



EFFECT OF WOUND TREATMENT WITH PSYCHONEUROIMMUNOLOGICAL (PNI) APPROACH TO IMPROVEMENT OF DIABETES MELLITUS WOUND GRADE

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ABSTRACT

Diabetes Mellitus is a heterogeneous disorder that causes microvascular damage resulting in scarring of the peripheral tissues. Diabetic wounds are chronic so that they affect the quality of life. Appropriate wound care can speed up the healing process. The aim of this study was to determine the effect of wound care using a psychoneuroimmunological approach to improving wound grade. The research was conducted in the wound care clinic at Mojowarno Christian Hospital from 19 October to 16 November 2020. Using a *designquasy experience*. The population is all wound care clinic patients. The research sample uses the *techniquetotal sampling* a total of 28 respondents, divided into 14 respondents in the treatment group (with a psychoneuroimmunology approach) and 14 respondents in the control group (according to the SPO). Researchers used observation sheets that were carried out for 2 weeks of treatment. Research shows that almost all wound care with a psychoneuroimmunology approach has improved wound grade compared to wound care according to SPO. The Wilcoxon test for the treatment group $p=0.001$ ($p<\alpha$ 0.05), means that there is an improvement. Control group Wilcoxon test $p=0.083$ ($p>\alpha$ 0.05), meaning there is no improvement. Mann Whitney test $p=0.029$ ($p>\alpha$ 0.05), meaning that there is an effect of wound care with a psychoneuroimmunology approach on improving the grade of diabetes mellitus wounds. The results of the study showed that there was an effect of wound care with a psychoneuroimmunological approach to improving the grade of diabetes mellitus wounds. It is recommended for hospitals to use wound care methods with a psychoneuroimmunology approach so that the wound healing process is faster.

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1. INTRODUCTION

Diabetes mellitus is a heterogeneous disorder characterized by increased glucose levels which in the long term can cause chronic microvascular complications and neuropathy complications (Smeltzer & Bare 2013). One of the complications that often occurs is the presence of wound due to impaired peripheral tissue perfusion. Diabetic wounds are wounds that occur due to abnormalities in the nerves, blood vessel disorders and then infection. If the infection is not handled properly, it will continue to decay and even be amputated (Prabowo, 2007). Diabetes mellitus is a major

health problem. Data from a global study shows that the number of people with diabetes mellitus in 2011 has reached 366 million people, and is expected to increase to 552 million in 2030.

In 2006, there were more than 50 million people suffering from DM in Southeast Asia. The International Diabetes Federation (IDF) estimates that as many as 183 million people are not aware that they have DM. 80% of people with DM live in low and middle income countries. Most DM sufferers are between 40-59 years old (Trisnawati, 2013). Currently, Indonesia is in seventh place after China, India, America, Brazil, Russia and Mexico as the country with the highest number of people with diabetes. The 2018 Basic Health Research (Riskesdas) data shows that there has been an increase in the prevalence of diabetes in Indonesia from 5.7 percent (in 2007) to 6.9 percent or around 9.1 million people in 2018 (Riskesdas, 2018). Based on survey data obtained at the Jombang Hospital on April 24, 2020, there were 524 patients with diabetes mellitus, with 242 patients with ulcers. The number of diabetes mellitus sufferers at Mojowarno Christian Hospital in January 2020 was 96 patients, with 28 patients experiencing injuries due to diabetes mellitus whose blood sugar levels were not controlled, while the number of patients in February was 98 patients, with the number of complications being 31 patients who experienced wounds due to diabetes mellitus. Researchers see that patients who treat wounds due to diabetes mellitus have problems in a long healing time.

The results of Iswari's research (2016) entitled "The Influence of Psychoneuroimmunological Therapy Combinations on Pain and Anxiety in Nonpathological Fracture Post Orthopedic Surgery Patients" showed a mild scale of pain and anxiety (33.67%) compared to patients who only received mentosa medical therapy (13.33%). These results indicate that the combination of psychoneuroimmunological therapy can increase the patient's immune regulation so that there is more mild pain and anxiety than medical therapy alone. The number of people with diabetes mellitus with wound complications who are treated at Mojowarno Christian Hospital is quite a lot. Therefore, it is hoped that this study can fully describe the effect of wound care using a psychoneuroimmunological approach to accelerating the wound healing process due to diabetes mellitus with one of the indicators, namely improvement in wound grade.

According to Watson (1979) caring as a type of relationship and transaction required between the giver and recipient of care to improve and protect the patient as a human being, thereby affecting the patient's ability to recover. Man cannot be cured as an object, on the contrary that man is part of himself, the environment, nature and the larger universe. The environment in this theory is interpreted as a sense of comfort, beauty, and peace and that caring is a moral ideal that involves the mind, body, soul with one another. This theory aims to balance and equal the experience of health and illness. Patients who are able to maintain body regulation means that the patient has been fulfilled holistically and comprehensively. To provide nursing care, nurses can take a psychoneuroimmunological approach (PNI) (Erfandi & Nursalam, 2018). Based on the explanation above, the researcher is interested in conducting research on "The effect of wound care with a psychoneuroimmunological approach (PNI) on improvement of diabetes mellitus wound grade in wound care clinic at Mojowarno Christian Hospital in 2020".

2. METHODS

Research design is all the processes needed in planning and conducting research (Nazir, M. 2014) The research design in the study of the effect of wound care with the psychoneuroimmunology approach (PNI) on improving the grade of diabetes mellitus wounds is *Quasy Experiment* namely research that aims to reveal a causal relationship by involving a control group in addition to the treatment group but the selection of the two groups is not random (Notoatmojo S. 2010). The population of this study was all patients who went to the Mojowarno Christian Hospital Wound Care Clinic 17 October 2020 to 14 November 2020 totaling 28 respondents, the sample was all patients who went to the Wound Care Clinic Mojowarno Christian Hospital 17 October 2020 to 14 November 2020 totaling 28 respondents, Sampling using the total sampling method, so that the number of samples is equal to the number of population. The first group was the treatment group that underwent wound care according to the SPO with a psychoneuroimmunology approach, while the second group was the control group that underwent wound care according to the SPO, then observed and compared the results of the repair of the wound grade before and after wound care, both the treatment group and the control group. Furthermore, conclusions are drawn from the assessment of the repair results of the wound grade between the treatment group and the control group.

To collect data and sample groups that have been determined, the researcher issued a data collection device called a research measurement tool (Nursalam, 2011). The researcher held a consent approach to the family as the research respondent. Researchers divided the sample into 2 groups. Control group and treatment group. The researcher made a time contract with the respondent for three weeks. The first control is to assess the grade of the respondent's wound. Researchers performed wound care according to SPO for the control group and performed wound care according to SPO with a psychoneuroimmunology approach for the treatment group. During the second week of control, an evaluation of the wound healing process will be carried out by comparing the grade of the wound at the initial visit with the grade of the wound after 2 weeks of hospitalization. Researchers observed and assessed the wound



grade of the two groups.

3. RESULTS

This research was conducted at Mojowarno Christian Hospital which is located at Jl. Merdeka no. 59 Mojowarno, Jombang Regency. This hospital is a type C private hospital managed by the GKJW Health Foundation (YK) (Grejo Kristen JawiWetan) with an area of 8 ha.

The demographic characteristics of the respondents from this study will display the general characteristics of the respondents including:

1. Characteristics of respondents based on gender
Distribution of 28 respondents based on gender at the Mojowarno Christian Hospital wound care clinic in 2020. Based on the results it can be seen that the majority of respondents were female, namely 19 respondents (67.86%).
2. Characteristics of respondents based on recent education
Distribution of 28 respondents based on their last education at the Mojowarno Christian Hospital wound care clinic in 2020. Based on the results it can be seen that a small number of respondents had finished junior high school education and did not attend school or did not finish elementary school, namely 7 respondents (25%).
3. Characteristics of respondents based on age
Distribution of 28 respondents based on age at the Mojowarno Christian Hospital wound care clinic in 2020. Based on the results it can be seen that almost half of the respondents were aged between 51-60 years, namely 11 respondents (39.29%).
4. Characteristics of respondents based on work
Distribution of 28 respondents based on work at the Mojowarno Christian Hospital wound care clinic in 2020. Based on the results it can be seen that the majority of respondents work as farmers, namely 17 respondents (60.71%).
5. Characteristics of respondents based on length of suffering from DM
The distribution of 28 respondents was based on the length of time they had Diabetes Mellitus at the Mojowarno Christian Hospital wound care clinic in 2020. Based on the results it can be seen that in general the respondents had suffered from Diabetes Mellitus for more than 5 years as farmers, namely 24 respondents (85.71%).

Based on the statistical test results in the treatment group, it can be explained that the statistical test in the treatment group shows the Asymp value. Sig. (2-tailed) 0.001 or $\alpha < 0.05$, there is a difference in the grade of the wound before and after the wound care treatment, while for the statistical test results in the treatment group it was found that the statistical test in the treatment group showed the Asymp value. Sig. (2-tailed) 0.001 or $\alpha < 0.05$, so there is a difference in the grade of the wound before and after wound care treatment, and the last, namely the results of statistical tests between the control group and the treatment group, it was found that statistical tests in both groups of respondents used Mann Whitney, showing Asymp. Sig. (2-tailed) 0.029 or $\alpha < 0.05$, it means that there is a difference in wound grade between the treatment group and the control group. Based on the three statistical tests, it showed that the treatment group was more effective in improving the grade of diabetes mellitus wounds, while the control group was less effective in improving the grade of wounds during 2 weeks of wound care, so the conclusion of this study was that the hypothesis was accepted, namely that there was an effect of wound care with a psychoneuroimmunology approach (PNI).) on improving the grade of diabetes mellitus wounds at the wound care clinic at Christian Mojowarno Hospital in 2020.

4. DISCUSSION

Wound grade is a way to assess and assess the severity of wounds due to diabetes mellitus and to evaluate success during the wound care process. Diabetic ulcers are chronic wounds that do not heal easily due to disruption of wound healing by systemic, local and other factors (DPP INWOCNA, 2018).

Diabetic wounds consist of ulcers and gangrene. The goal of treating diabetic wounds is to prevent complications and speed up the wound recovery process. Ulcers that are not treated properly can result in gangrenous sores. Gangrene is a wound that has decayed and has expanded, characterized by dead, blackish and smelly tissue accompanied by putrefaction by bacteria. The principle of surgical therapy for the diabetic foot is to remove all necrotic tissue and eliminate infection so that the wound can heal.

Operative measures for diabetic wounds can be in the form of minor surgical procedures such as incisions and drainage of abscesses, debridement and necrotomies. Surgical procedures are carried out based on appropriate indications. High priority must be given to preventing new wounds from occurring, do not allow small wounds, no

matter how small these wounds can become large and eventually lead to gangrenous wounds whose healing process takes a long time (Arisanti, 2013).

The Effect of Wound Treatment with a Psychoneuroimmunology Approach (PNI) on the Improvement of Diabetes Mellitus Wound Grade Riani Research (2017) on

Comparison of the effectiveness of modern wound care "moist wound healing" and conventional wound care for healing second degree diabetic foot wounds shows that patients who receive "moist wound healing" wounds get an average score of 1.6 while wound development with conventional treatment only gets an average score just 0.1 on average.

The principle of wound care with a psychoneuroimmunology approach is modern wound care modified from wound care with the principle of "moist wound healing" so that wound care with this method can shorten the wound healing process. Meanwhile, wound care with SPO still uses conventional techniques so the healing process tends to take a long time. According to Arisanti (2013) repair of gangrenous wound grade usually occurs in the 3rd or 4th week after treatment. This time can be met if the factors that affect the wound healing process are met, among others

1. Age, the older you are, the longer the wound healing process takes.
2. Disease status and treatment.
3. Nutritional status, nutrients such as protein are needed in the process of neo vascularization, fibroblast proliferation, collagen synthesis and wound remodeling.
4. Smoking reduces tissue perfusion and oxygenation.
5. Bad surgical technique
6. Drug treatment, drugs also affect wound healing such as steroids, anti-inflammatory drugs, antibiotic drugs and radiation therapy.
7. Improper wound care management, use of inappropriate dressing techniques
8. Psychosocial adverse, various types of psychosocial factors can have an adverse effect on wound healing

The results showed that the treatment group experienced an improvement in wound grade by 12 respondents. Even with a shortened time of 2 weeks, 12 respondents experienced an improvement in the grade of the wound because the treatment group used the "moist wound healing" principle which has been proven to accelerate the wound healing process. There were 2 respondents who did not experience repair of the wound grade, this was due to uncontrolled blood sugar levels and unfulfilled nutrition so that the infection was not resolved. Infection is one of the factors that slows down the wound healing process.

In the control group, there were 11 respondents who did not experience repair of the wound grade, this was because the wound treatment time should have taken 3-4

week shortened to 2 weeks. While there were 3 respondents who experienced improved wound grades, this was due to controlled blood sugar levels and fulfilled nutrition so that the wound grade repairs were shorter. Although both respondents were treated for wounds of the same grade category (grade 3 and 4) and for the same duration of 2 weeks, the results of the study showed that wound care with a psychoneuroimmunology approach was more able to reduce the respondent's negative stressors resulting in more repairs of wound grades. than respondents who only treated wounds according to the SPO.

Wound care in the control group (wound care using SPO) tends to use conventional methods, namely sterile gauze which has low absorption and is sticky to the wound, so when changing the dressing it will cause pain and the wound will bleed which means it will return to the initial stage (hemostasis).). Wound fluid that seeps out of the dressing will be more and more and cause an unpleasant odor, so the respondent will feel uncomfortable and this is a negative stressor for the respondent which plays a role in slowing down the wound healing process Wound care in the treatment group (wound care with a psychoneuroimmunology approach) using the principle of damp (moist), where a humid environment will tend to stimulate the growth of new tissue. The use of foam as a substitute for gauze has the advantage of good absorption and is not sticky to the wound so that the patient feels comfortable and reduces negative stressors. The creation of a moist environment in the wound and the minimal negative stressors are very influential in improving the grade of the wound in this study.

5. CONCLUSION

From the results of the research on the effect of wound care using the psychoneuroimmunology approach (PNI) on improving the grade of wounds due to diabetes mellitus at the wound care clinic at Mojowarno Christian Hospital, Jombang, it can be concluded that:

1. There are differences in the grade of diabetes mellitus wounds before and after wound treatment with a psychoneuroimmunology approach.
2. There is an improvement in the grade of diabetes mellitus wound before and after wound treatment with a psychoneuroimmunology approach.
3. There is no difference in the repair grade of diabetes mellitus wounds before and after wound care



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- according to the SPO.
4. There is no improvement in the grade of diabetes mellitus wound before and after wound treatment according to SPO.
 5. There is an effect of wound care with a psychoneuroimmunology approach (PNI) on improving the grade of wounds due to diabetes mellitus

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