridement procedure is that there is an incision to remove exudate. On the instep there were 5 incisions measuring 3 cm for 3 wounds, and 2 cm for 2 wounds. The incision wound on the sole of the foot measured 8 cm. and the wound on the right digti 3 measured 7 cm long and 3 cm wide. wound depth The entire skin layer was lost with extensive destruction, destruction of muscle tissue, bone. The wound edges are clearly not fused with the wound bed. No caverns, yellowish and adherent necrotic tissue easily removable. Less than 25% covered with necrotic tissue. Purulent exudate type. Large amount of exudate in more than 75% of the wound dressing. The color of the skin around the wound after the debridement procedure is bright red to the touch. There is no swelling or edema. There is no induration. Bright red flesh-like tissue. Less than 25% epithelialization. Previous medical history Mrs. T said she has had blood sugar since 14 years ago, and had a wound on her leg approximately 2 years ago, but it healed. Family history of the patient, Mrs. T said her mother had a history of blood sugar.

In the second patient, the patient came to the emergency room and was assessed on June 26, 2024 at 07.30 with complaints of a wound on the left leg since 2 weeks ago. The wound appeared due to soaking the foot in fish therapy. The patient said he did not know what could cause diabetic wounds to appear. The patient said he had blood sugar since 5 years ago. The patient's GDS was 133 mg%. The patient looked bedridden. Debridement and amputation were performed on June 26, 2024 at 4:00 pm and finished at 4:30 pm. Wound condition There was a wound on the sinistra pedis. The wound size was 10 cm long and 3 cm wide and in the toe area was 5 cm wide. wound depth The entire skin layer was lost with extensive destruction, damage to muscle tissue, bone. The wound edge is clearly not fused with the wound bed, thick, no GOA, yellowish necrotic tissue that is adherent but easily removed. No necrotic tissue. Bloody exudate type. The wound is moist but exudate is not observed, the skin color around the wound is dark red or purple and or not pale, no swelling, no induration, no granulation tissue. Previous medical history Mrs. S said she had a

history of blood sugar since 5 years ago, and had a wound on the foot also one year ago but was examined and treated at a doctor's independent practice and healed. The patient had experienced a stroke in April 2022. Partial stroke sinistra leg and left hand weakness. Family history, Mrs. S said her family such as her father, mother, and husband have blood sugar. Her mother and husband also had the same injury as the patient. The family has a history of high blood pressure and stroke.

The data that the author has obtained from the two patients during the assessment is that both patients have had blood sugar for a long time and have had ulcers before but healed. This is in line with the theory put forward by Decroli (2019) which says that one of the complications of type 2 diabetes is diabetic foot ulcers (UKD) (Decroli, 2019). The cause of this ulcer itself according to Noor (2022) the incidence of diabetic ulcers in diabetic patients can be caused by peripheral neuropathy, peripheral arterial disease, foot deformities, foot trauma and impaired resistance to infection (Noor et al., 2022). Both patients have wet wounds which can occur due to blockage of blood vessels in the lower extremities, if a wound occurs in an area that has an obstruction, it is certain that this wound will be difficult to heal.

From the assessment, it was found that Mrs. T's wound was greater than Mrs. S's, in terms of her habits Mrs. T did not comply with the recommended diet and Mrs. T rarely took medicine so that her blood sugar was high and reached 349 mg%, while in Mrs. S, it was found that the patient was compliant with the diet and routinely took the medicine prescribed by the doctor so that her blood sugar was 133 mg%. According to the Indonesian Endocrinology Society (2021), the success of controlling blood sugar levels is not only by the drugs taken, but can be determined by the client's compliance with the eating arrangements that apply to him, the solution to arouse compliance is to provide information about his illness and good eating arrangements. Diabetics must pay attention to the nutritional patterns consumed. In carrying out the diet, people with type 2 diabetes mellitus must follow the 3J recommendations, namely the amount of food, type of food and food schedule. The type and amount of food that contains a lot of sugar and an irregular eating schedule can increase blood sugar levels. The amount of basal calories, which is 25-30 calories / kg of ideal body weight, depends on gender, age, activity, and nutritional status. Calorie needs in women are smaller than men. The right calorie requirement for women is 25kal/kgBB and for men is 30kal/kg BB (Soelistijo et al., 2021).

The assessment also found a history of diabetes in both families of the patient. Diabetes mellitus if the offspring of the mother is 50% of the father 30%, while the offspring of diabetes mellitus from both parents, the child will have diabetes mellitus as much as 80% (Herdman & Kamitsuru, 2022). According to Yusnanda et al., (2018) stated that pre-elderly people who have a hereditary history have a 2.4 times greater risk of suffering from diabetes mellitus than those without a hereditary history (Yusnanda et al., 2018). Diabetes has to do with heredity. Genes are factors that determine the inheritance of certain traits from a person to their offspring. However, the increased risk does not mean that the person will definitely suffer from diabetes. Heredity is a contributing factor to the risk of developing Diabetes Mellitus, this condition will be exacerbated by a poor lifestyle.

In the theory of assessment in post debridement patients who must be assessed are identity data, chief complaints, medical history, health function patterns, physical examination (Herdman & Kamitsuru, 2022). All assessment data that should be done has been done including supporting data. The assessment obtained from the two

patients showed a difference in the condition of the post debridement wound, the first patient had an unstable blood sugar condition and was not compliant with the therapy given. So that the post debridement wound still exudates a lot. In the second patient, the wound condition did not exudate, the patient was very careful with the diet and regularly took the therapy given. Both patients experienced knowledge deficits, the first patient had a knowledge deficit about diabetic diets and the second patient had a knowledge deficit about diabetic wounds.

Discussion

From the results of data analysis, it was found that the nursing diagnosis that appeared in both patients was tissue integrity disorder. In the first patient, the subjective data that supports this problem is that the patient said there was a wound on the leg. The wound has been ± 10 days. The wound appeared because it was hit by a standard motorcycle. The patient said he had blood sugar since 14 years ago. Meanwhile, the objective data is that there is a wound on the right leg. The condition of the wound after the debridement procedure is that there is an incision to remove exudate. On the instep there were 5 incisions measuring 3 cm for 3 wounds, and 2 cm for 2 wounds. The incision wound on the sole of the foot measured 8 cm. and the wound on the right digti 3 measured 7 cm long and 3 cm wide. wound depth The entire skin layer was lost with extensive destruction, destruction of muscle tissue, bone. The wound edges are clearly not fused with the wound bed. No caverns, yellowish necrotic tissue and adherent easily removable. Less than 25% covered with necrotic tissue. Purulent exudate type. Large amount of exudate in more than 75% of the wound dressing. The color of the skin around the wound after the debridement procedure is bright red to the touch. There is no swelling or edema. There is no induration. Bright red flesh-like tissue. Less than 25% epithelialization. Debridement and amputation were performed on April 12, 2022 at 20.00 WIB and completed at 20.45 WIB.

In the second patient, subjective data was obtained. The patient said there was a wound on the left leg since 2 weeks ago. The wound appeared due to soaking the foot in fish therapy. The patient said he had blood sugar since 5 years ago. The objective data is that there is a wound on the sinistra pedis. The wound size is 10 cm long and 3 cm wide and in the toe area is 5 cm wide. wound depth The entire skin layer is lost with extensive destruction, destruction of muscle tissue, bone. The wound edges are clearly not fused with the wound bed, thick, no GOA, yellowish necrotic tissue that is adherent but easily removed. No necrotic tissue. Bloody exudate type. The wound is moist but no exudate is observed, the skin color around the wound is dark red or purple and/or not pale, no swelling, no induration, no granulation tissue. Debridement and amputation were performed on April 17, 2023 at 4:00 pm and completed at 4:30 pm.

In the second patient, there was a knowledge deficit about diabetic wounds. Subjective data, namely the patient said there was a wound on the left foot since 2 weeks ago, the patient said the wound appeared due to soaking the feet in fish therapy, the patient said he did not know what could cause diabetic wounds to appear and the patient said he had blood sugar since 5 years ago. The objective data is that there is a diabetic ulcer on the left foot.

Indonesian Nursing Diagnosis Standards (2017) state that this diagnosis has major signs and symptoms for its objectives, namely showing behavior not as

recommended, showing a wrong perception of the problem. Minor signs and symptoms, namely for objective data, the patient undergoes appropriate examinations and shows excessive behavior (SDKI DPP PPNI Working Team, 2017).

Implementation is carried out in accordance with the theory taken based on interventions that have been formulated for both patients, for the first patient, namely wound care, hyperglycemia management, and health education. In the second patient, wound care with moist wound healing, mobilization support, and health education. The first thing to do is to build a trusting relationship, make a time contract, ask for signatures and fill out Informed Consent, conduct an assessment in the form of personal data, current complaints, medical history, and perform moist wound healing wound care every day. Do not forget to always monitor wound progress according to the Bates-Jensen Wound Assessment Tools (BWAT) wound observation sheet.

Nursing care is carried out for 3 days. Evaluation was carried out on June 28, 2024 the first patient obtained the results Debridement procedures were carried out at 20.00 WIB on June 27, 2024. Completed at 20.45 TTV: BP: 140/80mmHg, RR: 20x/min, Pulse: 86, SPO2: 99%, Temperature: 36.4oC. The characteristics of the wound after the debridement procedure were that there were incisions to remove exudate. On the instep there were 5 incisions measuring 3 cm for 3 wounds, and 2 cm for 2 wounds. The incision wound on the sole of the foot measured 8 cm. and the wound on the right digti 3 measured 7 cm long and 3 cm wide. wound depth The entire skin layer was lost with extensive destruction, destruction of muscle tissue, bone. The wound bed is clearly not fused with the wound bed. No caverns, yellowish and adherent necrotic tissue easily removable. Less than 25% covered with necrotic tissue. Purulent exudate type. Large amount of exudate in more than 75% of the wound dressing. The color of the skin around the wound after the debridement procedure is bright red to the touch. There is no swelling or edema. There is no induration. Bright red flesh-like tissue. Less than 25% epithelialization. Moist wound healing dressing applied.

There were differences in the wound healing process between the two patients, with the first patient's post debridement wound being wider and still exuding exudate. Blood sugar remained high and unstable because the patient felt weak if he did not eat, while in the second patient after treatment for 3 days, there was no exudate and the wound condition was better than the first patient.

Conclusion

It can be concluded that from the nursing care obtained in the first patient there was a decrease in wound score from 40 to 37 after moist wound healing treatment. Blood sugar instability has not been resolved, the patient received insulin therapy. The knowledge deficit was resolved on the second day. In the second patient there was a decrease in wound score from to 37 after moist wound healing treatment 42 to 35. Physical mobility disorders have not been resolved and the knowledge deficit was resolved on the second day.

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