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Application Of Modern Wound Care Using Moist Wound Healing Techniques In Diabetes Mellitus Patients

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Abstract. *Diabetes Mellitus often becomes a serious health problem in various developing and developed countries in the world. Most people with diabetes mellitus are at risk of developing diabetic ulcers. If not treated quickly it can develop into an infection. The newest wound healing methods currently have an important role in treating diabetic ulcers, one of which is Modern Dressing with Moist Wound Healing. The aim of this research is to identify the effectiveness of modern wound care using moist wound healing dressing techniques in healing diabetic ulcers at the Sering Road. The research design used in this study used a quasi-experimental design with a cross-sectional method approach. The sampling used was accidental sampling, namely 30 respondents. Based on the results of the Paired T-Test and Independent T-Test, the p-value was obtained (0.000 < α 0.05), in the control group, p value α = 0.080 (p > 0.05).Thus, it can be said that there is no effectiveness of modern wound care using moist wound healing dressing techniques in healing diabetic ulcers at the Sering Road. It is hoped that Sering Road can improve the quality and quality of modern wound care services using moist wound healing dressing techniques fordiabetic ulcer sufferers.*

Keywords: *Diabetic Ulcers, Modern Wound Care, Moist Wound Healing*

INTRODUCTION

Diabetes Mellitus is a metabolic disorder characterized by an increase in blood glucose due to a decrease in insulin secretion by pancreatic beta cells (Siregar, H.K., Butar Butar, S., Pangaribuan, S.M., Siregar, S.W., Batubara, 2023). The main risks commonly found in every diabetes mellitus sufferer include hypoglycemia, hyperglycemia, diabetic ketoacidosis, dehydration and thrombosis (Rusdi, 2020).

The Diabetes Mellitus criteria in the 2018 Riskesdas refer to theconsensus of the Indonesian Endocrinology Association (PERKENI) which adopted the American Diabetes Association (ADA) criteria. Accordingto these criteria, Diabetes Mellitus isconfirmed if the fasting blood glucose level is ≥ 126 mg/dl, or blood glucose 2hours after loading ≥ 200 mg/dl, or instant blood glucose ≥ 200 mg/dl with symptoms of frequent hunger, frequent thirst, frequent urination. small amounts of water, and weight loss (Ministry of Health of the Republic of Indonesia, 2018).

As the healing time for diabetes andmicroangiopathy takes longer, diabeticneuropathy can cause ulcers on the feet, deformity and can result in amputation. Foot ulcers in neuropathy often occur on the plantar surface of the foot, namely in areas that experience high pressure, such as areas covering the metatarsal heads or other areas covering bone deformities. Diabetic foot ulcers contribute to > 50% of diabetic foot ulcers and often do not cause pain accompanied by bruising. One of the complications of Diabetes Mellitus is neuropathy.

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Reduced sensation in the feet and isoften associated with foot injuries. Peripheral neuropathy can cause loss of sensation in the distal areas of the feet which has a high risk of developing foot ulcers and can even lead to amputation (Siregar & Siregar, 2022).

Based on data from the International Diabetes Federation (IDF), which states that since 2020, countries in the Arab-North African region and the Western Pacific have ranked first and second with the highest prevalence of diabetes in the population aged 20-79 years among 7 regions in the world, namely of 12.2% and 11.4%. The Southeast Asia region where Indonesia is located is ranked third with a prevalence of 11.3%. Indonesia is the only country in Southeast Asia on the list, so it can be estimated that Indonesia's contribution to the prevalence of diabetes cases in Southeast Asia (Indonesian Ministry of Health, 2020).

Based on data from the International Diabetes Foundation(IDF), it is stated that there were 1785 cases of Diabetes Mellitus sufferers who experienced complications ofneuropathy (63.5%), retinopathy (42%), nephropathy (7.3%),macrovascular (16%), microvascular (6%), diabetic foot wounds (15%) (Siregar et al., 2021). The majority of respondents carried out sterile wound care (53.3%),respondents carried out wound care with tools and materials that were lessavailable or incomplete (76.7%), andthe majority of respondents carried outwound care. not appropriate for diabetic wound care procedures (73.3%). While the prevalence of diabetic ulcer sufferers in the United States is 15-20%, the risk of amputation is 15-46 times higher compared to sufferers who do not experience diabetes mellitus.

Diabetic ulcer sufferers in the United States require high costs for treatment each year for Diabetes Mellitus sufferers. The prevalence of diabetic ulcer sufferers in Indonesia is around 15%, the amputation rate is 30%, the mortality rate is 32%, and diabetic ulcers are the most common cause of hospital admission at 80% for Diabetes Mellitus sufferers (Rassi, Y.E.T., Efendy,2023). Based on the data that has been described, there is an increase in the number of Diabetes Mellitus sufferers which has a major influence on the increase in complications in Diabetes Mellitus patients.

There are generally more cases of diabetes mellitus occurs more often in developing countries than developed countries (Infodatin, 2018). According to Basic Health Research (2023) in Southeast Asia region, there are 82 million cases of diabetes mellitus in 2022 and is expected to increase to 151 million in 2045. The increase in cases continues to occur every year in the Southeast Asia region ranks third in the world. In Indonesia This case of diabetes mellitus also occurs frequently, this led to Indonesia being occupied ranked 6th out of 10 major countries with The highest number of diabetes mellitus cases in Asia (Basic Health Research, 2023)

One complication that can cause problems is wounds on the feet that cause infection or diabeticulcers. The method of using ModernDressing with Moist Wound Healing in the diabetic ulcer treatment process can speed up the wound healing process. Moist Wound Healing is a method that aims tokeep the wound area always moist by using a moist dressing, or moist by maintaining the isolation of the woundenvironment made from occlusive and semi-occlusive materials. Moist WoundHealing supports the wound healing process so that natural tissue growth occurs which is moist and can expand ifthe amount of escudate is excessive, and prevents bacterial contamination from the outside.

Moist Wound Healing can speed up the wound healing process by 45% and can suppress the problem of inflammation and the development of scar tissue (Irwan et al., 2022). Based on research from Angriani et al., 2019 which states that healing ofdiabetic ulcers is effective, wound care is carried out using the moist wound healing method (Angriani et al., 2019). In line with research conducted by Oseet al., 2018 which states that the moist wound healing method tends to speed up the healing process of diabetic ulcers (Ose et al., 2018).

Based on the results of researchers observation, Sering Road has experience in treating wounds using moist wound healing dressing techniques and has made many developments in the wound healing period, and many diabetesmellitus patients have had successfultreatment. In interviews conducted by researchers with respondents who were undergoing wound care, they saidthat Sering Road more as a place to treat diabetes wounds, because the treatment was more modern and facilitated well. Based on this description, researchers are interested in conducting research on the effectiveness of modern wound care using the Moist Wound Healing Bandage Technique in Healing DiabeticUlcers at the Sering Road.

METHODS

The method used in this researchis quantitative research with a quasi-experimental design with a cross-sectional method approach. This designwas used because researchers wanted to see the effectiveness of modernwound care using the Moist Wound Healing Bandage Technique in Healing Diabetic Ulcers at the Jl. Sering No. 20, Sidorejo, Kecamatan Medan Tembung, Kota Medan, Sumatera Utara 20222. The research location was carriedout at the Sering Road. This research was carried out from January 01, 2024 to March 01, 2024. The population in this study wereall patients who underwent wound care at Sering Road . The sample in this study amounted to 30 people. The sampling technique in this research is nonprobability sampling with a sampling method, namelyaccidental sampling. The accidental sampling method is an accidental sampling method by taking cases or respondents who

happen to be present or available in a place according to the research context, so that researcherscan take samples from anyone they meet without prior planning.

RESULT AND DISCUSSION

Description of the characteristicsof respondents based on research results at the Sering Road. The research results showed thatthe distribution of respondents' characteristics based on age showed that the majority of respondents were aged 56-65 years (late elderly) as many as 9 respondents (30.0%), thisresearch is in line with the results of research conducted by (Primadani &Safitri, 2021) stating that age Respondents who healed diabetic foot wounds using the moist wound healingmethod were aged 40-60 years.

The distribution of respondentsbased on their latest level of education shows that the majority of respondents have a high school education, 13 respondents (43.3%). The distribution of respondents based onoccupation shows that 9 respondents (30.0%) work as Housewives (IRT). The distribution of respondentsbased on length of wound care showedthat 29 respondents (96.7%) had a length of wound care < 5 years. Based on the type of necrotic tissue, the majority of respondents hadno necrotic tissue type, 24 respondents(80.0%).

This research is in line with research conducted by (Harmiady et al., 2020) which stated that the type of necrotic tissue in respondent 1 started with a score of 4, namely sticky, black false scar tissue, to a score of 2 in the seventh treatment, namely white/grey,slough. easy to remove, whereas for respondent 2 the initial score was 5, sticky with firm borders, hard and had black aschar, in the seventh treatment the score was 2, namely white/grey,slough was easy to remove. Based on the amount of necrotic tissue, the majority of respondents hadno necrotic tissue, 23 respondents (76.7%).

Based on the amount of exudate, the majority of respondents had a smallamount of exudate: the wound surface was moist, the exudate soaked < 25% of the dressing, 11 respondents (36.7%). This research is in line with research conducted by (Harmiady et al., 2020) which stated that the amount of exudate was large, it became bloodywith little exudate and the woundlooked damp at the seventh meeting.

Based on the skin color around the wound, the majority of respondentshad pink skin color or normal skin colorfor each part of the wound, 18 respondents (60.0%). This research is in line with research conducted by (Harmiady et al., 2020) which stated that the skin color around the wound for the two respondents at the first meeting was a score of 5 and at the seventh meeting a score of 3, namely a change from hyperpigmentation to hypopigmentation or grayish.

Based on peripheral tissue induration, the majority of respondentshad no induration, 30 respondents(100.0%). This research is in line with research conducted by (Harmiady et al., 2020) which stated that thehardening of peripheral tissue saw adecrease of 2 levels in each respondent,namely respondent 1 from a score of 5 to 3 and respondent 2 from a score of 4to 2 in the seventh treatment where forscore 5, namely hardening > 4cm in thearea around the wound, score 4 hardening 2-4cm > 50% around the wound, score 3 <50% around the wound and score 2 hardening < 2 cm around the wound.

Based on granulation tissue, the majority of respondents had bright granulation tissue, red like flesh; 75% to 100% of wounds were filled by 16 respondents (53.3%). This research is in line with research conducted by (Harmiady et al., 2020) which stated that the granulation tissue of the two respondents experienced a decrease from the first treatment with a score of4 to 2 on the seventh day of treatment. It was seen that the granulation tissue from the first treatment was pink or dull or blackish. filled < 25% of the wound, while in the seventh treatmentthe bright red granulation color showed excess tissue growth which filled 75 to 100% of the wound.

Based on epithelialization, the majority of respondents had epithelialization <25% with 11 respondents (36.7%). Thisresearch is in line with research conducted by (Harmiady et al., 2020) which stated that epithelialization from a score of 5 to 4 from the two respondents who were given treatment where <25% of the wound was closed became 25% to <50% of the wound wasclosed in the seventh treatment. The results of this study are inline with the results of research conducted by (Ose et al., 2018) regarding the effectiveness of wound care with wet-dry and moist wound healing techniques in healing diabetic ulcers which was carried out using the hydrocolloid dressing method. It was found that with the moist wound technique The healing process is faster than using wet-dry.

CONCLUSION

Based on the results of research anddiscussion, it can be concluded that:

1. Based on the research results, thecharacteristics of respondents basedon age show that the majority of respondents are 56-65 years old (late elderly) as many as 9 respondents (30.0%), based on gender it shows that the majority of respondents are male, 17respondents (56.7%), based on the latest level of education, it shows that the majority of respondentshave a high school education as many as 13 respondents (43.3%), based on occupation shows that the respondents work as Housewives (IRT) as many as 9 respondents (30.0%), based on the length ofwound care shows that the respondents have Wound care < 5 years was 29 respondents (96.7%).
2. Based on research results, there is theeffectiveness of modern wound care using moist wound healing dressing techniques in healing diabetic ulcers at the Sering Road

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