

Using Honey on Debridement Wound Treatment for Post Necrotic Cellulitis Patients: Case Study

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Abstract: Cellulitis is a health problem of the skin which occurs due to infection in the sub-cutaneous part of the skin. Cellulitis causes damage to tissue integrity, where this tissue damage requires further action, bacteria exposed to the sub-cutaneous area can cause widespread damage. Therefore, it is necessary to choose the right type of wound care in treating this disease. This case study aims to obtain the effect of applying wound care using honey for the recovery of debrided necrotic cellulitis wounds. The research used is a descriptive case study using nursing care and a literature review. Participants in this study were debrided necrotic cellulitis patients. This case shows that the application of wound care to patients with debridement necrotic cellulitis experienced improved wound recovery, indicated by the presence of adhesion on both sides of the tissue, the wound was pink, there were no signs of infection, there appeared to be a wound on the right leg. with the first wound area 1.5 x 2.3 cm with a depth of 1.5 cm and the second wound with an area of 1.5 x 4.5 cm with a depth of < 1 cm and the third wound 1.5 x 6.5 cm with a depth of 1 cm. -2 cm. Nurses can treat wounds in patients with debridement necrotic cellulitis using honey.

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Introduction

Skin diseases today are still one of the health problems in Indonesia. Infection is a proliferation of microorganisms in body tissue which will cause local injury due to metabolic competition, toxins, responses from antigens and antibodies which can cause a disease under certain conditions, the cause of which is a pathogenic microorganism with clinical symptoms or not. Bacterial infections, fungi, viruses, and allergies are the dominant causes of skin disease in Indonesia, while degenerative factors are the factors of skin disease in western countries. Apart from factors caused by life style, an unclean environment, personal hygiene is also a cause of skin diseases (Becker. et al., 2018) .

Cellulitis is an infection of subcutaneous tissue, occurs in people with normal immunity and mostly affects children and the elderly. Cellulitis has three characteristics, namely suppurative inflammation reaching the subcutaneous tissue, affecting lymph vessels and surfaces, erythematous plaques, unclear boundaries and rapidly spreading. Most cases of cellulitis are caused by streptococcus and staphylococcus bacteria which enter from wounds on the skin, such as surgical wounds, scratches. If tissue necrosis occurs, surgical action is needed to remove the necrotic tissue or what is called debridement (Muttaqin, 2013).

An unclean environment and work that can increase the risk of extremity trauma and infection can

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be predisposing factors for cellulitis. Village residents who are far from urban areas with inadequate health facilities are very vulnerable to contracting cellulitis due to activities that risk the entry of pathogens and dirty work environments. Delay in treatment can cause disability due to tissue necrosis or even death due to sepsis (Laksmi Anggari Putri Duarsa, 2014).

The worldwide prevalence of cellulitis is not known with certainty. According to the journal *Cellulitis – Epidemiological and Clinical Characteristics* (2012), it was analyzed that at the Clinical Center of the University of Sarajevo in the last 3 years from January 1, 2009, to March 1 2012 there were 123 patients with skin disease, 35 patients with superficial erysipelas and 88 patients with cellulitis. Male presentation was more frequent, namely 56.09% with an average age of 50 years. The prevalence of cellulitis locations were legs (71.56%), arms (12.19%), head and neck (13.08%), and body 3.25%). The first treatment is by giving antibiotics of the lincosamide group (Tashkandi, 2021) .

According to data from the Lower Puspa room at RSUD dr. Slamet Garut, a common complaint of post-debridement patients with cellulitis is wounds. Wounds can be interpreted as disruption or damage to the integrity and function of tissues in the body (Aminuddin et al., 2020) . Wounds appear after necrotic debridement, which aims to remove bacterial infections. After post-necrotic debridement, it is necessary to carry out wound care on tissue integrity, where the aim of wound care is to prevent bacterial infection from damaging the tissue which is starting to recover. The wound care selection strategy has 2 options, either alternative or non-alternative. For alternative wound care, wound care can generally be carried out using an antiseptic fluid, namely NaCl (0.9%). Then there is another way apart from other alternative treatments, namely treating wounds with honey as an antiseptic liquid which is effective in killing bacteria.

Cellulitis is an infection caused by streptococcus and staphylococcus bacteria that enter from wounds on the skin. In wound care using honey, honey plays a role in killing bacteria. Honey has anti-microbial or anti-bacterial properties. which has anti-bacterial compound activity, especially on Gram-positive bacteria, namely *Staphylococcus aureus* bacteria. Honey's antibacterial properties can also eliminate excessive levels of normal flora on the skin and mucosa of the body (Nadhillah, 2014).

Wound treatment using honey is the same as using NaCl (0.9%). First, sterilization is carried out on the wound area using NaCl (0.9%), after which sterile gauze is soaked in honey and then squeezed until moist. The sterile gauze is used as a cellulitis wound covering. Then, if the wound area has been covered, a dressing is

applied to fix the dressing and prevent infection from exposure to environmental air.

Method

The method used is a descriptive case study using nursing care and a literature review. The patient in this study is Patient debridement necrotic cellulitis. Participant was selected directly using the criteria of inpatients who had impaired tissue integrity, were able to speak and were conscious. The signs and symptoms felt by the patient during the assessment were pain. There appeared to be a wound on the right leg with the first wound area 2 x 3 cm with a depth of 2 cm and the second wound with an area of 2 x 5 cm with a depth of < 1 cm and the third wound 2 x 7 cm. cm with a depth of 1-2 cm, the wound looks reddish and there is no pus.

The tools the author uses in the hospital are a wound care set and honey. Data is recorded on the Nursing Care Form. Wound care interventions are carried out in accordance with the steps in the planning guidelines of the Indonesian National Nurses Association (PPNI) with the books used, namely SDKI, SLKI, and SIKI to determine nursing diagnoses, nursing aims and objectives, nursing plans and to evaluate actions given to patients (PPNI, 2017; PPNI 2018; PPNI 2021). The intervention carried out was wound treatment using honey. The author provides intervention with wound care using honey as wound care management to overcome the problems experienced by patients and improve skin tissue recovery in patients. This intervention is carried out in accordance with the Indonesian Nursing Intervention Standards (SIKI) which are evidence-based practice (EBP). The intervention is implemented under the supervision of the nurse responsible for the patient. The intervention was carried out on the 21st of March 2023 at 08:00 WIB at Puspa Bawah Hospital Dr. Slamet Garut. A 66-year-old patient who was treated at Puspa Bawah Hospital Dr. Slamet Garut suffered from debridement necrotic cellulitis. The debridement necrotic cellulitis suffered by the patient disappeared from the history of hypertension he had suffered for 4 days. The participants agreed to have their health data published anonymously.

Result and Discussion

Wound treatment using honey carried out in accordance with evidence-based practices for patients produces positive results. In this case, there was an improvement in the condition of the wound after being given wound care using honey, from a wound area of 2 x 3 cm with a depth of 2 cm and a second wound with an area of 2 x 5 cm with a depth of < 1 cm and a third wound of 2 x 7 cm with a depth of 1 cm. 2 cm with intervention given for 3 days to a wound area of 1.5 x 2.3

cm with a depth of 1.5 cm and a second wound with an area of 1.5 x 4.5 cm with a depth of < 1 cm and a third wound of 1.5 x 6.5 cm with a depth of 1-2 cm.

The nursing process that has been implemented in providing nursing care to patients in this case has been carried out for 3 days. While in the field the author did not experience difficulties in providing nursing care to patients. After the author carried out the stages of the nursing process and intervention based on evidence-based practice (EBP) regarding cases of debridement necrotic cellulitis, he obtained positive results regarding the nursing problems experienced by the patient.

This is in accordance with previous research that wound care can increase oxygen saturation in patients. Based on the results of research conducted by Hidayat, et al., (2020) with the title "The Effect of Washing Elective Neurosurgery Wounds Using Povidone Iodine Dilution and Giving Honey to Prevent Operation Area Infections" it was found that the results of the application of complementary wound care therapy using honey experienced significant wound recovery as indicated by a decrease in leukocytes and no signs of infection. This is in line with research conducted by Ahmed, et al (2022) with the title "Honey dressing: a missed way for orthopedic wound care" it was found that wound treatment using honey had an effect on wound recovery where The frequency of dressing varies according to the immersion of the dressing with exudate. This is done twice a day or once a day. All cases showed improvement in all parameters with complete wound healing and full coverage of bones and tendons.

This is also the same as research conducted by Yupanqui, et al (2022) entitled "Honey: Advanced Antimicrobial and Wound Healing Biomaterial for Tissue Engineering Applications" which states that honey has properties that encourage the regeneration of damaged tissue and wound healing. These properties are multi-factorial and related to key aspects of the ingredient such as moisture, pH, sugar content, ROS generation, and anti-inflammatory effects. All these aspects contribute to the four stages of the wound healing process: hemostasis (blood clotting), inflammation, proliferation/epithelialization, and tissue remodeling. In line with research conducted by Zhang, et al (2021) with the title "Comparison of topical honey-based dressings and povidone iodine for wound healing" states that the beneficial effects of honey-based dressings compared to povidone iodine-based dressings for wound recovery. This is also in line with research conducted by Ayse Celik Yilmaz & Dilek Aygin (2020) entitled "Wound Treatment with Honey" showing that honey in acute and chronic wounds provides rapid epithelialization and wound contraction in wound healing, has an anti-inflammatory effect. and debridement, reduces pain, ensures infection control, shortens wound healing time, and cost effective. This is in line with research conducted by Wang, et al (2019)

entitled "Effectiveness of honey dressing in the treatment of diabetic foot ulcers: A systematic review and meta-analysis" which states that honey dressing effectively shortens debridement time, wounds, wound healing time, and bacterial clearance time; it increases wound healing rates and bacterial clearance rates during the first one to two weeks of use.

So, it can be concluded that wound care using honey can help wound recovery from staphylococcus aureus bacterial infections which occur in cellulitis patients. This is in accordance with the main aim of treating wounds using honey, namely, to determine the effectiveness of healing using honey wound care and reducing infections caused by bacteria.

Conclusion

Wound treatment using honey increased the recovery of patient cellulitis wounds.

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