



MODERN DRESSING WOUND CARE EFFECTIVE HEALING DIABETIC WOUNDS IN ISAM LIGHT HOLISTIC CARE

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ABSTRACT

Diabetes mellitus has a risk of causing complications, one of which is diabetic foot injury. The nurse who plays the role of nursing care is very important in the process of healing diabetic wounds. Wound care with modern wound dressing methods can prevent infection in diabetic foot sores and is effective against the process of healing diabetic wounds. This study aims to determine the effect of modern dressing treatment methods on diabetic wound healing in the Independent Nursing Practice of Isam Cahaya Holistic Care Makassar City. The research design used was observational analytic with a pre-experimental design approach without pretest-posttest design. Sampling was done by accidental sampling with a sample of 15 people. The results of the Wilcoxon test with significance level $p < \alpha = 0.05$. The results showed that there was an average difference between the results of the condition status / wound healing before and after the wound treatment of the modern dressing method with a value of $p = 0.001$. The conclusion of this study is that the wound dressing modern method affects the healing of diabetic wounds in the Independent Nursing Practice of Isam Cahaya Holistic Care Makassar City. It is expected that nurses can improve their knowledge and skills about wound care with modern dressing methods to be able to provide appropriate and quality wound care.

Keywords: Diabetic; Modern Dressing; Wound Healing

INTRODUCTION

Diabetes mellitus (DM) has become a public health problem in various countries, including Indonesia. DM can be fatal, disrupt various body organs and spread to other diseases if not handled properly [1]. According to the International Diabetes Federation-7 2015, in the body's metabolism the hormone insulin is responsible for regulating blood glucose levels. This hormone is produced by the pancreas which

will be used as an energy source. If there is a deficiency of insulin in the body it can cause hyperglycemia [2]. Non-communicable diseases (PTM), including DM, are now a serious threat to global health. Data obtained 70% of total deaths in the world and more than half the burden of disease. Indonesia also faces a DM threat situation similar to the world [3]. In line with this, Basic Health Research (Risksedas) shows a significant increase in the prevalence of diabetes, from 6.9% in 2013 to 8.5% in 2018; thus the



estimated number of sufferers in Indonesia reaches more than 16 million people who are then at risk of developing other diseases [4]. The number of people with DM in Indonesia is predicted to continue to increase. This is related to increased life expectancy, unhealthy diets, obesity and modern lifestyles such as lack of activity or exercise due to busyness and demands of work completion. The results of the Basic Health Research (Riskesdas) in 2018 that diabetics in Indonesia by 1.5% estimated the absolute number of people with DM is around 10 million. As for the province of South Sulawesi, the prevalence of DM has also increased. In 2018 DM prevalence in South Sulawesi was 1.3% [5]. DM is a global epidemic problem that if it is not immediately dealt with seriously will result in an increase in the impact of significant economic losses especially for developing countries in Asia and Africa. IDF data also shows that the direct costs of managing diabetes reach more than 727 billion USD annually or around 12% of global health financing. There are several complications that occur in people with DM namely, eye disease, cardiovascular disease, pregnancy, diabetic foot injuries, oral health, kidney disease, and nerve damage [6]. Increasing the number of DM events also increases the incidence of DM complications, one of which is diabetic foot injury. In the United States about 2.5% of people with DM develop diabetes foot injuries annually and 15% of diabetics suffer from foot injuries undergoing amputation. Previous studies showed the prevalence of risk factors with diabetic foot injuries as much as 55.4% and the prevalence of diabetic foot injuries as much as 12% [7]. Nurses as the most and foremost health workers have a very

important role in the process of healing diabetic wounds. Prevention efforts that can be done to prevent complications of DM is early monitoring. Prevention of infection in diabetic wounds can be done with wound care, wound care that is developing at this time is to use the principle of moisture balance known as modern wound dressing, declared to be more effective in the process of healing diabetic wounds [8]. For this reason, it is necessary to choose the right wound dressing method to optimize the wound healing process. Modern Wound dressing is one method of treating wounds in a closed and moist way that is focused on keeping the wound from dehydration and improving the wound healing process. Damp wounds can accelerate fibrinolysis, angiogenesis, reduce the risk of infection, the formation of growth factors, and the formation of active cells [9]. The results of research on the effectiveness of modern dressing on the wound healing process both acute and chronic wounds. However, there have been no previous studies that used diabetic chronic wound care using modern primary packaging epithelial cream. Based on the results of a preliminary study conducted by researchers in the Independent Nursing Practices of Isam Cahaya Holistic Care Makassar City on June 17, 2019 data obtained from January-May 2019 that patients with diabetes mellitus with diabetic foot injuries reached 15 people.

METHOD

In this study the design used was analytic observational research with pre-experimental design without pretest-posttest design. The study was conducted for 6 months, from



January 2020 to June 2020 in the Independent Nursing Practices of Isam Cahaya Holistic Care Makassar City. The research sample of 15 people taken using the Accidental Sampling technique in which the sample was taken by taking existing cases or available at a research site. Sample criteria in this study were patients undergoing diabetic wound care at the Independent Nursing Practice of Isam Cahaya Holistic Care Makassar City. The instrument used to collect data used an observation sheet of the Isam Light Clinical Wound Assessment scale which was modified from the Betes Jensen Wound Assessment Tool scale to determine the state of diabetic wounds before treatment. This instrument assesses wound size, depth, wound edges, caves, type of exudate, amount of exudate, skin color around the wound, edema tissue, granulation tissue and epitalization. Each item has a score of 1-5. The higher wound score, indicates that degeneration of the wound occurred. The treatment method in this study was by cleaning the patient's wound by washing with wound soap, removing dead tissue and dressing the wound with modern dressing methods. After 3 days, the condition of the wound was assessed and treated again. The number of wound care patients need as much as 10 times for 1 month to determine the wound healing process.

RESULT

Table 1. Frequency Distribution in Mandiri Nursing Practices Isam Cahaya Holistic Care Makassar City in 2020

Karakteristik Responden	n	%
Jenis Kelamin		

Laki-Laki	4	26,7
Perempuan	11	73,3
Umur		
Lansia Awal	7	46,7
Lansia Akhir	6	40,0
Manula	2	13,3
Total	15	100%

Source : Data Primer 2020

Table 1 shows that of the 15 respondents there were the most sexes, namely 11 women (73.3%) respondents. While the most common age categories were 7 (46.7%) of the elderly and 17 years of age at least 2 (13.3%).

Table 2. Frequency Distribution Status of Wound Conditions Before and After Wound Care Modern Dressing Methods

Status Kondisi Luka	n	%
Kondisi Luka Sebelum Perawatan		
Regenerasi Luka	0	0
Degenerasi Luka	15	100,0
Kondisi Luka Setelah Perawatan		
Regenerasi Luka	5	33,3
Degenerasi Luka	10	66,7
Total	15	100%

Source : Data Primer 2020

Table 2 shows the 15 respondents overall respondents were 15 (100%) with the status of the wound condition in the category of wound degeneration. Whereas after being given wound care, the highest number of wound degeneration categories was 10 (66.7%).



Table 3. Analysis of the Effect of Modern Dressing Wound Care Methods on Healing Diabetic Wounds in the Independent Practice of Isam Cahaya Holistic Care Makassar City

Penyembuhan Luka	N	Mean	SD	P Value
Sebelum	15	38,20	3,764	0,001
Sesudah		21,53	7,472	

Source : Data Primer 2020

Table 3 The average value of wound healing before being given a wound treatment modern dressing method is 38.20 which means that the wound has been denegated. For the average value of wound healing after given wound care modern dressing method is 21.53 where there is a decrease in the value of wound healing. Wilcoxon test statistic results obtained value = 0.001 or <0.05 , it can be concluded that there is an influence of wound care modern dressing methods on diabetic wound healing.

Diabetic wounds are a type of complications due to diabetes mellitus sufferers. If left untreated it will become a chronic wound and become infected. Chronic wounds are characterized by changes in the color of the wound, widened necrotic tissue or slough, bleed easily, odor wound conditions, widespread tissue damage and even a cave / undermining. Improper handling of chronic wounds can turn into gangrene so that the risk of amputation. Wounds experienced by individuals must receive treatment from health professionals who can be treated properly so that the wound can heal properly. Wound healing is the process of changing a person's wound condition and health status. In healthy humans, it takes 21 days for the

wound healing process to go through several phases. Wounds that heal ≤ 21 days are called acute wounds and when they are over they are categorized as chronic wounds. The process of healing normal wounds is through the phases of hemostasis, inflammation, granulation or proliferation and maturation. The wound will undergo a process of blood clotting after an injury to prevent blood loss. Blood clots occur because the wounds secrete various growth factors, cytokines and molecules from injured blood vessels and platelet degranulation. The inflammatory phase takes place on days 0 to 5. If an infection does not occur then the inflammatory process requires a short time. Clinical manifestations of inflammation or also called inflammation processes, namely tumors, rubor, dolor, color, functio laesa. The final stage of this phase will occur phagocytosis. Inflammation causes blood vessels to leak, releasing plasma and PMN's around the tissue. Neutropyl phagocytosis remains microorganisms and is an initial defense against infection. They are assisted by local mast cells. Fibrin then ruptures as part of this cleansing [10]. The proliferation or epitalization phase takes place on days 3 to 14. Actually epitalization occurs starting the first 24 hours after injury is characterized by thickening of the epidermal layer at the edge / edge of the wound. Whereas incision wounds occur in the first 48 hours. This phase is also called granulation because the wound looks fresh red and shiny. The final wound healing process is maturation which lasts up to 2 years. In this phase new collagen is formed which changes the structure of the wound and an increase in tissue strength [11]. In this study begins by examining the patient's wound condition. After assessing the



status of the wound condition, the wound care is then performed using the 3M method (washing the wound, cleaning the wound and closing using a modern dressing). Wound washing techniques using mineral water and wound soap such as epithelial soap or sterobac. Washing the wound is effective in reducing or eliminating the amount of bacteria. Then clean the wound by removing old bandages, removing necrotic tissue and dead cells from the skin surface. In this study the methods used to remove dead tissue are 1) autolysis debridement using epithelial cream, and hydrogel plus transparent film to soften, moisturize the wound and rehydrate the wound surface so that the autolysis process is effective. The material is used in wounds that experience necrotic which is characterized by dry describing the condition of the wound ischemic. This wound is black or slightly brown. Whereas in wounds with moderate to large numbers of exudates are marked with yellow, greenish-yellow and pale yellow exudates. The process of autolysis in these wound conditions uses foam material that is used in wounds with yellow and runny water to absorb a lot of fluid, calcium alginate is used in red wounds that bleed easily, hydrocolloid is used in wounds that are abscessed to ripen. 2) mechanical debridement by using sterile gauze and tweezers and irrigating wounds with water pressure to remove slough and necrotic tissue, and 3) CSWD (Conservative Sharp Wound Debridement) using scissors and bisturi. The action aims to get rid of dead tissue. Care is needed in carrying out these actions because they can cause pain and bleeding responses. Techniques for removing dead tissue can also be done by enzymatic debridement method using enzymes naturally

or made of chemicals to lyse tissue necrosis such as papaya, pineapple, aloe vera, honey and other natural ingredients. Biological Debridement / larva therapy using sterile maggots in wounds that experience necrotic (slough). The time needed for this method is 3 days. Surgical wound debridement (surgical debridement) must be done in the operating room because it requires conditions and a sterile environment. After removing the tissue, the wound closure process is then performed using a modern dressing. Closing the wound consists of 2 primary dressings that come in direct contact with the wound and a secondary dressing which is a dressing covering the primary dressing. Primary dressing uses epithelial and antimicrobial cadoxamer (iodosorb powder) ointments in powder or gel form, transparent films, hydrogels, calcium alginate, polyurethane / hydrocellulose, hydrocolloid, foam and silver, cutimed sorbact. Whereas secondary dressing as an absorbent uses materials such as gauze, sterile cutisorb if there is a lot of liquid and melolin in the condition of a slight fluid wound. Wound care 10 times for 1 month for 1 month using the 3M method and using modern dressing in this study has been effective in the process of wound healing. The wound condition status of the patient, which initially occurs with degeneration of the wound, changes to wound regeneration. The development of wound healing has been proven to occur regeneration by using wound assessment Independent Nursing Practices Isam Cahaya Holistic Care modified from Betes Jensen Wound Assessment Tool. This is evidenced by the results of statistical tests known to the value of Asymp.Sig. (2- tailed) worth 0.001. Because the value of 0.001 is smaller than 0.05, it can be concluded that Ha



is accepted and H_0 is rejected. This means that there is an average difference between the results of the condition status / wound healing before and after wound care with the modern dressing method, so it can also be concluded that "there is an effect of modern dressing wound treatment on diabetic wound healing in Mandiri Nursing Practice Isam Cahaya Holistic Care Makassar City ". Conventional wound care using gauze dressing moistened with NaCl and antiseptics such as metronidazole, iodine 1% and H_2O_2 tends to have a negative impact because it cannot maintain moisture balance so that it cannot be maintained for long and gauze wound dressing will be replaced more often. Repeated replacement of the dressing can result in repeated injury to the wound bed, thereby stimulating recurrence of inflammation at the wound bed [12]. The use of modern dressing in this study according to the status of the patient's wound condition. To maintain the humidity of the wound using a primary dressing made from epithelial cream and can also use hydrogel. Besides moisturizing the wound, it also functions to soften and destroy necrotic tissue without damaging healthy tissue. The decayed tissue is absorbed by the gel structure and discharged into the dressing which is also called natural debolement autolysis. The dressing is maintained for up to 3 days so as to minimize injury and pain sensation during dressing dressing. In bleeding wounds and large amounts of exudates combined with calcium alginate. Its function is to stop bleeding. This material is not used in necrotic and dry wounds. Hydrocellulose is also used to absorb lots of fluids and is twice as effective at absorbing fluids compared to calcium alginate. Next is a hydrocolloid that

is able to protect from water and bacterial contamination, can be used for primary and secondary dressing. Wounds that have started to grow grow enough to be given a gel or epithelial cream and cutisorb or mellolin to accelerate the wound healing process. The results of this study are in line with previous studies which state that there is a development of wounds in patients who are treated with modern dressings. Moist and warm conditions in wounds effectively improve wound healing, prevent dehydration in tissues and necrosis. The types of primary dressings used in this study were alginet, hydrofiber and hydrogel. ([13]. Wound care using the principle of moisture balance, also known as the modern dressing method, is more effective than conventional methods. The assumption that wounds with dry conditions will heal faster are a less precise understanding. It turns out that with a balanced condition the humidity actually heals faster because it helps and accelerates cell growth and proliferation of collagen in a healthyonseluler matrix. Balanced wound moisture can facilitate the development of wounds, cytokines, and chemokines that promote cell growth and stabilize the wound tissue matrix. Wounds that are too moist / wet are also less effective in the healing process because they can cause maceration of wound edges, whereas dry wound conditions cause cell death, there is no epithelial displacement or matrix tissue [14]. The results of this study are also in line with previous research which states that modern wound care with a moist wound healing method is effective in the healing process of diabetic ulcer wounds. The modern bandage group has a better development of wound repair compared to the conventional bandage group namely



modern bandages (16%) and conventional (8.75%). The results of this study are in line with previous research which states that there are significant differences in the process of wound healing by using conventional and modern wound care in post-operative appendectomy patients at Dustira Cimahi Hospital. The mean value of wound healing after being given modern wound care is 5.50 while the average value of wound healing after being given conventional wound care is 13.50 [15].

CONCLUSION

Wound care using a modern dressing method for 1 month with the number of treatments as much as 10 times accelerate the process of healing diabetic wounds. There is an influence of modern dressing wound treatment methods on diabetic wound healing in the Independent Nursing Practice of Isam Cahaya Holistic Care Makassar City.

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