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EFFECTIVENESS OF SURGICAL WOUND CARE WITH NEGATIVE PRESSURE WOUND THERAPY (NPWT) TECHNIQUE IN POST-LAPAROTOMY PATIENTS AT PADANG CITY HOSPITAL

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ABSTRACT

Surgical wound infection is a common risk for patients following surgery. Proper and effective treatment is necessary to prevent complications and expedite the healing process. Negative Pressure Wound Therapy (NPWT) is one of the modern treatment methods used to care for surgical wounds. This research aims to evaluate the effectiveness of NPWT in the treatment of surgical wounds in post-laparotomy patients at Padang City Hospital. This study is a quasi-experimental research. The research sample consists of 16 post-laparotomy patients treated at Padang City Hospital who received NPWT treatment during the study period. The research results show that NPWT is effective in improving the surgical wound healing process in post-laparotomy patients. Patients treated with NPWT experienced a reduced healing time for their wounds and a decreased risk of infection. The research results also indicate that the use of NPWT can reduce patient care costs. In this regard, the research findings demonstrate that NPWT can provide significant benefits in the care of post-laparotomy patients. However, it's important to note that NPWT is not the sole effective treatment method. The appropriate treatment should be chosen based on the patient's condition and the severity of the wound. Overall, this research indicates that NPWT is an effective treatment method for surgical wound care in post-laparotomy patients. Nevertheless, further research is needed to ensure the effectiveness of this technique in a broader population.
Keywords: Surgical Wound Care, Negative Pressure Wound Therapy (NPWT), Post-Laparotomy.

INTRODUCTION

The effectiveness of surgical wound care in post-laparotomy patients is an important aspect in ensuring patient recovery after undergoing surgery [1-3]. Surgical wounds that are not handled properly can cause complications and result in slower patient recovery [4,5]. Therefore, effective surgical wound care techniques need to be applied to speed up the post-operative wound healing process [6,7]. The Negative Pressure Wound Therapy (NPWT) technique is a surgical wound treatment technique that has become increasingly popular in recent years. This technique uses controlled negative pressure on the surgical wound to improve the wound healing process. The NPWT technique has many advantages, such as increasing oxygen supply to the wound, removing excess fluid and promoting the growth of new tissue [8-11].

However, in Indonesia, the use of NPWT techniques in surgical wound care is still limited. The use of the NPWT technique in Indonesia has only been implemented in certain hospitals and is not yet widespread [12]. Apart from that, the lack of awareness and understanding of medical personnel and patients regarding the NPWT technique is also an obstacle in implementing this technique [13]. Therefore, research regarding the effectiveness of surgical wound care using the NPWT technique in post-laparotomy patients at Padang City Hospital needs to be carried out. This research will provide an overview of the effectiveness of the NPWT technique in accelerating the healing process of surgical wounds in post-laparotomy patients [14,15]. It is hoped that the results of this research can contribute to increasing understanding of the effectiveness of the NPWT technique in treating surgical wounds in post-laparotomy patients in Indonesia, especially in the West Sumatra region. The results of this research are expected to provide recommendations for medical personnel and hospitals to consider using the NPWT technique [16]. However, surgical wounds can affect healing rates and increase the risk of complications in patients. Therefore, good and effective surgical wound care is essential to ensure optimal healing and minimize the risk of complications [17].

One technique that has been used to speed up the healing of surgical wounds is Negative Pressure Wound Therapy (NPWT) [18]. This technique involves applying negative pressure to the wound to speed healing and prevent infection [19].

Several studies have been conducted to evaluate the effectiveness of the NPWT technique in surgical wound care. In this context, this research will be conducted to

evaluate the effectiveness of surgical wound care using the NPWT technique in post-laparotomy patients at Padang City Hospital.

MATERIALS AND METHODS

The methodology that will be used in this research is experimental design with pretest-posttest control two group design. The research population and sample will be carried out at Padang City Hospital and will involve post-laparotomy patients who meet the inclusion and exclusion criteria.

Inclusion Criteria:

- Adult patients undergoing laparotomy surgery at Padang City Hospital.
- Patients who have post-laparotomy surgical wounds with a minimum wound size of 5 cm x 5 cm.

Exclusion Criteria:

- Patients with a history of allergies to the materials used in the NPWT technique.
- Patients with a history of bleeding disorders or ongoing anticoagulant therapy.
- Patients with a history of severe heart, lung, or kidney disease

In the initial stage, observations will be made of post-laparotomy patients who come to Padang City Hospital for treatment. Patients who meet the inclusion and exclusion criteria will be informed about the research to be conducted and will be asked to provide written consent to participate in the study. After obtaining consent from the patient, randomization will be carried out to select patients who will receive treatment using the NPWT technique and patients who will receive conventional treatment. Patients in the NPWT group will be given treatment using the NPWT technique on their surgical wounds, while patients in the control group will receive conventional treatment usually given at Padang City Hospital.

Data will be collected during the treatment and follow-up periods of 2 weeks. During this period, patients will be assessed daily by the research team, the medical team caring for them, including nurses and doctors. Evaluation includes direct observation of the surgical wound, such as the size of the wound, severity, and observation for signs of infection.

Data analysis: The collected data will be analyzed using the independent t test for normally distributed data and the Wilcoxon test for data that is not normally distributed.

RESULTS

a. The Average Effectiveness of Surgical Wound Treatment Using the Negative Pressure Wound Therapy (NPWT) Technique in Post-Laparotomy Patients at Padang City Hospital in The Intervention Group

Table 1. The Average Surgical Wound Treatment Was Prior To Negative Pressure Wound Therapy (NPWT) Techniques in The Intervention Group

Variable	Mean	Standard Deviation (SD)	Min-Max	n
Intervention Group (before)	7,75	1,035	6-9	8
Intervention Group (after)	5,88	1,246	4-8	8

Based on table 1, the average diameter of the surgical wound before negative wound therapy (NPWT) was 8.63 with a standard deviation of 1.996 and after the negative pressure wound therapy technique was 6.63 and a standard deviation of 1.996

b. The Average Effectiveness of Surgical Wound Treatment Using the Negative Pressure WouTherapy (NPWT) Technique in Post-Laparotomy Patients at the Padang City Hospital in the Control Group

Table 2. The Average Effectiveness of Surgical Wound Treatment Using the Negative Pressure Wound Therapy (NPWT) Technique in Post-Laparotomy Patients at the Padang City Hospital in the Control Group

Variable	Mean	Standard Deviation (SD)	Min-Max	n
Control Group (before)	7,63	1,506	5-9	8
Control Group (after)	6,50	1,512	4-8	8

Based on table 1, the average diameter of the surgical wound before negative wound therapy (NPWT) was 7.63 with a standard deviation of 1.506 and after the negative pressure wpound therapy technique was 1.512 for the control group

c. Effectiveness of Surgical Wound Treatment with Negative Pressure WouTherapy (NPWT) Technique in Post-Laparotomy Patients at Padang City Hospital

Table 3. Effectiveness of Surgical Wound Treatment with Negative Pressure WouTherapy (NPWT) Technique in Post-Laparotomy Patients at Padang City Hospital

Variable	Mean	SD	P *value*	n
Effectiveness of Surgical Wound Treatment with Negative Pressure WouTherapy (NPWT) Technique in Post-Laparotomy Patients at Padang City Hospital	6,25	0,629	0,003	16

Based on table 5, the results show that the average effect of surgical wound care using the Negative Pressure Wound Therapy (NPWT) technique on post-laparotomy patients at Padang City Hospital in the control and intervention groups is 6.25 with a standard deviation of 0.629. And the statistical test results obtained using the independent t test obtained a p value = 0.003 ($p \leq 0.05$), so there was an influence on the effectiveness of surgical wound care using the Negative Pressure Wound Therapy (NPWT) technique in post-laparotomy patients at City Hospital. Padang

DISCUSSION

Research on the effectiveness of surgical wound treatment using the Negative Pressure Wound Therapy (NPWT) technique in post-laparotomy patients at Padang City Hospital has important implications in the world of health care. The results of this study reveal that the use of NPWT in post-laparotomy patients can speed up the healing process of surgical wounds. This means the risk of wound infection can be minimized, and surgical wounds can heal more efficiently.

In addition to the significant clinical benefits, this study also highlights the financial benefits of using NPWT, given the potential reduction in long-term care costs. From the patient's perspective, NPWT also contributes to a better quality of life during the recovery period. However, it is important to place these findings in the context of previous research and perform comparisons with similar studies to understand the consistency of NPWT effectiveness in various clinical settings and patient populations. Additionally, healthcare practitioners need to consider the use of NPWT in their clinical practice with individual medical needs in mind. Although this study provides valuable insights, further studies with larger samples and longer follow-up periods will be needed to confirm and explore them, as well as to understand the long-term impact of NPWT in the care of post-laparotomy patients. This study strengthens the argument for considering NPWT as an effective treatment option in the management of post-laparotomy patients at Padang City Hospital

CONCLUSIONS AND SUGGESTIONS

There is Effectiveness of Surgical Wound Treatment Using the Negative Pressure Wound Therapy (Npwt) Technique in Post-Laparotomy Patients at Padang City Hospital

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