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Use of Olive Oil as an Effort to Prevent Damage to Skin Integrity: A Case Study

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ABSTRACTS

Background: Diabetes mellitus, also known as diabetes, is a collection of symptoms in a person due to increased blood sugar (glucose) levels, so that the pancreas works harder to produce insulin to balance sugar levels in the blood. The 2018 Riskesdas stated that the prevalence of DM in Indonesia had increased from 6.9% in 2013 to 8.5% in 2018. One of the herbal treatments in the study was olive oil. Olive oil is one of the natural ingredients recommended to help the healing process of diabetic wounds. The benefits of olive oil are able to treat diabetic wounds. Purpose: This case study is to find out whether olive oil can help heal damaged skin integrity in elderly people with diabetes. The research design used is a descriptive case study. The research subject is Mrs. A who is an elderly 54 years old. Results: The results of a case study conducted for 7 days of olive oil administration showed that there was a change in reaction to damage to the integrity of the skin of elderly people with diabetes mellitus after being given olive oil. Conclusion: there is an effect of olive oil on damage to the integrity of the skin of the elderly. By applying olive oil to dry skin areas. Suggestion: Olive oil is a non-pharmacological natural therapy method that can moisturize the skin in patients with diabetes mellitus. Giving olive oil can also be developed in the treatment room to help treat wounds in the elderly with diabetes mellitus.

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1. INTRODUCTION

Elderly is a condition characterized by a person's failure to maintain balance against physiological stress conditions. This failure is related to a decrease in the ability to live and an increase in individual sensitivity, due to certain factors the elderly cannot fulfill their basic needs both physically, spiritually and socially. The aging process is a life cycle marked by the stages of decline in the function of various organs of the body, which is marked by the increasing vulnerability of the body to various disease attacks. This is because with increasing age there are changes in the structure and function of cells, tissues and organ systems with increasing age, physiological functions decrease due to degenerative processes (aging). tuberculosis, pneumonia, and hepatitis. In addition, many non-communicable diseases appear in old age, including; diabetes mellitus, arthritis or gout, stroke and hypertension (RI Ministry of Health, 2014)

The World Health Organization (WHO) states that the prevalence of DM is increasing from year to year. Data obtained in 2016 there were 422 million DM patients in the world (L. Sari & Hermanto, 2019). The 2018 Riskesdas stated that the prevalence of DM in Indonesia had increased from 6.9% in 2013 to 8.5% in 2018 (Saring, 2019)

Diabetes Mellitus causes complications in various body systems. The systems affected by hyperglycemia are the nervous system, cardiovascular system, urinary system, and skin system. In the skin system, hyperglycemia causes wounds that are difficult to heal (chronic wounds). Wounds in diabetes must be treated immediately so that they do not cause infection. Good wound care will prevent infection (Bhatt et al., 2017).

According to Dyah Restuning (2015) Diabetes mellitus, known as diabetes, is a collection of symptoms in a person due to increased blood sugar (glucose) levels, so that the pancreas works harder to produce insulin to balance sugar levels in the blood.

Diabetes Mellitus (DM) has several distinctive signs and symptoms, the typical symptoms of Diabetes Mellitus are often called triaspolies, which consist of excessive thirst (polydipsia), frequent urination at night (polyuria), and frequent hunger (polipagi). Other signs and symptoms that are often experienced by patients with diabetes mellitus are rapid weight loss, complaints of weakness, tingling in the hands and feet, blurred vision, impotence, wounds that are difficult to heal, vaginal discharge and pruritus (IDF, 2017)

In patients with Diabetes Mellitus, the presence of blood circulation disorders causes disruption of tissue circulation and lack of oxygen which causes the death of these tissues. So

that if there is an excrelation in an area on the body of a patient with diabetes mellitus due to scratching activities, this can get worse, such as becoming a wound that does not heal. One method of skin care that can be used to improve the skin care process is to maintain moisture at the base of the wound to prevent bacterial colonization (Tohiroh, 2017)

According to Mahendra (2016) Damage to the integrity of itchy skin or pruritus caused by drying of the skin (disturbances in body regulation) which makes the skin easily sore and itchy. Body fluids are thick, and circulation is obstructed, resulting in increased heat energy (damp-heat) causing irritation to the skin. Itching causes an unpleasant sensation that triggers the urge to scratch. Scratching activities that are carried out continuously result in inflammatory cells and the release of histamine by nerve endings which exacerbate the itching sensation.

Management of impaired tissue integrity in the elderly with diabetes mellitus is divided into medical management and nursing actions. Medical management is used to provide therapy for diabetes mellitus. The anti-diabetic drug most often used in patients with type 2 diabetes mellitus complicated by gangrene is insulin Novorapid alone followed by oral anti-diabetic drug metformin (Gunawan, 2018)

Nursing actions that can be given to the elderly with diabetes mellitus are very diverse. Increased knowledge is also needed to overcome this problem. The results of the univariate analysis showed that 72.2% of respondents had a high level of knowledge, 61.1% had long suffered from Diabetes Mellitus and 79.6% did not have diabetic ulcers (Suryati, 2019).

One of the herbal remedies in research is olive oil. Olive oil is one of the natural ingredients recommended to help the healing process of diabetic wounds. The benefits of olive oil, which can treat diabetic wounds, have been known and recommended for a long time. Apart from accelerating the healing of diabetes wounds, olive oil has other benefits, namely accelerating blood clotting, reducing inflammation and accelerating granulation growth (Tohiroh, Siti & Yuwono, 2017).

The components contained in olive oil can be antimicrobial in wounds. In addition to inhibiting the growth of germs that can exacerbate wounds, olive oil can also be used as a moisturizer and has the ability to increase blood flow which can produce ideal wound surface conditions for healing. For the healing process, the wound environment must be moist, so that the process of epithelialization or new tissue growth is relatively faster. These components include peroxide, anisidin, iodine and aldehydes (Binti Ida Umaya, 2017).

In two case report studies in Iran, olive oil extract was reported to be effective in wound healing. Also, in two quasi-experimental studies conducted in Egypt, results demonstrated the effectiveness of the olive oil salve dressing technique on wound healing. This study aims to assess the effect of topical olive oil on DM wound healing as a clinical trial study to find a new approach in the treatment of this type of ulcer (Nasiri, Morteza & Fayazi, 2015). Based on the background above, the authors conducted a case study related to nursing care for elderly patients with diabetes mellitus using olive oil as an effort to prevent damage to skin integrity.

2. METHODS

Patient Information

Client name Mrs. A, 54 years old, address Kp. Bojong cikupa Tigaraksa, female sex, religion Islam, marital status of a widow, graduated from elementary school, currently does not work and only looks after a klontongan stall, formerly worked as a housewife. The family study history obtained the following data: Mrs. A has a husband, namely Mr. S, Mrs. A's husband died 7 months on January 21, 2021, to be exact. The cause of Mrs. A's husband's death was illness. In reviewing the history of Mrs. A's current health status, she said that she had diabetes mellitus for about 6 years. The diabetes mellitus that Mrs. A suffered from was inherited from her father, Mrs. A, namely Mr. K who has been dead for a long time since Mrs.A was 25 years old. The cause of death of Mrs.A's father was also due to diabetes, and he could not be hospitalized due to lack of economic costs.

Clinical Findings

At the time of the study, it was found that Mrs. A said that he had diabetes mellitus for about 6 years. He had diabetes mellitus, which he suffered from diabetes mellitus. Mrs.A is a hereditary disease from Mrs.A's father, Mr. K who has been dead for a long time since Mrs.A was 25 years old. Mrs. A admitted that he was lazy to seek treatment at health facilities because every time he was treated and checked for sugar. Sugar does not go down and even increase. Mrs. A has never taken medication, at most she only drinks diabetes milk 2 times a day in the morning and evening. As well as Mrs. A also rarely does sports, most just sit watching TV and looking after his shop. Mrs.A said her condition was caused by aging. Mrs.A also said that the skin on her feet was very dry and scaly. And currently Mrs. A complains of being easily thirsty, dizzy, tired, easily drowsy, blurred vision, and difficulty sleeping at night

because he often pees at night. The diagnosis experienced by Mrs. A was the instability of blood glucose levels due to a lack of lifestyle modifications which caused blood sugar levels to not decrease and become unstable. In addition to the imbalance in blood glucose levels, Mrs. A also experienced damage to the integrity of the skin caused by impaired circulation in the blood in diabetic patients due to increased blood sugar levels which can cause accumulation of Non Enzymatic Glycation (NEG), and decreased enzymatic in skin collagen, this causes patients to experience dry skin.

Prior to the Olive Oil administration intervention, the author first checked the patient's weight and checked the patient's blood pressure, and checked the patient's sugar first on Mrs. A before doing activities in the morning, measuring blood pressure using a tensimeter or sphygmomanometer. The author gets the blood pressure results Mrs. A 130/80 mmHg, BB : 45kg, GDS : 350mg/dl.

Diagnostic Assessment

The nursing diagnosis for this patient is blood glucose level instability and impaired skin/tissue integrity damage.

Therapeutic Intervention

Intervention Management of Giving Olive Oil (Olive Oil) give to Mrs. A. to prevent skin damage. The nurse previously explained the tools and materials to be used, and explained the purpose of giving Olive Oil, and the steps for massaging the skin starting from cleaning the skin until giving Olive Oil. Before being given Olive Oil (Olive Oil) Mrs. A measured blood pressure, weighed weight, and checked blood sugar first to find out if there were any changes after the intervention was given, after that Mrs. A pray first before taking action, especially when checking blood sugar. Because Mrs. A said she was afraid of being checked for sugar because it was always high. then after measuring blood pressure, weighing, and checking blood sugar Ny. A was given Olive Oil to treat the dry and scaly skin of her feet. After being given Olive Oil, then assess whether there are signs of infection such as (redness, swelling, heat, pain, and impaired tissue/organ function) and provide education related to home use and document the skin of both Mrs. A's feet to find out. was there any change after being given the intervention, then the nurse made a time contract to observe Mrs. A for 7 days and did Olive Oil therapy to treat damage to skin integrity.

The first step in the therapy for giving Olive Oil is to do therapeutic communication and the second step is to weigh the client's weight using a digital scale. Then the nurse uses handscoon and immediately checks blood pressure using a sphygnomanometer and stethoscope then the nurse checks the patient's blood sugar. Check blood sugar first, namely prepare a blood sugar device, apply an alcohol swab to the client's index finger, after cleaning it using an alcohol swab then we dry it, after drying it is then stabbed using a needle and the blood is affixed to the GDS stick. This blood sugar check is carried out using a blood sugar device whose brand is On Call EZ II. After it's finished and there are results, if there is still blood coming out, we deep use an alcohol swab and then press so that the blood doesn't come out. After being examined, weigh, check blood, and check sugar, then the third step is to position the patient comfortably and relax. Before performing wound care, first assess the client's skin condition. Are there signs of infection such as (redness, swelling, hot temperature/irritation, and abnormal tissue function) and see and measure the condition of the client's wound, the area of the wound to be treated for the wound, which is one inch, about 25 cm. And the skin is on the second leg of the client. if there are no signs of infection Then prepare a basin of warm water to clean the dry wounds on the skin of the client's feet. Warm water serves to provide relaxation to the client. Because warm water can dilate blood vessels so that there are no blockages that can cause the client's legs to cramp. After a basin filled with warm water has been prepared, the nurse treats the wound using a small towel/cloth. Put a small towel/cloth in warm water and wring it out and then apply the towel/cloth to the wound/dry skin area. and then rub it on the client's feet which are dry and scaly. After cleaning using warm water then dry the client's feet using a small towel / cloth / tissue. After drying, then pour one drop of Olive Oil (Olive Oil) on both the client's feet with a wound area of about 25 cm. Then rubbed on the legs that experience dry / dull and scaly. Then after giving the olive oil let stand for 10 minutes. Assess the client's skin condition again. For more accurate results, for a week the nurse gives 1 bottle of Olive Oil to the patient to apply the routine 8 times a day by applying olive oil.

3. RESULTS AND DISCUSSION

After Performing Intervention Therapy giving Olive Oil (Olive Oil) After doing it for 7 days. The nurse came back on July 15 2021 and when it was evaluated it turned out that the client was capable and understood the condition he was experiencing. And after the

intervention, the authors conducted a reassessment first to check the condition of the skin on both legs and check blood pressure, weight and blood sugar back to Mrs.A. The results obtained were 110/70 mmHg, GDS: 250mg/dl Body weight: 47 Kg. Mrs. A said he was no longer dizzy, and when evaluated the client was able to explain what the researcher had explained. And clients can practicing how to deal with dry skin on both feet using Olive Oil after being evaluated and practiced again regarding the actions that were taken from July 9 to July 15 Mrs. A said that the skin on her feet was no longer dry because she regularly used Olive Oil at Mrs. A.Mrs. A said that every time he took a bath, the skin of his feet was always smeared with olive oil. And Mrs.A's condition on July 15 looked no longer limp & pale like the first day the assessment was carried out.

The results of the implementation of instability in blood glucose levels and disturbances Damage to skin integrity on the first day on Friday, July 9 2021, the results were that the client said that the client said he was easily thirsty, dizzy, tired, easily drowsy, blurred vision and difficulty sleeping at night due to continuous urination. The client also said that the skin on both feet was dry and scaly and there were scratches caused by scratching with his hands while the client was sleeping. When the researcher observed the results, the skin of the client's feet was dry and the client's face looked limp and pale, and the client's lips looked dry and cracked. The BP results were 130/80 mmHg, pulse 80 x/minute, respiration 20 x/minute, body weight 45 kg, and GDS results: 350 mg/dl. The intervention provided by the researchers was the provision of health education related to diabetes mellitus and how to apply olive oil to the skin of the client's feet. the researcher also gave 1 bottle of olive oil to the patient to apply routine olive oil administration at home 8 times a day for a week.

The results of the implementation of instability in blood glucose levels and disruption of damage to skin integrity on the second day on Saturday, July 10 2021, the result was that the client said that the client said he was still thirsty, dizzy, tired, easily drowsy, blurred vision and difficulty sleeping at night because of continuous urination. The client also said that the skin on both feet was dry and scaly and there were scratches caused by scratching with his hands while the client was sleeping. When the researcher observed the results, the skin of the client's feet was dry and the client's face looked limp and pale, and the client's lips looked dry and cracked. The BP results were 120/80 mmHg, pulse 83 x/minute, respiration 20 x/minute, body weight 47 kg, and GDS results: 335 mg/dl.

The results of the implementation of instability in blood glucose levels and disturbances Damage to skin integrity on the third day on Sunday, July 11 2021, the results were obtained, the client said that the client said he was still a little dizzy, tired, easily drowsy, blurred vision and had trouble sleeping at night because of continuous urination. The client also said that the skin on both feet was still a little dry and scaly. When the observation researcher found that the skin of the client's feet was dry and the client's face looked limp and pale, and the client's lips looked a little dry and cracked. The BP results were 110/70 mmHg, pulse 88 x/minute, respiration 20 x/minute, body weight 48 kg, and GDS results: 304 mg/dl.

The results of implementing unstable blood glucose levels and disturbances Damage to skin integrity on the fourth day on Monday July 12 2021 got the results the client said that the client said he had not felt a little dizzy, tired and a little sleepy continously. The client also said that the skin on both legs was starting to get a little dry and scaly. When the observation researcher found that the skin of the client's feet was not dry and the client's face did not look limp and pale, and the client's lips did not look dry and cracked. The results of BP 120/80 mmHg, pulse 86 x/minute, respiration 20 x/minute, body weight 46 kg, and GDS results: 256 mg/dl.

The results of the implementation of instability in blood glucose levels and disturbances Damage to the integrity of the skin on the fifth day on Tuesday, July 13 2021, the results were obtained, the client said that the client said that his condition was getting healthy, not easily thirsty, dizzy, tired, and his vision was starting to stabilize. However, he still didn't sleep well at night and the skin on his feet was no longer dry when he was routinely given olive oil. When the researcher observed the results, the skin of the client's feet was moist and the client's face did not look limp and pale, and the client's lips were moist and did not look dry and cracked. The BP results were 130/80 mmHg, pulse 80 x/minute, respiration 20 x/minute, body weight 47 kg, and GDS results: 325 mg/dl.

The results of the implementation of instability in blood glucose levels and disruption of damage to the integrity of the skin on the sixth day on Wednesday, July 14 2021, the results were that the client said that his condition had improved and it was very effective to use olive oil to deal with his dry skin. The client also said that the skin on his two feet was not dry and scaly and there were no scratches due to scratching with his hands while the client was

sleeping. When the researcher observed, the result was that the skin of the client's feet was dry and the client's face looked lively and not pale and the skin on his feet was moist. The results of BP 120/85 mmHg, pulse 86 x/minute, respiration 20 x/minute, body weight 50 kg, and GDS results: 285 mg/dl.

The results of the implementation of instability in blood glucose levels and disturbances Damage to the integrity of the skin on the seventh day on Thursday 15 July 2021 got the results the client said the client said his condition was improving The client also said the skin on both feet felt moist and not dry and scaly When the observation researcher got the second skin results the client's feet are moist and dry and the client's face does not look limp and pale, and the client's lips do not look dry and chapped. The results of BP 110/70 mmHg, pulse 85 x/minute, respiration 20 x/minute, body weight 47 kg, and GDS results: 250 mg/dl.

From the results of the intervention from the first day given olive oil until the seventh day of the intervention, the result was a change in skin elasticity on both legs of elderly people with diabetes mellitus. This is in line with Surtiningsih's research (2015) which stated that the content contained in olive oil contains low linoleic acid (7%) and high oleic acid (80%). Linoleic acid helps strengthen the barrier layer on the skin, making it difficult for water to penetrate the surface of the skin. Instead oleic acid helps increase skin permeability so it helps maintain moisture in the skin

According to Alivn Rinaldo (2019) People with diabetes mellitus often experience circulation disorders in the blood due to an increase in blood sugar levels which can cause a buildup of Non Enzymatic Glication (NEG), and an enzymatic decrease in skin collagen which causes patients to experience dry and itchy skin. The scratching activity carried out by people with diabetes mellitus is due to cell inflammation and the release of histamine by nerve endings which can exacerbate the itching sensation causing an unpleasant sensation which will trigger the desire to scratch. To overcome this, skin care is needed to keep it moist and well-maintained so that it does not cause damage to the integrity of the skin in people with diabetes mellitus. The researchers used natural ingredients such as olive oil which was given every day after bathing because the process of releasing the hormone melatonin occurs in at night, the hormone melatonin is one of the processes of skin cell formation.

According to the results of research conducted by Susilo (2016) the main treatment for protecting the skin is to prevent skin damage by using skin cleansers and moisturizers.

However, as for the side effects and complications that occur when using an unnatural moisturizer such as body lotion, there are some people in the community who are not suitable for using body lotion, causing itchiness, burning and redness to the point that the skin experiences thinning which can occur from several days to several days. months so it takes skin care using natural ingredients, namely olive oil.

Skin care in an effort to prevent skin damage can be done by giving olive oil, because olive oil contains various fatty acids, vitamins, especially a source of vitamin E which functions as a natural anti-oxidant that helps protect important cell structures, especially cell membranes from damage due to free radicals. free. Vitamin E has other benefits to protect red blood cells that transport oxygen to all body tissues from damage. Vitamin E also plays a very important role for skin health, namely by maintaining, increasing skin elasticity and moisture, preventing premature aging, protecting the skin from damage caused by ultraviolet radiation, and accelerating the wound healing process, especially in diabetic patients which is useful for preventing defects in overcome skin damage because the fatty acids contained in the oil increase the cohesive power of the stratum corneum and prevent transcunaneous water loss and excessive cell proliferation. And the olive oil that is applied can accelerate the healing of injured or irritated skin (Khadizah, 2018)

A series of studies show the enormous medicinal properties of olive oil, especially extra-virgin olive oil (which is produced from the first pressing of olives without heating). One study reported that olive oil contains high levels of vitamin E and vitamin K and phenols. Phenols contain Flavonoids that play an active biological role as very powerful antioxidants (Nurdiantini, Prastiwi, & Nurmaningsari, 2017).

Olive oil contains a chemical, oleocanthal, which can prevent inflammation, similar to pain relievers such as ibuprofen and other anti-inflammatory drugs that are used externally to help heal cuts, abrasions and other disorders that are at risk of inflammation, redness, swelling and pain (Nurdiantini et al., 2017). Olive oil also contains polyphenols which are natural antioxidants, its function is to reduce inflammation and improve blood flow so that it can help heal ulcers (Nasiri, Morteza & Fayazi, 2015).

The components contained in olive oil can be antimicrobial in wounds. Apart from inhibiting the growth of germs that can exacerbate wounds, olive oil can also be used as a moisturizer and has the ability to increase blood flow which can produce ideal wound surface conditions for healing. For the healing process, the wound environment must be moist, so

that the process of epithelialization or new tissue growth is relatively faster. These components include peroxide, anisidin, iodine and aldehydes (Binti Ida Umaya, 2017).

The main thing to pay attention to in wound care is unexpected side effects, such as allergies. In several previous studies, there were no significant side effects in wound care using olive oil. The use of traditional medicine is generally considered safer than the use of modern medicine. This is because traditional medicine has relatively few side effects compared to modern medicine. Olive oil has been shown to be significant in reducing the extent and depth of ulcers (Nurdiantini et al., 2017).

According to Alsuhendra, an IPB alumnus in the book 10 Most Efficacious and Most Wanted Medicinal Plants, said the high content of unsaturated fatty acids, especially unsaturated fatty acids with single double bonds, namely oleic acid or omega 9 and also linoleic acid or omega 6, reaches 65-85% making Olive oil is widely used in the health sector. In addition, monounsaturated fatty acids have the advantage that they are more difficult to oxidize. So with that, if applied to the skin, the skin will be protected from sunlight and will not be triggered into cancer or tumors. Olive oil contains good fats that can moisturize and plump the skin with a combination of vitamin A and olive oil which can relieve irritation, redness, dry skin, or other skin disorders due to environmental factors. In addition, olive oil contains mineral oil which is obtained from petroleum, which functions coats the skin so that the water content in the skin does not evaporate quickly and the skin will remain moisturised. This olive oil is applied to dry wounds, partial lesions, torn wounds, scrapes, minor burns, wounds with granulated tissue development, skin damage due to radiation, and diabetic ulcers. Olive oil can be applied to ulcer types grade I to IV (Nurdiantini et al., 2017).

4. CONCLUSION

The implementation giving olive oil for 7 days can be concluded that there was a change before applying olive oil where Mrs.A's skin, which was initially studied, was dull, dry, but after being used for 7 days, the skin routine for both legs of Mrs.A looks moist and not dry anymore. This proves the effectiveness of giving olive oil to reduce damage to skin integrity in the elderly with diabetes mellitus.

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