

## THE DIFFERENCE IN THE ACCELERATION OF WOUND HEALING POST LAPAROTOMY USING 10% PROVIDONE IODINE AND GENTAMICIN OINTMENT 0.1%

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### Abstract

**Background:** The Post-operative wound is a wound with particular care to avoid the risk of infections that could impede the healing process. Gentamicin 0.1% ointment is an aminoglycoside antibiotic, used to treat different types of bacterial infections, while 10% is providone Iodine is a chemical substance which has antiseptic properties.

**Purpose :** the aimed of this study is to determine the difference in the acceleration of wound healing post-laparotomy using iodine providone 10% with 0.1% gentamicin ointment.

**Method :** This is a pre-experimental research study. Samples in this study amounted to 28 who were divided into two groups: group 1 intervening with iodine providine 10% and 2 intervention groups with gentamicin ointment 0.1%. Statistically using Mann-Whitney test ( $P < 0.05$ ).

**Result:** in the intervention group with 0.1% gentamicin ointment laparotomy wound heal faster post as many as 10 people (71%), while the intervention group with 10% iodine providone only 2 (14%) with a P value of 0.000 ( $P < 0.05$ )

**Conclusion:** gentamicin ointment 0.1% accelerating wound healing in patients with post-laparotomy

**Keyword:** wound healing, gentamicin salap 0,1%, providone iodine 10%

### A. Background

The Post-operative wound is a wound with particular care to avoid the risk of infection that can hinder the healing process (Potter & Perry, 2004). Research conducted by WHO showed that about 8.7% of the 55 hospitals which came from 14 countries in Europe, the Middle East, Southeast Asia and the Pacific are postoperative wound infections by as much as 10% of Southeast Asia (Ducel, 2002).

Wound healing is a complex process involving many cells. An infection of the wound after surgery is a serious problem for patients both in the presence of wound complications both locally and systemically. Local complications include damage to the network while systemic complications may include bacteremia (Suriadi, 2004).

Problems on postoperative wound Enteric generally caused by gram-negative microorganisms. Microorganisms are often found as nosocomial infection include *Escherichia coli*, *Pseudomonas aeruginosa*, and *Staphylococcus aureus*. In reporting Center Of Disease (CDC) in 2003 found *Escherichia coli* and *Staphylococcus aureus* as the most common cause of infection

nosocomial 12.0%, followed by *Enterococcus Pseudomonas* 10.02% 9.02% (Yesti R. 2010).

Wound healing involves the integration of physiological processes. Wound healing properties all the same, with variations depending on the location, severity, and extent of the injury. There are various ways to prevent complications in the surgical wound. One way is to provide an antiseptic or antibiotic in the treatment of surgical wounds (Potter & Perry, 2004).

Gentamicin 0.1% ointment is an aminoglycoside antibiotic, used to treat different types of bacterial infections, especially those caused by Gram-negative organisms. With an indication for the topical treatment of primary and secondary infections of the skin caused by bacteria susceptible to gentamicin (Syamsiah. 2012).

Providone Iodine 10% is a chemical substance which has antiseptic (kills germs) both gram-positive and negative so that in this case, betadine better than rivanol, but betadine more irritating and more toxic when entering into a blood vessel (PSIK UGM, 2004).

Wound care techniques that correct and proper use of medications that can help accelerate wound healing and reduce the treatment period and will automatically reduce

costs. In the post-operative wound care Dr.Fauziah Inpatient Surgical Hospital of Bireuen using Iodine providone 10% as an antiseptic and Gentamicin 0.1% as an antibiotic ointment to prevent complications of the surgical wound. BLU RSD Dr. FauziahBireuen a referral hospital in Aceh Health Insurance (JKA) so that the drug supply is still fixated on the National Essential Drugs List (DOEN), especially surgical wound care room, especially for still using both types of these substances and it is free of charge provided by the government. However, the mechanisms and effectiveness of antiseptics and antibiotics are in the acceleration of wound healing has not been investigated. The results of this study are expected to provide input to the knowledge of nurses in implementing interventions for postoperative wound care hospital environment and can become a standard of the Operations Procedures in treating wounds.

Results of a preliminary study conducted by researchers at the Public Service Board Regional Hospital Dr. FauziahBireuen data showed patients who entered the operating room from January to June 2012 recorded 670 patients treated in the SMF Surgery room, and of these 280 people postoperative laparotomy medical diagnosis. With the amount of treatment time which varies from one patient to another patient, the diagnosis with other diagnoses also there are differences in treatment period, although the use of antiseptics and antibiotics are the same.

**B. Method**

This type of research is the study Pre-experimental research design with one shot case study. The population in this study are patients with postoperative laparotomy in the BLU RSD SMF Surgery Dr. FauziahBireuen, amounting to 280. The number of samples with the provisions of 10% of the total population (Arikunto 2010) of 28 patients with inclusion criteria namely laparotomy patients postoperative day two, patients received treatment of wounds using Gentamicin ointment 0.1% and providone Iodine 10 %, and patients there are no other complications. In this study, divided into two groups: group 1 with intervention providone iodine administration, 10% and 2 by administering gentamicin ointment 0.1%. Categorized wound healing faster if less than 5 days and

categorized slow if more than 5 days. Statistical analysis Mann-Whitney test was used to determine differences in the effectiveness of the treatment of wounds using gentamicin ointment providone iodine 0.1% and 10% (P <0.05).

**C. Result**

Characteristics of respondents

All respondents in this study aged 25-46 (100%) in both groups of gentamicin ointment providone iodine 0.1% and 10%. The majority of respondents were female 71.5%. Most respondents have private jobs by 57.16%. (Table 1).

Table 1. Characteristics of Respondents

Characteristics of Respondents	Gentamicin ointment 0,1%		Providone iodine 10%	
	F	%	F	%
Age (years)				
0-14	0	0	0	0
25-46	14	100	14	100
>50	0	0	0	0
Sex				
Male	10	71.5	10	71.5
Female	4	28.5	4	28.5
Occupation				
Farmer	3	21.42	3	21.42
Private	8	57.16	8	57.16
Civil servant	3	21.42	3	21.42

Differences acceleration of wound healing post-laparotomy using gentamicin ointment 0.1% and 10% iodine providone

The analyses were performed to determine the difference providone Iodine Wound Healing Using Gentamicin ointment 10% with 0.1% in patients Post laparotomy in the Surgery room Dr. FauziahBireuen hospital by Using the Mann-Whitney test.

Table 2. Test Results Difference Statistics Post laparotomy Accelerate Wound Healing Using Iodine providone 10% with 0.1% Gentamicin ointment

Wound healing	Providone iodine 10%		Gentamicin ointment 0,1%		P Value
	F	%	F	%	
Faster	2	14%	10	71%	0.000
Slower	12	85%	4	21%	
Total	14	100	14	100%	

Based on the above table the majority of respondents who receive wound care with ointment Gentamicin 0.1% faster in Accelerating Wound Healing laparotomy as many as 10 people (71%) compared with the use providone Iodine 10% with a P value of 0.000 (P <0.05)

#### D. Discussion

Based on the above results, the Post laparotomy wound healing using Iodine providone 10% is slow, which is 12 people (85%) of the 14 respondents (100%). This is in line with the theory raised by YessiRahardjo and Tim Teachers PSIK UGM (2004), that providone Iodine 10% are chemical substances that have anti-septic (kills germs) either gram-positive or negative, so in this case providone Iodine 10 % better than rivanol but this is more irritating substances (create pain and more toxic when entering into a blood vessel and the particular circumstances of these substances can prevent granulation).

While the Post laparotomy wound care Using Gentamicin ointment 0.1% are cured faster at 10 (71.42%) out of 14 (100%) of the respondents. This is in line with the theory raised by Syamsiah (2012), ie 0.1% Gentamicin ointment is an aminoglycoside class of antibiotics used to treat different types of bacterial infections, especially those caused by gram-negative organisms with an indication of the topical treatment of primary and secondary. In line with the theoretical described by Kartzung (1998) who said Gentamicin 0.1% ointment was working to penetrate Gram-negative through Porin, bind to the ribosome, thus inhibiting protein synthesis and the preparation of ointment to keep the moisture from the wound surface.

#### E. Conclusion

After an examination of the 28 respondents about the difference in the acceleration of wound healing post-laparotomy using iodine providone 10% with gentamicin ointment 0.1% in the Inpatient Surgery SMF BLU RSD. Dr. FauziahBireuen NAD then the conclusion Post laparotomy wound healing using Gentamicin ointment 0.1% majority recover faster than using iodine providone 10%.

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