

Research Article

Progressive muscle relaxation and pain acupressure intensity post operation in patients laparotomy

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The intensity of pain is an idea of how severe the pain felt by the individual after laparotomy surgery. Discomfort and trauma patients' post-surgery becomes mandatory laparotomy special concern for health workers, especially nurses. Pain management techniques and acupressure progressive muscle relaxation is one of the postoperative pain treatment laparotomy which have not been investigated. This study analyzes the differences in the effectiveness of postoperative pain laparotomy progressive muscle relaxation techniques and acupressure in patients with postoperative laparotomy. Permeted block using random sampling method. The population in this study is that patients who are in hospital laparotomy Sorong. Large sample consisted of 32 respondents; each group consisted of 16 respondents. The intervention group received progressive muscle relaxation techniques and acupressure while the control group was observed 16 get acupressure pain scores using instruments numerical rating scale (NRS). Data analysis used Mann Whitney intervention group of progressive muscle relaxation and acupressure can reduce postoperative pain 9.19 to 3.25 while the control group (acupressure) can reduce pain me 9:13 to 4.50. Intervention combination to more effectively reduce postoperative pain laparotomy of the acupressure Li 4 ($p = 0.00$). From this it can be conclude that the effect of progressive muscle relaxation techniques and acupressure may reduce pain.

Keywords: Laparotomy, Postoperative pain, Progressive muscle relaxation, Acupressure.

1. Introduction

Surgery is part of invasive treatment performed to diagnose disease, injury and body part to experience the deformity. Laparotomy is a major surgical procedure that is performed to open the belly (abdomen). Inguinal hernia, gastric cancer, appendicitis, perforation, colon cancer, rectum, bowel obstruction, chronic intestinal inflammation, peritonise and kolestitis is part of a laparotomy [1].

Tissue trauma due to surgery or incisions cause a variety of complaints and symptoms and is often a priority complaint is pain. Discomfort and trauma to the patient post-laparotomy be the main thing that must be of particular concern to health workers, especially nurses [2]. Pain is the body's defense mechanisms resulting tissue damage is a sensory and emotional experience unpleasant. Patients feel pain sensation usually occurs after the anesthetic effect disappears. In the case of laparotomy, pain experienced is usually in the moderate and severe categories, this was due to the occurrence of damage to the integument, muscle tissue, and vascular. Pain management is appropriate actions post-laparotomy performed in patients to improve patient comfort. Pain management is divided into two namely pharmacological and non-pharmacological management. Pharmacological management consists of collaboration between physicians and nurses in the

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administration of analgesic and sedative drugs that stimulate the central nervous system, thereby reducing the pain response [2,3].

The incidence of abdominal surgery has increased every year. Based on data from the World Health Organization (WHO), the number of patients is increasing every year laparotomy with a percentage of 15%. It is estimated that in the year 2012 increased to 148 million. Tabulation of the data the Ministry of Health in 2011, surgery is at position 10 of a total of 50 diseases in Indonesia with the number of surgical cases as much as 15.7% and 45% of them act laparotomy. An estimated 11% of disease burden in the world comes from the disease / condition can actually be dealt with surgically [4].

Post-surgical laparotomy will feel severe pain and the patient has a less pleasant experience pain due to inadequate pengelohan [5]. Injuries that cause pain so that patients feel anxious to do so early mobilization patients tend to lie. Acute pain after major surgery at least have a positive physiological function role as special care should be taken to prevent tissue trauma. Pain management is one way in which the health sector to cope with the pain experienced by the patient. Nurses provide nursing care to patients by providing interventions to improve the comfort of the client is a basic need analgesics are usually done to reduce the pain that is the purpose of nursing care.

Progressive muscle relaxation is a relaxation of the body that facilitates the stretch and release muscle groups resulting in a difference in sensation. Relaxation techniques are physical and mental freedom from tension and stress. Relaxation techniques help individuals to mngontrol ourselves from discomfort, pain, physical and emotional stress on pain. This technique can be used on healthy or sick individual. This procedure takes approximately 10 minutes and can be done in 15 movements where each muscle tensed 15-20 seconds and direlaksasikan done for 15-20 seconds. Patients will focus on the response of the body and given the tension, and then will be replaced with a sense of warmth and relaxation [3,6].

Acupressure is a development of the two acupuncture techniques are used to stimulate specific points in your body, pressing to enter the nervous system [7]. One of

the benefits of acupressure to the body feels fresh and can handle the pain, because the suppression effect of acupressure points can increase the levels endofpin useful as a pain reliever that is produced by the body in the blood and marrow of opioid peptides in the central nervous endogeneous. Emphasis and pemijitan at the point at Li 4 (He ku) 30 times during the 10 minutes given to patients with postoperative laparotomy [7].

The results of calculations of the effect size in previous studies, the intervention of progressive muscle relaxation technique has the effect of lowering the level of pain that size and LI4 acupressure point has the effect size decrease pain. From this research incorporates progressive muscle relaxation and acupressure in addressing postoperative pain laparotomy. Suggested results of this study can provide important input independently conducted intervention in reducing symptoms in patients with post-surgical pain such problems, anxiety and changes in vital signs. In improving the quality of nursing services is expected to progressive muscle relaxation therapy and LI4 acupressure points can relieve pain in post-surgical patients.

2. Research methods

This type of research uses experiment true research with the study design Randomized Control Design Pre Post test., This study compiled two groups of intervention and control groups. Measurement of postoperative pain by using instruments laparotomy Numeric Rating Scale (NRS).

The population in this study are patients with postoperative laparotomy study population in the control group respondents were given medication and treatment given practice progressive relaxation techniques and acupressure points Li 4 clients is by laparotomy surgery performed at the General Hospital Sorong.

Determination Techniques minimal sample in this study were 32 respondents, comprising 16 respondents as the intervention group and 16 as the control group. The sampling technique in this study is a random sampling method of sampling provides the opportunity or the same opportunities to be taken to every individual in the population to be sample [8]. Sampling technique in this research is permuted block random sampling is a way

to allocate participants randomly assigned treatment group while maintaining a balance between the two groups. The number of respondents ie 32 divided in scrambling block

In determining the respondents, starting with identifying the client after laparotomy postoperative day three in the treatment room. Furthermore, the assessment of the client is given an explanation of the research, objectives, functions, benefits and impact in following this study. Furthermore, if the client understand about the explanation given, then the client is asked his willingness to be the respondent and give consent by signing the consent form, then started the study.

3. Results and Discussion

Table 1 Distribution Characteristic Respondents intervention and control groups by Sex, age, education, type of operation, type of anesthesia, the type of drug.

Characteristic	Intervention group		Control group		P
	(N)	(%)	(N)	(%)	
Gender					
Man	8	50.0	4	25.0	.144
Woman	8	50.0	12	75.0	
Age	16	100	16	100	0.805
Education					
SD	-	-	2	12.5	.422
SMP	-	-	-	-	
High School	11	68.8	8	50.0	
DIII	4	25.0	4	25.5	
S1	1	6.3	2	12.5	
This type of surgery					
tumor ileus	4	25.0	6	31.3	0.931
hernia inguinalis	2	12.5	1	37.5	
sectio caesarea	4	25.0	2	12.5	
peritonitis	6	37.5	7	43.8	
types of anesthesia					
Genaral anesthesia	5	31.3	10	62.5	.710
regional anesthesia	11	68.8	6	37.5	
These types of drugs					
Keterolac	16	100%	16	100%	

According to the table 1 shows that the results of statistical tests sexes $p = 0.144$ means that there is no significant difference between the intervention and control group viewed from a variable, gender, with the number of respondents intervention group 50.0% male and 75.0% female respondents , $p = 0.805$, which means there is no significant difference between the intervention and control groups in terms of age. Educational value of $p = 4.22$ means that there is a

In this study, researchers determine the relationship there is no influence of test variable dependent and independent variables. Knowing their effectiveness progressive muscle relaxation techniques and acupressure point LI4 against postoperative patients laparotomy. In the research sample size used was 32 samples, data on the results of this study are not normally distributed so using non-parametric test for paired groups using friend man test and to compare the two groups (test Wilcolxon Mann Whitney test). The processed data is used as a basis for the discussion of descriptive data presented in the form of a summary table.

significant difference between the intervention and control group viewed from a variable high school education with 68.8% of respondents. This type of surgery $p = 0.422$ means that there is no significant difference between the intervention and control group viewed from the variable types of operations 31.3 respondents' same kind of operation. Types of anesthesia $p = 865$ means that there are significant differences between the intervention and control group

viewed from a variable seen types of anesthesia with general anesthesia 100% of respondents. Analgesics means that no significant differences between the intervention and control group viewed from variable analgesics 100% means that the intervention group and the control group use the type of drug ketorolac.

Table 2. Normality Test Measurement Pain Post Laparotomy Surgery With Three Times Measurement, pretest, posttest 1, posttest 2 In the treatment group and control group.

Variables	Intervention p-value	Control p-value
pre	0000	0000
Post 1	0002	0000
Post 2	0000	0000
difference Pre	0000	0000
Difference post 1	0002	0006
Difference post 2	0004	0001

Based on the statistical results Table 2 data normality test showed $p < 0.05$ (intervention group $p = 0.000$ pretest, posttest 1, $p = 0.000$, post test 2, $p = 0.000$, $p = 0.000$ Pre Difference, Difference post 1 $p = 0.002$ Difference post 3 0004 control group pretest $p = 0.000$, post test 1, $p = 0.000$, post test 2, $p = 0.000$, Difference Pre $p = 0.000$, offset post 1 $p = 0.006$ Difference in post 3 0001), which means the data is not bertribusi normal so it can not Parametric tests were used to test the Friedman alternative to per group and Mann Whitney to determine differences in pain between the two groups in the three measurements.

Table 3. Differences Analisis Group Two pre test and post test in Group Intervention and Control, Test were used that Friedman

	Time Measurement	mean	SD	mean Rank	p
Intervention	pre test	9.19	0.403	3.00	0,000
	Post test 1	5.44	1,209	1.19	
	Post test 2	3.25	0,447	1.09	
Control	pre test	9.31	.479	3.00	0,000
	Post test 1	6.69	.479	1.94	
	Post test 2	4.50	.894	1.06	

Based on Table 3 test results Firedman used for analyzing the influence of the independent variables

between the two groups: the intervention group the dependent variable was pain showed significant results with three measurements (pretest, posttest 1, posttest 2) score of three measurements mean values of 9:19 pretest posttest 1 = 5.44, post test 2 = 3.25, $P = 0.000$ 10 minutes after treatment progressive muscle relaxation and acupressure effective in lowering nyeri.Sedangkan control group showed a significant result with a third pain score measurements (pretest. Post test 1 post test 2) with the third result of the pretest measurements mean value = 9.31, post test 1 = 6.69, post test 2 = 4.50, $p = 0.000$ 10-minute acupressure treatment effectively lower pain.

Table 4. Measuring Effectiveness Test Post Surgery Pain laparotomy With Triple Measurements In the treatment group and control group (n = 32).

Group	Measurement	median	Z	P
Intervention	pre	9	-	
	Post 1	6	3.601	0,000
	Post 1	6	-	
	Post 2	3	3.327	0,001
Control	pre	9	-	
	Post 2	3	3.753	0,000
	pre	9	-	
	Post 1	7	5.039	0,000
	Post 1	7	-	
	Post 2	4	4.685	0,000
	pre	9	-	
	Post 2	4	5.037	0,000

Based on the Wilcoxon test in Table 4 shows a decrease in pain intensity before and after treatment. In the intervention group progressive muscle relaxation techniques and acupressure control group of pre till day 3 significantly between the time measurement value ($p = 0.000$)

Table 5. Differences Analisis Group Two pre test and post test in intervention and control groups

	Time Measurement	mean	SD	mean Rank	p
Intervention	pre test	9.19	0.403	3.00	0,000
	Post test 1	5.44	1,209	1.19	
	Post test 2	3.25	0,447	1.09	
Control	pre test	9.31	.479	3.00	0,000
	Post test 1	6.69	.479	1.94	
	Post test 2	4.50	.894	1.06	

According to the table 5 of the results of Mann Whitney test statistic shows the difference in the two groups of the average value of the difference for 3 days showed results at the pre to post 1 not significant with $p = 0.442$, pre to the post 2 there are significant differences with $p = 0.001$ and post 1 to post 2 there are significant differences with $p = 0.000$ while analysis menggunakan value of the difference in the difference in pre-test to the difference in post 1 there are significant differences, with $p = 0.004$, the difference between the pre-test to the difference in post 2 there are significant differences with a value of $p = 0.000$ and the difference to the difference in post 1 post 2 is not a significant difference with $p = 0.742$.

Based on Table 4 show that administration of 2x30 mg IV ketorolac anestetik, progressive muscle relaxation and acupressure at the point of Li 4 for 3 days can lower levels of postoperative pain laparotomy ($p = 0.000$). This is in line with the reduction in pain intensity before and after treatment with Friedman test in the intervention group of progressive muscle relaxation techniques and acupressure significantly in the intervention group reduction in pain intensity from 9:19 to 3.25 decrease in pain intensity between the intervention groups was significant ($p = 0.000$).

Based on the test results of Friedman test Friedman in the control group acupressure Li 4 significantly between the time measurement value ($p = 0.000$), that the drug administration of ketorolac 2x30 mg, acupressure on point Li 4 for 3 days to a decrease in pain intensity from 9:31 became 4:50 reduction in pain intensity significant between the control group ($p = 0.000$).

Ketorolac tromethamine is absorbed rapidly and completely after intramuscular administration with an average peak concentration in the plasma of 2.2 mg / ml after 50 minutes of administration of a single dose of 30 mg. Oral bioavailability of about 80%, and the drug is excreted within the pulmonary elimination of 4 to 6 hours. More than 99% ketorolac tromethamine bound by proteins and mostly in metabolism hearts. Metabolism is hidrosilata. And that is not metabolized (unchanged drug) will be excreted through the urine [9]. Stating that the administration of ketorolac is intramuscular as post-surgical analgesic morphine showed comparable efficacy / dose meperidine general. His tenure is longer and milder side effects. This drug

can also be administered orally. Oral and intramuscular absorption is rapid and peak within 30-50 minutes. Oral bioavailability of 80% and is almost entirely bound to plasma proteins.

A progressive muscle relaxation exercise with breathing techniques conscious and using the diaphragm, allowing slowly lifted abdominal and chest swelled. The breathing technique is able to give massage to the heart due to the rise and fall of the diaphragm, open blockages and blood flow jantung and as well as increasing blood flow throughout the body. The decrease in pain intensity in patients with post-surgical laparotomy after practice progressive muscle relaxation that exercise with a controlled breathing and a series of contractions and relaxation of muscle groups and stimulate the relaxation response both physical and psychological [10].

Implementation of acupressure points Li 4 once a day for 3 days with a massage using the fingers on acupuncture points (acupoint) that is already in the human body. Acupuncture point (acupoint) is an electric active cell having a low electrical resistance properties and high electrical conductivity so that the acupuncture points will conduct electricity faster than the other cells. Some of the acupuncture points commonly called a general point that point, Li 4 (Hegu) has been shown to cause the release of endorphins in the body [11]. Acupressure points used in previous studies related to the effect of acupressure at laparotomy is a point which is often used to treat gynecological problems, such as: point LI 4 this point is about the acupuncture points commonly called a point of general ie the point, LI 4 (Hegu), has been shown to cause the release of endorphins in the body [7]. LI 4 (Hegu), located between the os. metacarpal 1st and 2nd, in the mid-os. 2nd metacarpal. The emphasis on this point is proven to reduce postoperative pain sectio caesarea [12].

The results are consistent with a similar study conducted by Kurniawan (2016) in this study therapy acupressure at point LI 4 and HT 6 effectively reduce pain intensity in patients with postoperative sectio caesarea, p value = 0.001 given acupressure points Li 4 more effective, This study analyzes the effectiveness of progressive muscle relaxation techniques and acupressure Li 4 to pain in patients with postoperative laparotomy. Statistical analysis showed no significant

difference [7]. Research conducted by the progressive relaxation Aprina entitled to the intensity of postoperative pain BPH (Benign Prostate Hyperplasia) can be summed average pain intensity in patients with BPH prior postoperative progressive relaxation therapy is given after the given terspi 5,20 3,60 progressive relaxation there is a difference intensity of pain before and after progressive relaxation therapy significantly $p = 0.000$ progressive relaxation effectively reduce postoperative pain in patients with benign prostatic hyperplasia [3].

Research conducted by Pinandita (2011) with the title of the study Effects of relaxation techniques handheld finger toward reduction in pain intensity in patients with postoperative lapararatomy states that the result of the average pain intensity measurements conducted in the intervention group pre-test mean pain intensity and intensity 6,64 pain post test had a significant 4.88, $p = 0.000$ finger handheld effective relaxation techniques ddapat reduce pain in patients with postoperative laparotomy [13].

Reduction in pain intensity before and after treatment in the intervention group of progressive muscle relaxation techniques of pre till day 3 significantly between the time measurement value ($p = 0.000$). It can be concluded the intervention group mean value of 9.19 on a pre-test to post-test of 3.25 indicates that there are differences in the initial measurement of pain is a significant difference between before and after intervention in the intervention group of progressive muscle relaxation techniques and acupressure decline in average pain before intervention of respondents experiencing severe pain and after the intervention be mild pain, so it can be concluded that progressive muscle relaxation techniques and acupressure may affect decrease postoperative pain laparotomy.

Research conducted by Fitria entitled Effectiveness progressive relaxation technique on postoperative pain intensity laparotomy can be concluded the comparison before and after progressive relaxation was significant ($p = 0.000$) in the presence of progressive muscle relaxation decline in average pain scale of 2.00. Meanwhile, to determine or influence the strong relationship between variables can be declared to have a strong influence effect size = 0.76, progressive relaxation techniques effectively reduce postoperative pain in patients laparotomy ($p < 0.05$).

Research conducted by Utami (2016) states that the result of the average measurement of pain intensity were carried effectiveness of relaxation breaths and distraction exercises 5 fingers on the patient postoperative laparotomy obtained with $p = 0.000$ results showed that the effective relaxation deep breath and distraction to the workout 5 fingers to reduce pain post laparotomy [2].

4. Conclusion

- a. Progressive muscle relaxation techniques and acupressure points Li 4 Drug administration ketolorac 2x30 mg, for 3 days effectively reduce pain intensity in patients with mild postoperative laparotomy with significant value of $p = 0.000$.
- b. Li acupressure points 4 and Drug administration ketolorac 2x30 mg for 3 days was also effective in lowering the intensity of moderate pain in patients with postoperative laparotomy with significant value of $p = 0.000$.

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