Indonesian Journal of Global Health Research
Volume 4 Number 3, August 2022
e-ISSN 2715-1972; p-ISSN 2714-9749
http://jurnal.globalhealthsciencegroup.com/index.php/IJGHR

APPLICATION OF THE USE OF *MODERN DRESSING* IN THE HEALING PROCESS OF DIABETIC FOOT ULCUS

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ABSTRACT

Diabetic foot ulcers are open sores that occur on the feet of DM patients caused by repeated pressure on the feet and is accompanied by the presence of peripheral neuropathy, deformity of the foot and development of infection which often complicates healing due to reduced arterial circulation. One alternative to pharmacological treatment is wound care with *modern dressing*, the purpose of choosing *modern dressings* is to support the wound healing process. The purpose of the study was to determine the application of *modern dressings* to the healing process of diabetic foot ulcers at the Erbe Mowcare Clinic, Pekalongan. The method used is descriptive to explain how the application of modern wound care dressings to the wound healing process in diabetic foot ulcer patients. This study provides intervention to 4 respondents who will be treated and compare the results before and after *modern wound dressing* with the observation sheet *BatesJansen Assessment Wound Tool.* The results obtained based on *the Bates-Janes Assessment Wound Tool* showed that the four respondents experienced positive changes in the wound healing process. Respondent 1 got a score of 25 to 18 in the *wound regeneration*, while respondent 2 got a score of 31 to 22 in the *wound regeneration category.* Respondent 3 got a score of 43 to 16 in the *wound regeneration*. Respondent 4 got a score of 45 to 28 with the category of *wound regeneration.* The application of *modern dressing* on the four respondents had an influence on the healing process of diabetic ulcers.

Keywords: bates-jansen assessment wound tool; diabetic foot ulcers; modern dressing

First Received	Revised	Accepted
08 May2022	12 June 2022	08 August 2022
Final Proof Received		**Published**
18 August 2022		28 August 2022

How to cite (in APA style)
Kartika, D., & Sukesi, N. (2022). Application of the use of Modern Dressing in the Healing Process of Diabetic Foot Ulcus. *Indonesian Journal of Global Health Research*, *4*(3), 481-494. https://doi.org/10.37287/ijghr.v4i3.1204.

INTRODUCTION

Degenerative disease is a medical term that is now increasingly popular . In the modern world, this disease is getting more and more common, even increasing very rapidly. In the past, infectious diseases caused many deaths so they were very feared. Now, with the rapid development of antibiotics and various treatments for infectious diseases, the mortality rate from infectious diseases has decreased drastically (Anies 2018). However, in fact degenerative diseases are increasing. The unhealthy lifestyle of modern society has triggered the number of degenerative diseases in society. Diabetes mellitus is a degenerative disease and chronic disease caused by high levels of sugar in the blood, which is accompanied by metabolic disorders. Normally, blood sugar is controlled by insulin, a hormone produced by the pancreas, which allows cells to absorb sugar in the blood (Agustuti & Aliyupiudin, 2019).

Diabetes caused 1.5 million deaths in 2012. Blood sugar higher than the maximum resulted in an additional 2.2 million deaths, increasing the risk of cardiovascular and other diseases. The percentage of deaths due to diabetes occurring before the age of 70 is higher in low- and

middle-income countries than in high-income countries (Hidayat et al., 2021). The number of people with diabetes has increased from 108 million in 1980 to 422 million in 2014, the prevalence of diabetes is increasing more rapidly in middle and low-income countries. In 2015, an estimated 1.6 million deaths were directly attributable to diabetes. Nearly half of all deaths from high blood glucose occur before the age of 70. WHO projects that diabetes will be the seventh leading cause of death by 2030 (WHO, 2017). Indonesia ranks seventh in the world for diabetes prevalence with an estimated number of 10 million adults. Indonesia is ranked below China, India, the United States, Brazil, Russia, and Mexico.

One of the nursing problems that need special handling in type II DM patients is the occurrence of damage to skin integrity that triggers the emergence of diabetic ulcers. Impaired skin integrity is skin damage to the dermis or epidermis (DPP PPNI Pokja SDKI Team, 2017). According to the PPNI DPP PPNI IDHS Pokja Team , the signs and symptoms of impaired skin integrity consist of major signs and symptoms as well as minor signs and symptoms. Major signs and symptoms of impaired skin integrity are: subjective (not available), objective: tissue or skin layer damage, while minor signs and symptoms are: subjective (not available), objective: pain, bleeding, redness, and hematoma.

According to the results of Hastuti's research in Purwanti & Maghfirah (2016), factors that influence the occurrence of foot injuries in people with diabetes mellitus include diabetes mellitus >10 years, cholesterol levels >200 mg/dL, HDL levels <45 mg/dl, patient non-compliance with diabetes mellitus diet, lack of physical activity, irregular foot care, and the use of inappropriate footwear. The impacts of diabetic ulcers include decreased physical health, increased pain and the need for medical care, reduced ability to carry out activities, and can cause anxiety due to the health conditions they experience (Br. Sidabutar et al., 2019). Patients with diabetes mellitus who previously had a history of diabetic ulcers at risk for recurrence. This is because the sufferers say they do not understand how to prevent recurrent ulcers (Purwanti & Maghfirah, 2016). Patient non-compliance in treatment procedures can slow down the wound healing process so that treatment takes longer (Agustuti & Aliyupiudin, 2019).

Prevention of widespread infection in diabetic foot wounds can be done with wound care. Diabetic wound management can be done with conventional and modern wound care techniques. Wound care management with conventional methods, the wound is only cleaned with normal saline or 0.9% NaCl solution and added with povidone iodine and then covered with dry gauze. The gauze dressing is a passive material and functions as a wound protector, maintains warmth, and covers the unpleasant appearance of the wound (Br. Sidabutar et al., 2019). Wound care methods that are being developed adhere to the principle of moisture balance called modern wound dressings (Kartika, 2015). This principle means maintaining and keeping the wound moist for the wound healing process, maintaining tissue fluid loss and cell death (Handayani, 2016). Maintaining the wound in moist conditions can help the healing process up to 45% and can reduce the risk of infectious complications so that they do not spread to other organs (Kusyati, 2016). There are 7 factors that hinder wound healing, namely age, infection, hypovolemia, hematoma, foreign body, ischemia, diabetes and medication (Agustuti & Aliyupiudin, 2019).

According to Damsir (2018) research, wound care using modern dressings is more effective than wound care. with conventional dressings on the healing process of diabetic wounds. Similar to the research conducted by Nurhaida (2017) that the effectiveness of modern dressing on the healing process of diabetic foot wounds. Conventional dressings are less able

to maintain wound moisture because NaCl will evaporate and make the gauze dry. Wound healing process with conventional methods occurs very slowly compared to modern wound care. This is because the gauze is replaced every day on the wound in the granulation process causing re-traumatization of the wound so that the wound healing process returns to the initial stage. Wounds with dry conditions cause the development of wounds to be hampered (Angriani et al., 2019).

According to the results of research conducted by Nontji (2015), modern wound dressings can stimulate the growth of cytokinins, thereby accelerating the wound healing process. In addition, in a study conducted by Fife, et al, (2012) in Gifari (2018), half of the wounds can be healed by the moist principle without further therapy. Modern wound care management puts forward the innovation of wound care products that are selected based on considerations of cost, comfort , and safety (Agustuti & Aliyupiudin, 2019). According to the results of research conducted by Tiara (2017), in Patients who were treated with modern dressings got a decrease in wound grade score of 7.5 with an average treatment cost of Rp. 335,000, while in patients with conventional wound care there was a decrease in wound grade score of 2.62 with an average treatment cost of Rp 234,375. The high cost does not mean the wound treatment is not effective. Wounds treated in conventional ways will require a longer time in treatment due to bleeding or re-trauma as a result of frequent dressing changes (Dimantika et al., 2020)

Based on data from Asia Pacific Wound Care (APWCC) up to 2012, in Indonesia, at least 25 out of 1000 hospitals have implemented modern wound care (Sutriyanto, 2015 in Fatmadona & Oktarina, 2016). Modern dressings are still rarely applied because of the lack of compensation provided by BPJS and the lack of support from hospitals to use modern dressings in wound care (Fatmadona & Oktarina, 2016). With the support of theory and research conducted on diabetic ulcer patients using wound care with modern dressings , the authors are interested in digging deeper into the application of modern dressings to wound healing. Based on the background description above that diabetic foot wounds accompanied by tissue death and bacterial infection can cause amputation or death, one of the efforts to prevent amputation is with good and optimal wound . managementhealing of diabetic ulcers?" Thepurpose of this study is to describe the process of healing diabetic wounds using modern dressings and to describe the use of modern dressings for healing diabetic ulcers.

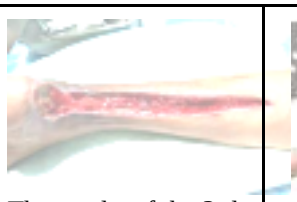
METHOD

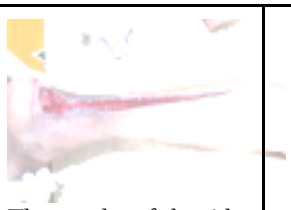
This type of research is descriptive research that describes implementation of wound care with Modern Dressing Techniques for accelerate the healing of diabetic foot ulcers. Subjects used in In the case study, there were 4 clients with the same case, namely diabetic ulcers. at the clinic Erbemowcare Pekalongan's terminal wound which was observed in depth.

RESULTS

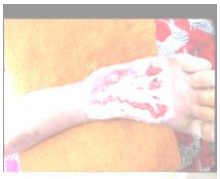
Table 1.
The Result of Observation

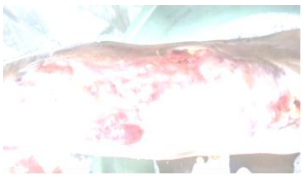
Patient 1	Patient 2	Patient 3	Patient 4
 The results of the observation of 2 dressings are still the same using metcovazin and alginate ointment, the results appear 50% granulation with epithelialization of about 25-50 %	 Results of the 2nd observation showed that the base color of the wound was yellow. It was found that the purulent exudate was green and abundant, had a bad odor, the skin around the wound was dry and the toes were edematous, there was no epithelialization. , no granulation seen was no granulation Wound care actions taken are: 1. Washing the wound using special soap and sterile water. then compressed with Stero-bac so that the infected or dead tissue is easy to perform a necrotomy, namely removing the tissue 2. Choosing a dressing and which is used, namely, foam, gauze, metcovazin, foam is used to maintain and make the wound moist and absorb exudate, gauze is used as as a secondary dressing to cover the wound and maintain moist and absorb exudate, metcovazin is an ointment that is applied to the wound to make granulation tissue and antimicrobial 3. Choose a wound dressing that is with a cohesive bandage	 Results Results of the 2nd observation found that the base color of the wound was yellow, there was a purulent exudate of green color and lots of it, bad smell, dry skin around the wound and edematous toes, no epithelialization , no granulation seen Wound care measures taken are: 1. Washing the wound using special soap and sterile water. then compressed with Stero-bac so that the infected or dead tissue is easy to perform a necrotomy, namely removing the tissue 2. Choosing a dressing and which is used, namely, foam, gauze, metcovazin, foam is used to maintain and make the wound moist and absorb exudate, gauze is used as as a secondary dressing to cover the wound and maintain moist and absorb exudate, metcovazin is an ointment that is applied to the wound to make granulation tissue and antimicrobial 3. Choose a wound dressing with a cohesive bandage.	 Results Results of the 2nd observation showed that the base color of the wound was yellow. There was a purulent exudate of the type, green and abundant, odorless, the skin around the wound was dry and the toes were edematous, there was no epithelialization, and there visible granulation Wound care measures taken are: 1. Washing the wound using special soap and sterile water. then compressed with Stero-bac so that the infected or dead tissue is easy to carry out a necrotomy action, namely removing the tissue after which it is given ozone therapy to improve blood circulation and kill bacteria 2. Choose a dressing and what is used, namely, foam, gauze, metcovazin, foam is used to maintain and moisten the wound and absorb exudate, gauze is used as a secondary dressing to cover the wound and maintain moist and absorb exudate, metcovazin is an ointment that is applied to the wound to make granulation tissue and antimicrobial 3. Choose a wound dressing with a cohesive bandage.

 The results of the 3rd observation were carried out by checking the GDS with the result of 110 mg/dl. The dressing used alginate is closed with a cohesive bandage.	 The results of the 3rd observation showed that the basic color of the wound was yellow, it was found that purulent exudate was green in color and abundant, had an unpleasant odor, the skin around the wound was dry and still edematous in the toes, there was no epithelialization around the wound, about 25% granulation tissue. Wound care actions taken are: 1. Washing the wound using special soap and sterile water. then compressed with Stero-bac so that the infected or dead tissue is easy to perform a necrotomy, namely removing the tissue 2. Choosing a dressing and which is used, namely, foam, gauze, metcovazin, foam is used to maintain and moisten the wound and absorb exudate, gauze is used as as a secondary dressing to cover the wound and maintain moist and absorb exudate, metcovazin is an ointment that is applied to the wound to make granulation tissue and is antimicrobial 3. Choose a wound dressing with a cohesive bandage.	 The results of the 3rd observation showed that the basic color of the wound was yellow, it was found that purulent exudate was green in color and abundant, had a bad odor, the skin around the wound was dry and still sore. edema in the toes, no epithelialization around the wound, granulated tissue about 25%. Wound care actions taken are: 1. Washing the wound using special soap and sterile water. then compressed with Stero-bac so that the infected or dead tissue is easy to perform a necrotomy, namely removing the tissue 2. Choosing a dressing and which is used, namely, foam, gauze, metcovazin, foam is used to maintain and moisten the wound and absorb exudate, gauze is used as as a secondary dressing to cover the wound and maintain moist and absorb exudate, metcovazin is an ointment that applied to the wound to make granulation tissue and antimicrobial 3. Choose a dressing that covers the wound with a cohesive bandage.	 The results of the 3rd observation that the base color of the wound is yellow, it is found that the purulent type exudate is green and abundant, smells bad, the skin around the wound is dry and the toes are edematous. , no epithelialization, no visible granulation Wound care measures taken are: 1. Washing the wound using special soap and sterile water. then compressed with Stero-bac so that the infected or dead tissue is easy to perform a necrotomy, namely removing the tissue 2. Choosing a dressing and which is used, namely, foam, gauze, metcovazin, foam is used to maintain and make the wound moist and absorb exudate, gauze is used as as a secondary dressing to cover the wound and maintain moist and absorb exudate, metcovazin is used an ointment that is applied to the wound to make granulation tissue and antimicrobial 3. Choose a wound dressing that is with a cohesive bandage.

			
The results of the 4th observation showed that the basic color of the wound was red, purulent exudate was yellow-green in color, the skin around the wound was dry and the toes of the right foot were edematous, about 100% granulated tissue with an epithelialization of about 50%-75%. Wound care actions taken are: 1. Washing the wound using special soap and sterile water and then flushing with betel leaf water to remove bacteria in the wound. After that, it is compressed with Stero bac so that the infected or dead tissue is easy to perform a necrotomy, namely removing the tissue 2. Selecting the dressing and which is used, namely, Metcovazin. regular dressings, foam, calcium alginate, and gauze pampers and tensocrepe. Metcovazin regular is an ointment that is applied to the wound to accelerate epithelialization and make the wound moist, then foam and calcium alginate are used to absorb fluids and maintain moist wound. 3. Choose a wound dressing that is with a	The results of the 4th observation are known to have a red base color, yellow and moderate purulent exudate was found, bolts are not tasty, the skin around the wound is dry and the toes are still edematous, there is no epithelialization of the wound, the granulation tissue is about 25%. Wound care actions taken are: 1. Washing the wound using special soap and sterile water. then compressed with Stero-bac so that the infected or dead tissue is easy to perform a necrotomy, namely removing the tissue 2. Choosing a dressing and which is used, namely, foam, gauze, metcovazin, foam is used to maintain and make moist. wound and absorb exudate, gauze is used as a secondary dressing to cover the wound and maintain moist and absorb exudate, metcovazin is an ointment that is applied to the wound to make granulation tissue and antimicrobial 3. Choose a wound dressing with a cohesive bandage.	The results of the 4th observation are known to color red base, reduced odor, dry and edematous skin around the wound, no epithelialization of the wound, about 50% granulation tissue. Wound care actions taken are: 1. Washing the wound using special soap and sterile water. then compressed with Stero-bac so that the infected or dead tissue is easy to perform a necrotomy, namely removing the tissue 2. Choosing a dressing and which is used, namely, foam, gauze, metcovazin, foamused to maintain and moisten the wound and absorb exudate, gauze is used as a secondary dressing to cover the wound and maintain moist and absorb exudate, metcovazin is an ointment that is applied to the wound to make granulation tissue and antimicrobial 3. Choose a wound dressing with a cohesive bandage	The result of the 4th observation is that the base color of the wound is yellow and purulent exudate is found. green color and lots of it, bad smell, dry skin around the wound and edematous toes, no epithelialization, no granulation seen . Wound care measures were taken, namely: 1. Washing the wound using special soap and sterile water. then compressed with Stero-bac so that the infected or dead tissue is easy to perform a necrotomy, namely removing the tissue after which ozone therapy is given to improve blood circulation and kill bacteria 2. Choose and used, namely, foam, gauze, metcovazin, foam is used to maintain and moisten the wound and absorb exudate, gauze is used as a secondary dressing to cover the wound and maintain moist and absorb exudate, metcovazin is an ointment that is applied to the wound to make tissue granulation and antimicrobial 3.Choose a wound dressing with a cohesive bandage

cohesive bandage and added with diapers so it doesn't seep because the wound releases a lot of pus.			

 Th e results of the 5th observation showed that the basic color of the wound was red, purulent exudate type greenish yellow and smelled bad, the skin around the wound was dry and edematous on the right toes, there was hypergranulation, about 100% granulation tissue with about 50% epithelialization. - 75%. The wound care measures taken were: 1. Washing the wound with the result using special soap and sterile water and then washing with betel leaf water to remove bacteria in the wound. After that, it is compressed with Stero bac so that the infected or dead tissue is easy to perform a necrotomy, which is to remove the tissue 2. Choose the dressing and use Metcovazin regular, foam, calcium alginate, and gauze pampers and tensocrepe. Metcovazin regular is an ointment that is applied to the wound to accelerate epithelialization and make the wound moist, then foam and calcium alginate are used to absorb fluids and	 The results of the 5th observation, known that the basic color of the wound was red, yellow and moderate purulent exudate was found, the odor was reduced, the skin around the wound was dry and the toes were still edematous, there was no epithelialization. In wounds, the granulation tissue is about 50%. The wound care measures taken were: 1. Wash the wound using special soap and sterile water. then compressed with Stero-bac so that the infected or dead tissue is easy to perform a necrotomy action, namely removing the tissue after which it is given ozone therapy to improve blood circulation and kill bacteria 2. Choose a dressing and what is used, namely, foam, gauze, metcovazin, foam is used to maintain and moisten the wound and absorb exudate,	 The results of the 5th observation revealed that the basic color of the wound was red, the smell was reduced, the skin around the wound was dry, there was no epithelialization of the wound, and the granulation tissue was about 70%. Wound care measures The steps to be taken are: 1. Washing the wound using special soap and sterile water. then compressed with Stero-bac so that infected or dead tissue is easy to perform a necrotomy, namely removing tissue 2. Choosing a dressing and which is used, namely, foam, gauze, metcovazin, foam is used to maintain and make the wound moist and absorb exudate, gauze is used as as a secondary dressing to cover the wound and maintain moist and absorb exudate, metcovazin is an ointment that is applied to the wound	 The results of the 5th observation revealed that the basic color of the wound was red, the smell was reduced, the skin around the wound was dry and the toes were still edematous, there was no epithelialization of the wound, and the granulation tissue was about 40%. The wound care actions taken were: 1. Wash the wound using special soap and sterile water. then compressed with Stero-bac so that the infected or dead tissue is easy to perform a necrotomy action, namely removing the tissue after which it is given ozone therapy to improve blood circulation and kill bacteria 2. Choose a dressing and what is used, namely, foam, gauze, metcovazin, foam is used to maintain and moisten the wound and absorb exudate, gauze is used as a secondary dressing

maintain moist wound. and given iodosorb powder for wound exudate and infection. 3. Choose a wound dressing that is with tensocrepe and added with diapers so it doesn't seep because the wound releases a lot of pus.	gauze is used as a secondary dressing to cover the wound and maintain moist and absorb exudate, metcovazin is an ointment that is applied to the wound to make granulation tissue and antimicrobial 3. Choose a wound dressing with cohesive bandage.	to make granulation tissue and antimicrobial 3. Choose a wound dressing that is with a cohesive bandage	to cover the wound and maintain moist and absorb exudate, metcovazin is an ointment that is applied to the wound to make granulation tissue and antimicrobial 3. Choose a wound dressing with cohesive bandage.
 The results of the 6th observation showed that the basic color of the wound was red, purulent exudate type greenish yellow and smelled bad, the skin around the wound was dry, hypergranulation had shrunk, granulated tissue was about 100% with 50%-75% epithelialization. The wound care actions taken were: 1. Washing the wound using special soap and sterile water and then washing it with betel leaf water to remove bacteria in the wound. After that, it is compressed with Stero bac so that the infected or dead tissue is easy to perform a necrotomy, which is to remove the tissue Choose the dressing and use Metcovazin regular, foam, calcium alginate, and gauze pampers and tensocrepe. Metcovazin regular is an ointment that	 The results of the 6th observation revealed that the basic color of the wound was red, there was a purulent exudate of yellow and medium color, unpleasant odor, the surrounding skin was not dry and the toes were still edematous, slightly epithelialized <25% in the wound, granulated tissue around the wound. 50%. Wound care actions taken are: 1. Washing the wound using special soap and sterile water. then compressed with Sterobac so that the infected or dead tissue is easy to perform a necrotomy, namely removing the tissue after which ozone therapy is given to improve blood circulation and	 The results of the 6th observation revealed that the base color of the wound is red, does not smell, the surrounding skin is not dry, looks slight epithelialization <25% of the wound, about 80% granulation tissue. Wound care actions taken are: 1. Washing the wound using special soap and sterile water. then compressed with Sterobac so that the tissue becomes infected or dead 2. Choose a dressing and which is used, namely, foam, gauze, metcovazin, foam is used to maintain and moisten the wound and absorb exudate, gauze is used as a secondary dressing to cover the wound and maintain	 The results of the 6th the base color of the wound is red, has no odor, the surrounding skin is not dry and the toes are still edematous. , there is a slight epithelialization <25% of the wound, the granulation tissue is about 50%. Wound care actions taken are: 1. Washing the wound using special soap and sterile water. then compressed with Sterobac so that the tissue becomes infected or dead 2.Choose a dressing and which is used, namely, foam, gauze, metcovazin, foam is used to maintain and moisten the wound and absorb exudate, gauze is used as a secondary dressing to

is applied to the wound to accelerate epithelialization and make the wound moist, then foam and calcium alginate are used to absorb fluids and maintain moist wound. and given iodosorb powder for exudate and infection wounds. 3. Choose a wound dressing that is with a cohesive bandage and added with diapers so it doesn't seep because the wound releases a lot of pus.	kill bacteria 2. Choose a dressing and which is used, namely, foam, gauze, metcovazin, foam is used to maintain and moisturise the wound and absorb exudate, gauze is used as a secondary dressing to cover the wound and maintain moist and absorb exudate, metcovazin is an ointment which applied to the wound to make granulation tissue and antimicrobial 3. Choose a dressing that covers the wound with a cohesive bandage.	moist and absorbs exudate, metcovazin is an ointment that is applied to the wound to make granulation tissue and 3. Choose a wound dressing, namely	cover the wound and maintain moist and absorbs exudate, metcovazin is an ointment that is applied to wounds to make granulation tissue and antimicrobial 3. Choose a wound dressing that is cohesive

DISCUSSION

Research subjects 1 to research subjects 4 both experience foot disorders due to diabetes mellitus to ulcers called diabetic feet, according to the opinion of Borley & Grace (2017) the term diabetic foot is used for foot disorders ranging from ulcers to gangrene It occurs in people with diabetes as a result of neuropathy or peripheral ischemia, or both. Based on the skin integrity status, the two research subjects experienced chronic wounds as evidenced by the occurrence of prolonged wound healing stages that were not in accordance with the normal time of wound healing. In subject 1 the wound has occurred since December 2021 being treated by erbe and in May 2022 the wound has 100% granulation which means it has failed to pass the time of the repair process and there has been an extension of the time of the wound healing process and in subject 2 the wound has occurred for 10 days since 5 May was treated by Erbe, the wound has 50% granulation which means it has failed to pass the time of the repair process and there is a lengthening of the wound healing process and subject 3 on May 5, the wound has occurred for 5 days since being treated by Erbe and in May 2022 the wound has 100 % granulation and almost closed, eating patterns are always maintained and regular in taking medication makes the 3rd subject tissue growth faster and the 4th subject is treated at erbe on 27 May the wound has 100% granulation which means it has failed to pass the repair process time and there is an extension of time the wound healing process when treated by erbe with an infected condition is marked by green exudate in the periphery This identification is based on the opinion of Perry & Potter (2016) that chronic wounds are wounds that fail to go through the repair process to restore the integrity of function and anatomy according to the stage and time required. caused by ulcers, friction wounds, secretions, pressure.

In research subjects 1 to research subjects 4, both apply wound dressing with the principle of moist wound healing according to Handayani (2016), which is to maintain and keep the wound environment moist to facilitate the wound healing process, maintain tissue fluid loss and cell death. Based on nutritional factors, it is known that subject 1 and subject 3 at the time of the

interview have difficulty eating and the portion consumed is usually one or more tablespoons and causes the patient to look weak besides that the subject also refuses to take blood sugar-lowering drugs this can hinder the healing process wounds due to inadequate nutrient intake in wound healing. while in subjects 2 and 4 seemed to be able to walk and not limp and subjects eat moderate portions and control the intake of sugar needs accompanied by the use of insulin this can affect the wound healing process where sugar levels in the body do not exceed normal limits. The wound of research subjects 1 can be seen that on the 4th observation, about 50%-75% of epithelialization has begun to close the wound compared to the 1st observation of 25%-50%, and the granulation tissue is 100% on the 5th observation the dressing is given. to accelerate and maintain epithelialization and granulation, namely by giving regular metcovazin which can provide moisture so that new cells can form, and on the 6th observation the epithelialization movement appears to move to close the wound but it is not significant and the exudate remains abundant and smells bad, the skin around the wound on the 1st observation looks no toes edema but on the 4th observation, the toes were edematous and the slough attached to the wound was reduced from the 1st observation, this was helped by dressing , namely foama and alginate which can maintain moisture in the wound so that the attached slough is easily removed.

In research subjects 2, it can be seen that in the 3rd observation, granulation was seen compared to the 1st treatment, the slough attached to the wound was also reduced, but there were no signs of epithelialization because the edges of the wound were not attached to the wound bed. The 5th observation showed that the granulation tissue was significantly granular compared to the 3rd observation but there were no signs of epithelialization and the wound edges had not yet fused with the wound bed, the 5th observation of exudate was also reduced. On the 6th observation, it appears that the granulation has filled half of the wound and the edges of the wound have begun to appear to merge with the wound bed, the epithelialization has also begun to appear slightly. The dressing used to speed up the granulation process is alginate which contains alginate gel (gel plus Antimicrobial) which can help granulation and clean bacteria in the wound. And on the 1st to 6th observation the toes still have edema and the skin around the wound is dry.

In the identification of the application of wound dressings on the wounds of research subjects 3, it can be seen that in the 4th observation, about 50%-75% of epithelialization had begun to close the wound compared to the 1st observation of 25%-50%, and the granulation tissue was 100% in the first observation.dressing ointment regular metcovazin which can provide moisture so that new cells can form, and on the 6th observation the epithelialization movement appears to move to close the wound but it is not significant and the exudate remains abundant and smells bad, the skin around the wound on the 1st observation looks no toes edema but on the 4th observation, the toes were edematous and the slough attached to the wound was reduced from the 1st observation, this was helped by dressings that is foam and alginate which can maintain moisture in the wound so that the attached slough is easily removed.

In research subjects 4, it can be seen that on the 3rd observation there has been granulation compared to the 1st treatment, it appears slough attached to the wound is also reduced, but there are no signs of epithelialization because the edges of the wound are not attached to the wound bed.observation showed that the granulation tissue was significantly granular compared to the 3rd observation but there were no signs of epithelialization and the wound edges had not yet fused with the wound bed, the 5th observation of exudate was also reduced. On the 6th observation, it appears that the granulation has filled half of the wound and the edges of the wound have begun to appear to merge with the wound bed, the epithelialization has also begun

to appear slightly. The dressing used to speed up the granulation process is alginate which contains alginate silver AG gel (gel plus Antimicrobial) which can help granulation and clean bacteria in the wound. And on the 1st to 6th observation the toes still have edema and the skin around the wound is dry.

Modern wound care on subjects 1 to 4 for the same dressing, the dressings used are metcovazin, foam, calcium alginate, and gauze because of the extensive wound condition and slough, therefore the wound must be in a moist state. Metcovazin regular in the form of a white ointment is used for all types of wounds with metronidazole and zinc functioning as autolysis debridement (melt necrotic tissue / maintain moist in the wound). foam made of polyurethane, non-adherent wound contact, highly absorptive, serves to absorb wound fluid. Calcium alginate is made from seaweed which turns into a gel when mixed with wound fluid to absorb wound fluid and stimulate the blood clotting process. In addition to the ointment, the dressing used is sterobac function to absorb exudate and antimicrobial. While the subjects 2,3, and 4 dressings used were alginate, foam, and gauze. Alginate is made from hydrogel with the addition of alginate which is able to absorb exudate and facilitates the wound to remain moist and granulated and contains antimicrobial properties to treat wound infections.

Seeing the development of wounds that have used modern dressings from research subjects 1 to 4, it can be concluded that modern wound dressings that use the principle of moist wound healing in accordance with the opinion of Potter & Perry (2015) are a moist environment that will provide support for epithelial movement and facilitate wound closure, Choosing a good dressing will support wound healing by providing a moist and continuous environment and according to Ronald (2017), a wound environment with a balanced humidity facilitates cell growth and collagen proliferation in a healthy non-cellular matrix. So the wound must be kept moist so that new cells are formed.

CONCLUSION

At the time of the wound healing process, subject 1 experienced an extension of the time of the wound healing process, normally it can be seen from the wound that has occurred for 6 months since the initial treatment by erbe in November 2021 and the condition of the wound at the time of the study of subject 1 for 100% granulation, 25%-epithelialization 50%, the skin around the wound was dry and had a lot of exudate and had an unpleasant odor, while subjects 2,3 and 4 also experienced an extension of the time of the wound healing process, normally seen from the wound that it had occurred 15 days since being treated by erbe on 5 May and 27 May 2022 and The condition of the wound at the time the researcher observed for granulation was not visible because the wound was filled with green exudate. The use of dressings can make the wound moist so that it can accelerate the wound healing process, so in the development of the wound, research subjects 1 continued to experience good but not significant improvement. Progress is seen in the 3rd wound care 25%-50% and the 6th wound care 50%-75%. Epithelialization continues to grow marked by the movement of epithelialization to the center of the wound so that it begins to close the wound. But the movement seems not significant and the amount of exudate is still large until the 6th observation accompanied by an unpleasant odor. Even though they both use modern dressings that can make moist, but the development of the wound is not significant, this factor can be seen from the amount of food consumed by the subject is very small. once and no appetite.

Research subjects 2 continue to experience significant development, it appears that tissue growth continues to granulate on the 6th observation 50% when compared to the 1st observation there is no granulation, also epithelialization on the 1st observation is not visible

but on the 6th observation it starts to appear < 25%. And the exudate was also reduced from the 1st observation which initially decreased a lot while on the 4th observation. The surrounding skin looks dry and the toes are edematous on the 1st observation butit is not dry but still edema in the toes. Research subjects 3 continue to experience significant development, it appears that tissue growth continues to granulate on the 6th observation >75% when compared to the 1st observation there is no granulation, also epithelialization on the 1st observation is not visible but on the 6th observation it starts to appear <25%. And the exudate was also reduced from the 1st observation which initially decreased a lot while on the 4th observation. The surrounding skin looks dry on the 1st observation, but on the 6th observation it is no longer dry and the tissue growth is faster because subject 3 regularly consumes drugs and maintains a very careful diet.

Research subjects 4 continue to experience significant development, it appears that tissue growth continues to granulate on the 6th observation 50% when compared to the 1st observation there is no granulation, also epithelialization on the 1st observation is not visible but on the 6th observation it starts to appear < 25%. And the exudate was also reduced from the 1st observation which initially decreased a lot while on the 4th observation. The surrounding skin looks dry and the toes are edematous on the 1st observation but on the 6th observation it is not dry but still edema in the toes.

REFERENCES

Agustuti, TD, & Aliyupiudin, Y. (2019). Hubungan Metode Perawatan Luka Modern Dressing dengan Tingkat Kepuasan Pasien Dalam Proses Perawatan Luka Diabetes Melitus di RS PMI Kota Bogor. Jurnal Ilmiah Wijaya, 11(1), 93–98. https://www.jurnalwijaya.com/index.php/jurnal/article/download/pv11n1p93/35/136

Amiatussolihah. (2020). Gambaran Efektivitas Penggunaan Balut Luka Modern Pada Pasien Ulkus Kaki Diabetik. Karya Tulis Ilmiah, 1–47. http://repository.ummat.ac.id/1711/1/COVER-BAB III.pdf

Angriani, S., Hariani, H., Dwianti, U., Kesehatan, P., & Makassar, K. (2019). Efektifitas Perawatan Luka Modern Dressing Dengan Metode Moist Wound Healing Pada Ulkus Diabetik Di Klinik Perawatan Luka Etn Centre Makassar. Politeknik Kesehatan Makassar, 10, 2087–2122. https://media.neliti.com/media/publications/316551-efektifitas-perawatan-luka-modern-dressi-942641dc.pdf

Br. Sidabutar, AM, Patty, RA, Simanjuntak, S., Kartika, L., & Aiba, S. (2019). Gambaran Pengetahuan Perawat Tentang Perawatan Luka Modern Dressing di Satu Rumah Sakit Swasta di Indonesia Barat. Jurnal Keperawatan Raflesia, 1(2), 77–86. https://doi.org/10.33088/jkr.v1i2.415

Dimantika, A., Sugiyarto, S., & Setyorini, Y. (2020). Perawatan Luka Diabetes Mellitus Menggunakan Teknik Modern Dressing. Interest : Jurnal Ilmu Kesehatan, 9(2), 160–172. https://doi.org/10.37341/interest.v9i2.210

Handayani, LT (2016). Perawatan luka kaki diabetes dengan modern dressing. Jember, Universitas Muhammadiyah, 6(2), 149–159. http://jurnal.unmuhjember.ac.id/index.php/TIJHS/article/viewFile/133/83

Haskas, Y., Ikhsan, & Restika, I. (2021). Evaluasi Ragam Metode Perawatan Luka Pada Pasien Dengan Ulkus Diabetes: Literature Review. Jurnal Keperawatan Priority, 4(2), 12–28. http://jurnal.unprimdn.ac.id/index.php/jukep/article/download/1713/1001/5157

Hidayat, S., R, NM, Astuti, P., & Ponirah. (2021). LITERATURE REVIEW EFEKTIVITAS MODERN DRESSING HYDROCOLLOID TERHADAP PENYEMBUHAN LUKA PADA PASIEN DIABETES MELLITUS STIKes Bani Saleh , Jawa Barat , Indonesia. Jurnal Keperawatan Merdeka, 1(perawatan luka), 81– 92. https://jurnal.poltekkespalembang.ac.id/index.php/jkm/article/download/987/413/

Irwan, M., Indrawati, Maryati, Risnah, & Arafah, S. (2022). Efektivitas perawatan luka modern dan konvensional terhadap proses penyembuhan luka diabetik. Jurnal Ilmiah Mappaddis, 4, 237–245. http://ojs.lppmuniprima.org/index.php/mappadising/article/download/291/240/

Izzaty, RE, Astuti, B., & Cholimah, N. (2021). Gambaran Tingkat Pengetahuan Tentang Ulkus Diabetikum Pada Pasien Diabetes Mellitus Di Desa Adat Padangaji Tahun 2021. Angewandte Chemie International Edition, 6(11), 951–952., 5–24. http://repository.poltekkes-denpasar.ac.id/7158/3/BAB II Tinjauan Pustaka.pdf

Journal, MN, Cetak, I., & Online, I. (2022). 3 1,2,3. 4, 13–26. https://web.archive.org/web/20220204115943id_/http://ejurnalmalahayati.ac.id/index.php/manuju/article/download/5324/pdf

Khoirunisa, D., Hisni, D., & Widowati, R. (2020). Pengaruh modern dressing terhadap skor penyembuhan luka ulkus diabetikum. NURSCOPE: Jurnal Penelitian Dan Pemikiran Ilmiah Keperawatan, 6(2), 74. https://doi.org/10.30659/nurscope.6.2.74-80

Muliadi, A., Kunoli, FJ, & Nurjanah. (2018). Tingkat Penyembuhan Luka Diabetik dengan Teknik Modern Dressing di Klinik Risky Wound Care Center Palu. Jurnal Kolaboratif Sains, 252–267. https://jurnal.unismuhpalu.ac.id/index.php/JKS/article/download/356/237/

Mustamu, AC, Mustamu, HL, & Hasim, NH (2020). Peningkatan Pengetahuan & Skill Dalam Merawat Luka. Jurnal Pengabdian Masyarakat Sasambo, 1(2), 103. https://doi.org/10.32807/jpms.v1i2.483

Ningsih, NER (2019). Universitas Muhammadiyah Magelang Tahun 2019. 64. Putri, RC (2020). PENERAPAN PERAWATAN LUKA TEKNIK MODERN UNTUK MEMPERCEPAT PENYEMBUHAN PADA LUKA DIABETES MELITUS TIPE 2 LUBUKLINGGAU TAHUN 2020. https://repository.poltekkespalembang.ac.id/files/original/38d700ae548175aec52bccd8c2c00f7e.pdf

Rika, F., & Elvi, O. (2016). Aplikasi Modern Wound Care Pada Perawatan Luka Infeksi di RS Pemerintah Kota Padang. Nurse Jurnal Keperawatan, 12(2), 159–165. http://ners.fkep.unand.ac.id/index.php/ners/article/download/147/120

Samosir, MH (2020). Literature Review : Gambaran Tingkat Pengetahuan Pasien Diabetes Mellitus Dengan Perawatan Luka Menggunakan Modern Dressing. 25–36. http://ecampus.poltekkes-medan.ac.id/jspui/handle/123456789/4472

Sukmawati, E., Sari, NN, & Chriswinda BM, A. (2019). Hubungan Tingkat Pengetahuan Pasien Diabetes Mellitus dengan Perawatan Luka Menggunakan Tekhik Modern Dressing (Studi RLS Sidoarjo). Jurnal Ilmiah Keperawatan Stikes Hang Tuah Surabaya, 14(1), 35–42. https://doi.org/10.30643/jiksht.v14i1.52

Tusyanawati, VM, Sutrisna, M., & Tohri, T. (2020). Studi Perbandingan Modern Dressing (Salep Tribee) dan Konvensional Terhadap Proses Penyembuhan Luka PADA PASIEN POST OPERASI APENDIKTOMI. Jurnal Persatuan Perawat Nasional Indonesia (JPPNI), 4(1), 9. https://doi.org/10.32419/jppni.v4i1.172