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POLITEKNIK KESEHATAN KEMENKES PALANGKA RAYA: HEALTH FORUM AND INTERNATIONAL SEMINAR
THE NEW NORMAL : Creating a Pleasant Virtual Communication

A documentation of calcaneus region diabetic foot care: Wound healing during outpatient treatment

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Mrs. Antik is a mother of 2 teenage daughters, aged 45 years. In 2019, the client opened a food stall which has been the main source of income for the family since her husband passed away in 2016. However, with a wound on her right heel, the family's source of income stopped, she was unable to sell. The client expressed her concern to her brother-in-law whether the wound could heal because she had a history of diabetes mellitus since 10 years ago. His brother-in-law also tried to help facilitate finding a place and who could treat further wounds.

The first information was provided by the client's brother-in-law via short message on WhatsApp by sending a photo depicting the condition of the wound on the client's right heel. This information is followed up with a home visit. The client told the early history of the incident involving her feet. The problem began in early July 2020, when wood chips got into the client's right leg which she tried to remove with the help of a needle. A few days later her leg became red, swollen and very painful. The client went to the clinic but the wound did not heal for a week. Because this condition did not go away, the client went to a doctor and was then referred to the hospital. The results of the examination at the hospital were that the client must immediately undergo debridement surgery to clean the wound. For one week the client was hospitalized and then treated with outpatient treatment for the wound.

In wound healing, there are several things that must be considered and this will greatly determine the wound healing processes which are: 1) Wound bed preparation, 2) cleaning, 3) debridement, and 4) dressing. The data obtained during the assessment also determines the appropriate course of actions.

The results of the assessment when treating the client for the first time on August 5, 2020, obtained results: blood pressure 120/70 mmHg, breath rate 22 x/minute, pulse rate 86 x/minute, GDS 210 mg/dL, 8 units of novorapid insulin therapy and lavemir 4 unit, the condition of the client's extensive wound encircling the right calcaneus area is shown in Figure 1. The wound area is 5x15 cm, grade 2, namely deep ulcers, penetration to the ligaments and muscles, but does not hit the bone or there is no abscess, slough (+), exudate (+), necrotic (+), hyperemia (+), odor (+).

Figure 1. The condition of Mrs. Antik's wound during the assessment 05 August 2020

The first treatment for a wound is Wound Bed Preparation (WBP), which is a wound base preparation. The wound bed preparation is a concept that emphasizes a holistic and systematic approach to evaluate and remove obstacles so that the wound healing process can run normally (Falanga, 2004). The goal of WBP is to create a good wound environment by minimizing exudate, reducing bacterial colonies, removing dead tissue, ensuring good vascularity in the wound so as to support the wound healing process (Cavanagh, 2005).

Wound bed preparation is carried out by debridement. Debridement removes slough, namely yellow necrotic tissue which is a soft material consisting of dead cells, sticking to and covering the wound. Slough can inhibit wound healing so the right therapeutic agent can optimize wound healing effectively. Clean the wound using sodium chloride solution. This fluid is isotonic, does not cause allergies so it does not interfere with the wound healing process. Cleaning the wound is done by washing and swabbing it. Debridement is done by removing the necrotic tissue.

The dressing of choice in client care is an Occlusive Dressing. Occlusive dressing is a type of dressing that maintains the wound environment in an optimal state. When changing the dressing, you will see necrotic/ slough tissue decay with a clean wound bed. The type of dressing used with the client's wound condition on August 5, 2020, was hydrogel as the primary dressing, foam absorbent as a secondary dressing. Hydrogel is an autolytic debridement that provides hydration to create a moist atmosphere and will trigger the granulation process. The secondary dressing used to cover the wound was a foam absorbent which has function to absorb exudate and provide moisture to the wound. The wound treatment of Antik's mother was carried out every 2 days. The results of treatment with occlusive dressings were that the hyperemia began to diminish and disappear. Then the wound bed became clean and red indicating reduced slough and the growth of healthy granulation tissue.

To support the acceleration of wound healing, the client was advised not to do excessive activities that used their feet as support. This aimed to reduce the load pressure on the feet (off-loading). Excessive load on the wound area would damage the granulation tissue that began to grow and ultimately hinder the wound healing process. Off-loading has been shown to accelerate wound healing (Bus, et al, 2008). There are four groups of off-loading methods commonly used in clinical practice, which are:

- casting techniques,
- use of special shoes,
- surgical off-loading techniques, and
- alternative off-loading

Simple off-loading recommended to the client was an alternative off-loading which was using crutches while walking. The improvement achieved by the treatment described can be seen in Figure 2.

Figure 2. Condition of the wound after 16 days of treatment

On the 24th day of treatment, the client's wound condition was completely cleaned from slough (Figure 3). The granulation tissue appeared red and began to rise from the wound bed. Granulation tissue is connective tissue that contains many capillaries, red in color, looks like a pile of marbles. Over time the epithelialization process begins. Epithelial tissue that is silvery white or pink begins to grow from the edges of the wound and covers the granulation tissue.

Figure 3.The condition of the wound on the 24th day

On the 41st day treatment, 80% epithelialization closed the wound (Figure 4 a). The wound continued to be cleaned with normal saline and covered with foam absorbent dressings, and on the 50th day the epithelialization was 100% closed. (Figure 4 b).

Figure 4. (a) The wound on day 41 closed 80%, (b) The wound on day 50 closed complete

Health educations which were given at the completion of healing:

1. The clients are encouraged to use soft footwear both inside and outside the home. This aimed to prevent recurring injury to vulnerable wound sites. The recommended footwear was a sloop style shoe. (Datak, G., & Sylvia, E. I; 2021)
2. After every shower in the morning and evening, the client checked the feet and soles using a mirror aid to identify recurrent wounds.
3. If the wound is still on the leg, immediately seek treatment at the nearest health agency.
4. Continue to carry out good management of diabetic management (diet, exercise, drug therapy, independent blood sugar checks and regularly following diabetic education. (Sylvia, E. I., & Munikaire, E.; 2018)

Summary:

- Patients with diabetes are vulnerable to infection and poor healing after injury.
- Wound care using the steps and techniques described can achieve healing over time.
- Post healing care instructions are an important part of successful treatment
- Photos of the wound healing process are a good way to document the effects of treatment and provide a record for the health care team. Such photos can also be used to encourage patients with new wounds to work hard to obey care instructions

Figure 5 Education on the use of footwear and Mrs. Antik is ready to open her food stall again

Consent

The informants (identifiable) photographed have given their consent for their pictures to be used in the publication of this research.

Conflict of Interest

None.

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