

## **MODERN WOUND TREATMENT WITH MOIST WOUND HEALING EFFECTIVE FOR HEALING DIABETIC ULCUS**

**Ikrima Rahmasari<sup>1</sup>, Fabiola Francisca Martins<sup>2</sup>, Musta'in<sup>1</sup>, Iswanti Purwaningsih<sup>3</sup>**

<sup>1</sup>Universitas Duta Bangsa Surakarta, Jl. K.H Samanhudi No.93, Sondakan, Laweyan, Kota Surakarta, Jawa Tengah 57147, Indonesia

<sup>2</sup>Instituto Superior Cristal Dili Timor Leste

<sup>3</sup>Politeknik Kesehatan Karya Husada Yogyakarta, Jl. Tentara Rakyat Mataram No.11B, Bumijo, Kec. Jetis, Kota Yogyakarta, Daerah Istimewa Yogyakarta 55231, Indonesia

\*[ikrima\\_rahmasari@udb.ac.id](mailto:ikrima_rahmasari@udb.ac.id)

### **ABSTRACT**

Diabetes Mellitus is a metabolic disease that is chronic and requires ongoing medical care in a variety of ways that can reduce the risk of multi-factors beyond glycemic control. Uncontrolled diabetes mellitus will cause an increase in complications, one of which is diabetic ulcers. Achieving better wound healing is the main goal of diabetic ulcer management. Moisturizing dressings can provide a supportive environment for cells to carry out the wound healing process and prevent further damage or trauma. This study was to determine the effect of modern dressing with moist healing on diabetic ulcers. This type of research is a quantitative research with a quasi-experimental research design with an accidental sampling approach. Data was collected using demographic data and the Wocare For Indonesian Nurses (WINNERS) Scale assessment sheet which is a modified Bates-Jasen score to predict and evaluate the average score of wound healing. WINNERS scale consists of 10 assessments. The results of the intervention that have been carried out have shown a significant improvement in diabetic ulcers as assessed using the Bates Jensen Wound Assessment Tools. Based on the results and discussion, it was concluded that there was a significant effect of modern wound care using the moist wound healing method on the healing process of diabetic ulcers.

Keywords: diabetic ulcer; modern wound; moist wound healing

### **INTRODUCTION**

The increase in lifestyle changes in developing countries including Indonesia, especially in big cities causes an increase in the prevalence of non-communicable diseases, one of which is an inactive lifestyle or activity and exercise, being overweight or obese, consuming excess sugary foods and drinks, thus triggering the occurrence of obesity. Diseases, one of which is diabetes mellitus (Haskas & Restika, 2021). Diabetes Mellitus is a metabolic disease that is chronic and requires ongoing medical care in a variety of ways that can reduce the risk of multiple factors beyond glycemic control (American Diabetes Association [ADA], 2019). The International Diabetes Federation (IDF) (2017) reports that in 2017 around 425 million people suffer from DM and it is predicted to increase to 629 million people in 2045. A total of 10.3 million Indonesians have been diagnosed with DM and are ranked 6th in the world. The report from the Basic Health Research (RISKESDAS) of the Indonesian Ministry of Health (2018), that DM sufferers in Indonesia have increased by 2.0%, this number is greater than in 2013 which was 1.5%.

The increase in the number of DM results in an increase in complications of diabetes, namely diabetic ulcers. Diabetic ulcers are a type of chronic DM complication caused by vascular insufficiency and neuropathy (Supriyadi, 2017). The poor prognosis of the condition is infection which is the main cause of leg amputations. Thus, promotions for the prevention of diabetic ulcers and the prevention of amputations have been clearly conveyed by the IDF since 2005. Achieving better wound healing is the main goal of diabetic ulcer management (Basri, 2019). Wound care

performed on patients must be able to improve the wound healing process. The treatment provided is to provide a warm and moist environment to the wound. Moisturizing dressings can provide a supportive environment for cells to carry out the wound healing process and prevent further damage or trauma (Dimantika et al., 2020). Moist is the key to the Modern dressing method. The moist lock used aims to increase the fibrinolysis process, reduce infection, stimulate active cell formation and angiogenesis. This moist concept is carried out with closed wound care. Closed wound care produces moist conditions in the wound environment, so it can increase the wound healing process by 2-3 times compared to open wound care (Wijaya, 2018).

Wahyuni (2017) stated in a study that all patients (100%) experienced a process of tissue regeneration after being given moist wound care for 7 days. Subandi & Sanjaya (2017) also stated in their article that wound care with modern dressings is more effective than conventional methods. The case study aims to analyze the results of the implementation of wound care using moist wound healing techniques on diabetic wound healing.

## **METHOD**

This type of research is a quantitative research with a quasi-experimental research design with an accidental sampling approach. This research method is quasi-experimental, pre-test and post-test without using a control group. Total sampling technique was used in this study. The number of samples was 16 diabetic ulcer patients. Data was collected using demographic data and the Wocare For Indonesian Nurses (WINNERS) Scale assessment sheet which is a modified Bates-Jasen score to predict and evaluate the average score of wound healing. The WINNERS scale consists of 10 assessments in it, namely: wound area, wound stage, wound edges, GOA or undermining, skin color around the wound, edema, granulation, epithelialization, type and amount of exudate (Gitarja et al, 2018).

## **RESULTS AND DISCUSSION**

The results show that the respondent's characteristics data obtained by gender, type of wound, and age of the patient. Based on the frequency distribution, it shows that the majority of respondents are female, namely 10 respondents (62.5%) while male respondents are 6 respondents (37.5%). The type of respondent's wound obtained from the results of the frequency distribution, showed that the average type of chronic wound was 89.1% (14 people). Data on the age of the respondents in this study were 50-60 years old on average. The characteristics of the wound in this study consisted of 13 items contained in the Bates Jensen Wound Assessment Tools. The 13 items consisted of wound size, depth, wound edges, caves, type of necrotic tissue, amount of necrotic tissue, type of exudate, amount of exudate, skin color around the wound, edematous tissue, hardening of the peripheral tissue, granulation tissue, and epithelial tissue. The results of the intervention that have been carried out have shown significant improvement of diabetic ulcers as assessed using the Bates Jensen Wound Assessment Tools. The score shown is based on the results of the assessment of wound characteristics using BWAT, before the intervention showed a total score of wound characteristics of 21-40, namely 10 respondents (62.5%) and a decrease in score of 13 respondents (81.35%).

The results of this study indicate that there is an effect of wound care using modern dressings. The results of this study are in line with Adriani and Mardianti (2016) suggesting that modern dressings are able to affect the reduction of wound degrees. There is a decrease in the degree of wound caused

by the method of wound care with hydrocolloid which can maintain and maintain a moist balance, support the autolysis of necrotic tissue, thereby accelerating the regeneration of wound healing. Another supporting study, namely Gitarja et al (2018), stated that modern dressing (metcovazine) topical cream can function to maintain moisture in the wound and can facilitate tissue regeneration. This is related to the metcovazine content consisting of zinc/zinc based cream, chitosan and jelly oil which can be used as primary wound dressings. Another supporting study, Damsir et al (2018) stated that wound care with modern dressings (metcovazine) was effective in the wound healing process. This is related to modern dressings (metcovazine) topical therapy containing zinc, metronidazole and nystatin which functions to support autolysis debridement, maintain moisture in the wound area, remove necrotic tissue, control infection or bacterial invasion, accelerate the wound healing process, reduce pain when the dressing is opened and avoid trauma compared to conventional dressings tend to be dry so that it inhibits the healing process.

The principle of moisture in wound care includes preventing wounds from becoming dry and hard, increasing the rate of epithelialization, preventing the formation of eschar tissue, increasing the formation of dermis tissue, controlling inflammation and providing a more cosmetic appearance, accelerating the autolysis debridement process, can reduce the incidence of infection, cost effective, can maintain normal voltage gradient, maintain neutrophil activity, reduce pain, provide psychological benefits and easy to use. The results of this study are supported by research conducted by Dewi, S (2019) with the title "the use of modern dressings improves the healing process of diabetic wounds" where in this study, the treatment group was diabetic wound patients who were treated with modern dressing methods and as a comparison of diabetic wound patients who were treated with conventional dressing methods.

*The International Wound Bed Preparation Advisory Board (IWBPAB)* developed the concept of wound bed preparation with the aim of preparing the wound bed from necrotic tissue and infection to redder with an epithelialization process. This statement is in accordance with the theory of Falanga (2003) which is used, namely TIME management. T is tissue management, that is, tissue management at the wound bed by assessing the wound bed before determining which type of debridement to choose (autolysis debridement and conservative sharp wound debridement). I is infection-inflammation control, which is a way to overcome the development of the number of germs in the wound. There are several wound washing techniques, namely swabbing, water pressure, and irrigation. M stands for moist balance management, that is, wound moisture management. The goal of this management is to support wound healing by determining the dressing used, absorbing exudate, and protecting the skin around the wound. E is epithelialization advancement management, namely the management of wound edges, wound edges need to be considered so that the epithelialization process can take place effectively (Arisanty, 2013)

## **CONCLUSION**

Based on the results and discussion, it was concluded that there was a significant effect of modern wound care using the moist wound healing method on the healing process of diabetic ulcers.

## **REFERENCES**

- Adriani & Mardianti, T. (2016). Penggunaan Balutan Modern (Hydrocolloid) Untuk Penyembuhan Luka Diabetel Mellitus Tipe II. *Jurnal Iptek Terapan*, 10 (1).  
<https://doi.org/10.22216/jit.2016.v10i1.392>

- American Diabetes Association. (2019). Standards of Medical Care in Diabetes 2019. *Journal of Clinical and Applied Research and Education Diabetes Care*, 41(1)
- Arisanty, I. P. (2013). *Konsep Dasar Manajemen Perawatan Luka*. Jakarta : EGC
- Basri, H. M. (2019). *Pengalaman Pasien DM Tipe 2 Dalam Melakukan Perawatan Ulkus Diabetik Secara Mandiri*.
- Damsir, K., Irnayanti, R., Arifin Nu, R., Kabupaten Sidrap Sulsel, M., Stie Amkop, Pp., & Nani Hasanuddin, S. (2018). Analisis Manajemen Perawatan Luka Pada Kasus Luka Diabetik Di Instalasi Gawat Darurat (IGD) Rumah Sakit Arifin Nu'mang Kabupaten Sidrap. *Jurnal Kesehatan*, 1(2).
- Dimantika, A., Sugiyarto, S., & Setyorini, Y. (2020). Perawatan Luka Diabetes Mellitus Menggunakan Teknik Modern Dressing. *Interest: Jurnal Ilmu Kesehatan*, 9(2). <https://doi.org/10.37341/interest.v9i2.210>.
- Gitarja, W. S., Jamaluddin, A., Wibisono, A. H., Megawati, V. N., & Fajar, K. (2018). Wound Care Management in Indonesia : Issues and Challenges in Diabetic Foot Ulceration. *Wounds Asia*, 1(2).
- Haskas, Y., & Restika, I. (2021). Evaluasi Ragam Metode Perawatan Luka Pada Pasien Dengan Ulkus Diabetes : Literature Review. *Jurnal Keperawatan Priority*, 4(2).
- [IDF], I. D. F. (2017). IDF Diabetes ATLAS Eighth edition 2017. In *IDF Diabetes Atlas, 8th edition*, 46-49. [https://doi.org/http://dx.doi.org/10.1016/S0140-6736\(16\)31679-8](https://doi.org/http://dx.doi.org/10.1016/S0140-6736(16)31679-8).
- RISKESDAS. (2018). *Riset Kesehatan Dasar*. Jakarta : Badan Penelitian dan Pengembangan Kesehatan Departemen Kesehatan Republik Indonesia.
- Supriyadi. (2017). *Panduan Praktis Skinning Kaki Diabetes Melitus*. Jakarta : Deepubliasi.
- Wahyuni, L. (2017). Effect Moist Wound Healing Technique toward Diabetes Mellitus Patients with Ulkus Diabetikum in Dhoho Room RSUD Prof Dr. Soekandar Mojosari. *Jurnal Keperawatan*, 6(1). <http://jurnal.stikeswilliambooth.ac.id/index.php/Kep/article/view/161>
- Wijaya, I. M. S. (2018). *Perawatan Luka dengan Pendekatan Multidisiplin*. Yogyakarta : ANDI.