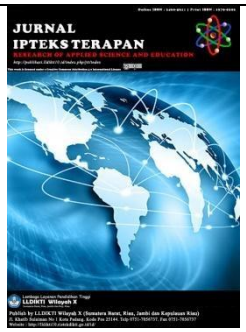

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APPLICATION OF HAND MASSAGE THERAPY TOWARDS PAIN LEVEL IN PATIENTS POST HEART CATETERIZATION AT DR M DJAMIL PADANG

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Abstract

Cardiovascular disease is one of the leading causes of death in Indonesia. One way to overcome and treat heart disease is cardiac catheterization. The effect of cardiac catheterization is pain. One of pain management is hand massage. The purpose of this study was to determine the effect of hand massage therapy on pain levels in post cardiac catheterization patients at Dr M Djamil Hospital Padang in 2021. The type of research was Quasy Experimental design Two Group Pretest-Posttest. The data were collected 12-25 February 2021. The population were patients after cardiac catheterization. Sampling technique was purposive sampling. The total sample was 20 patients. We divided into 2 groups, intervention and control group. The data were processed by univariate and bivariate analysis using the Mann Whitney-U test. The results of the intervention group study obtained an average pre-test pain intensity of 5.8 and post-test 2.9. Meanwhile, in the control group, the pre-test scores were 5.7 and the post-test scores were 5.7. Statistical test results obtained p value = 0.000 <0.05. It can be concluded that there was an effect of hand massage therapy on pain levels in post cardiac catheterization. Nurses expected to apply hand massage therapy in reducing pain.

Keywords: Hand Massage, Cardiac Catheterization, Pain

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INTRODUCTION

Basic Health Research Data (RISKESDAS) in 2018 shows that the prevalence of heart disease in Indonesia is 1.5%. West Sumatra Province is ranked 5th in Indonesia with a prevalence of 1.6% (Leon, 2015). One of treatment this problem is cardiac catheterization. Cardiac catheterization is the act of inserting a small tube (catheter) into an artery and/or vein and tracing it to the heart (Bhatt, 2018).

It caused pain. The International Association for the Study of Pain (IASP) states said that pain is an unpleasant emotional feeling due to actual or potential damage (Jafari, H., Courtois, I., Van den Bergh, O., Vlaeyen, J. W., & Van Diest, 2017). Everyone's pain feelings are also different in terms of scale and level, and only that person can explain or evaluate the pain they experience. Guyton & Hall (2014) said pain is terms of tissue destruction such as prickling, heat, burning, twisting, like emotions, in feelings of fear, nausea and drunkenness. Moreover, any feeling of pain of moderate to strong intensity is accompanied by anxiety and a strong desire to escape the feeling (Gilmore, C., Ilfeld, B., Rosenow, J., Li, S., Desai, M., Hunter, C., ... & Boggs, 2019).

The solution to overcome pain requires the implementation of pain management. There are pharmacological and non-pharmacological methods (Shafiq, Ahmad, Masud, & Kaleem, 2014). Pharmacological therapy is a therapy that is treated medically by using analgesic drugs and other painkillers, while non-pharmacological therapy is needed as a companion to pharmacological therapy. One of non-pharmacological therapy is hand massage (Running, 2015).

Hand massage is the stimulation of the skin and underlying tissue using various levels of hand pressure to reduce pain, relax or increase circulation (Gaudino, M., Burzotta, F., Bakaeen, F., Bertrand, O., Crea, F., Di Franco, 2018). Based on the Endogenous Opiate Theory developed by Avron Goldstein, he suggested that there are substances such as opiates/morphines that occur naturally in the body produced by the pituitary gland (Pinar & Afsar, 2015). These substances are called endorphins which affect the transmission of impulses which are interpreted as pain. Endorphins may act as neurotransmitters and neuromodulators that inhibit the transmission of pain messages in the cerebral system and spinal cord (Elvira, M., & Tulkhair, 2018).

Based on a preliminary study, nurses at DR.M. DJamil Hospital never used hand massage to reduce pain. They often educate patient to use breathing exercise for reducing pain. The purpose of this research were study effect of hand massage to pain level on cardiac catheterization.

RESEARCH METHODS

This research used Quasy Experimental with Two Group Pretest-Posttest design. This study was conducted by dividing the respondents into two groups, intervention, and control groups. In the intervention group, pretest (measuring the pain scale before) and posttest (measuring the pain scale after)

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will be carried out by giving treatment in the form of hand massage. In the control group, pretest (measuring the pain scale before) and posttest (measuring the pain scale after) will be carried out by only getting treatment according to the treatment procedure in the room without being given hand massage. This research was conducted in the cardiac room of Dr M Djamil Hospital, Padang. The time of this research started February 12nd to February 25th, 2021. The samples were 20 cardiac catheterization patients. The sample criteria in this study are as follows: Patients are willing to be respondents, patient scheduled / elective catheterization action, first time undergoing cardiac catheterization, the patient has completed cardiac catheterization and has been in the treatment room for at least 4 hours after the procedure. This research has gotten ethical approval No. 049/KEPK/ 2021 from DR.M. Djamil hospital ethics committee. After relaxing the patient's hand, begin by massaging the patient's fingers and hands. Start with the right hand then on the left (it takes about 6 minutes). There are some of pressure like head reflex area, pituitary reflex point, occipital reflex point, oesophagus reflex area, sinus reflex area, eye reflex point, eustachian tube reflex point, ear reflex point. Assessment of the pain scale 0-10 using *Numerik rating scale* (NRS). Univariate analysis used statistics to see the mean (average) of the post-cardiac catheterization pain scale, before and after treatment (pre and post-test) on research subjects. 2. Bivariate analysis is an analysis to test the effect, the difference between two variables. The selection of statistical tests that will be used to perform the analysis is based on the data scale, the number of population or samples and the number of variables studied. Bivariate analysis was carried out to prove the research hypothesis, namely, to see whether there was an effect of hand massage therapy on pain levels in post cardiac catheterization patients at Dr M Djamil Hospital, Padang. In the Shapiro-Wilk normality test by comparing the post pain scale values in the intervention and control groups, it was found that the P value of the control group was 0.008 and the P value of the intervention group was 0.004 which means that the data is not normally distributed and cannot be continued for the independent sample t test. The data test was replaced by using the Mann Whitney-U test to answer the hypothesis

RESULTS AND DISCUSSION

1. Analisa Univariate analysis

1.1. Average pain level in the intervention group

Table 1. Average pain level in the intervention group

Pain	N	Mean	Std. Deviation
Pre-Test	10	5.80	.789
Post-Test	10	2.90	.568

Based on table 1 from the results of research that has been carried out on 10 respondents who became the intervention group, it was found that there was a significant difference in the mean (mean) pain scale between the mean pain scale values before and after massage therapy treatment. The mean value of pain scale

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before massage therapy treatment was 5.8 and the mean value of pain scale after massage therapy treatment was 2.9. Hassan et al (2019) conducted a study on Effect Massage Therapy on the Mood and Pain of Post Cardiac Catheterization Patients, the mean pre-intervention value was 6.3 and the post-intervention mean was 3.4. it was not different from the research conducted by Momeni et al (2020) with the title The Effect of Foot Massage on Pain of the Intensive Care Patients, the mean value of the pain scale before massage was 4.7 and the mean value of the pain scale after massage by nurses was obtained. is 2.8

The process of pain has four stages (Astuti, A., & Merdekawati, 2016)nyeri. They are transduction, transmission, modulation, and perception. The researcher concludes that the modulation stage has an important role in the process of changing pain levels in the intervention group. Pain impulses transmitted by A-delta and C fibers to nociceptive neurons in the dorsal horn of the spinal cord are not all transmitted centrally via the spinothalamic tract. In this area there will be an interaction between the incoming impulse and the inhibitory system, depending on which one is more dominant (Andriyani, 2019). When the incoming impulse If the effect of the inhibitory system is stronger, such as the release of endorphins due to massage performed on the limbs, the patient will not feel sensitive pain (Jafari, H., Courtois, I., Van den Bergh, O., Vlaeyen, J. W., & Van Diest, 2017). This is supported by the truth of the theory which states that massage therapy is stimulation of the skin and underlying tissue by using various levels of hand pressure to reduce pain, relax or increase circulation.

1.2. Average pain level in the control group

Table 2. Average pain level in the control group

Pain	N	Mean	Std. Deviation
Pre-Test	10	5.70	.823
Post-Test	10	5.70	.823

Based on table 2, the results of research that has been carried out on 10 respondents who became the control group, the average value (mean) of the pain scale before and after 20 minutes with basic care in the room did not change, namely the mean value of the pain scale was 5.7. These data were supported by the absence of a significant decrease in vital signs in the control group such as blood pressure (pre-test mean systolic 135.4 and post-test mean systolic 136.6), pulse (pre-test mean 83 and post-test mean 84) and breath (pre-test mean 18.5 and post-test mean 18.4). This is in line with research conducted by Arafat et al (2020) on the Effectiveness of Positioning and Early Ambulation of Back Pain in Post Percutaneous Coronary Intervention Patients (Gilmore, C., Ilfeld, B., Rosenow, J., Li, S., Desai, M., Hunter, C., ... & Boggs, 2019). It was found that the mean pain scale in the control group without treatment who received standard hospital care did not reduce.

The author also assumes where in the control group the mean value of pain level

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did not change in the pre-test and post-test (scale 5.7 or moderate pain), this can happen because the respondents who were the samples in this study did not receive pharmacological therapy such as administration of analgesics to treat pain.

2. Analisa Bivariate analysis

Table 3. The Effect of Finger Massage Therapy on Pain Levels in Post Cardiac Catheterization Patients

Variable	Mann-Whitney U	Wilcoxon W	Z Value	Asymp. Sig. (2-tailed)
Pain *Posttest*	0.000	55.000	-3.902	.000

Based on table 3 of the results of the Mann Whitney-U test, it is known that the Asymp value. Sig. (2-tailed) of 0.000 is smaller than the probability value of 0.05, so it can be concluded that there is an effect of hand massage therapy on pain levels in post-cardiac catheterization patients at Dr M Djamil Hospital, Padang, which means that non-pharmacological therapy hand massage therapy is able to provide a significant effect in reducing the pain scale. This shows that finger massage therapy can be used as an alternative option in providing intervention to patients after cardiac catheterization in the treatment room, especially in reducing the pain (Boitor, M., Martorella, G., Laizner, A. M., Maheu, C., & Gélinas, 2016). This was in line with research conducted by Soliman et al. (2017) on the Effect of Massage Therapy on Stress, Anxiety and Pain Among Cardiac Surgical Patients who reported that there was an effect of massage therapy on reducing pain, anxiety and stress scales in patients with a p value = 0, 01. Soliman et al, also said that there was a relationship between pain, stress and anxiety where they concluded that when stress and anxiety increased, pain also increased (Gensic, M. E., Smith, B. R., & LaBarbera, 2017). Research conducted by Boitor et al (2015) with the title The Effectiveness of Hand Massage on Pain in Critically Ill Patients After Cardiac Surgery, said that the group that received hand massage treatment experienced a significant reduction in pain intensity and anxiety with $p < 0.02$ (Mei, L., Miao, X., Chen, H., Huang, X., & Zheng, 2017).

Based on the results of research and theory, the researcher argues that the cause of the decrease in pain scale after being given hand massage therapy intervention was the relaxation and comfort effect. It was caused by pressure during massage which stimulates the nervous system to release endorphins to inhibit the transmission of pain messages in the cerebral system and spinal cord (Andronis, L., Kinghorn, P., Qiao, S., Whitehurst, D. G., Durrell, S., & McLeod, 2017). The process of relaxation also affects the respondent's vital signs such as a decrease in blood pressure, a decrease in pulse rate and a decrease in breathing rate (El Geziry, A., Toble, Y., Al Kadhi, F., Pervaiz, M., & Al Nobani, 2018)

CONCLUSION

Based on research that has been conducted on the Effect of hand Massage Therapy on Pain Levels in Patients Post Cardiac Catheterization Actions at Dr M

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Djamil Hospital, Padang, the following conclusions were an effect of hand massage therapy on pain levels in post-cardiac catheterization patients at Dr M Djamil Hospital Padang. Nurses can apply hand massage as pain intervention.

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