EFFECT OF WARM WATER COMPRESS THERAPY ON THE INCIDENCE OF HYPEREMIA IN PHLEBITIS PATIENTS AT THE INPATIENT WARD OF BRIGJEND H. HASAN BASRI GENERAL HOSPITAL KANDANGAN

Nurul Hidayah[1], R. Topan Aditya Rahman[2], Desilestia Dwi Salmarini[2]

[1]Nursing Study Program, Sari Mulia Health Science Academy, Banjarmasin
[2]Midwifery Study Program, Sari Mulia Health Science Academy, Banjarmasin

Corresponding Email: hiragi12@yahoo.com

Abstract: This study aims to determine the effect of warm water compress therapy on the incidence of hyperemia in 40 patients with phlebitis at the Inpatient Installation of H. Hasan Basry General Hospital Kandangan. *Research method used quasi-experimental with two group; control and intervention. The control group was untreated phlebitis, while the intervention group was a phlebitis patient treated with warm water compresses. Data collection was collected by measuring the redness diameter before and after warm compress therapy. The result showed that the mean of intervention group diameter before treatment 49.3 mm and after treatment 40.2 mm. The mean diameter of control group before treatment 48.1 mm and after treatment 46.4 mm. The mean diameter of intervention group was decreased 9.1 mm and 1.7 mm in the control group. Statistically result test show that there was a significant difference of mean hyperemia diameter between intervention and control group ($p<0.05$). Statistically result test also shows that there was a significant difference of mean hyperemia between pre- and post-treatment with warm water ($p<0.05$). It was concluded that the warm compress therapy could decreased the incidence of hyperemia in phlebitis patients.*

Keywords: *Hyperemia, Phlebitis, Warm Compress Therapy*

INTRODUCTION

Phlebitis is an inflammation of a vein. Phlebitis is an infection of microorganisms during hospitalization, with clinical manifestations appearing at least 72 hours.[1] Phlebitis is caused by chemical irritation, mechanical factors and bacterial agents that often occur as a complication of intravenous therapy. Patient will get intravenous therapy using infusion in all health care settings such as acute care, emergency care, ambulatory care and home health care. Approximately more than 60% of hospitalized patients received intravenous therapy and were at risk of developing phlebitis.[2]

Symptoms of phlebitis are pain, swelling, redness, induration and palpable in the vein attached to catheter. The most common visual response is redness (hyperemia) of the skin at the intravenous site.[7]

The incidence of phlebitis (5%) becomes one of the indicators of hospital service quality with the standard set by The Infusion Nursing of Practice. In Indonesia there is no definite number of the phlebitis prevalence, but some studies indicated that the incidence of phlebitis was still high.[4] Depkes RI Data in 2013 showed that the incidence of phlebitis in Indonesia was 50.11% in Public Hospital and 32.70% in Private Hospital. Nurdin[5] et al stated that the incidence of phlebitis in Prof. Dr. Aloe Saboe Hospital Gorontalo was 7.51%. The incidence of phlebitis in the hospital ward at Cipto Mangunkusumo Hospital Jakarta was 11 cases (10.1%) of 109 patients receiving intravenous fluid with onset 2 days after insertion. Similarly, the incidence of phlebitis at AR Bunda Prabumulih Hospital in 2014 was 12% .[6,7]

Previous study conducted at Brigjend H. Hasan Basri Hospital Kandangan found phlebitis incidence was 47 (18.5%) of 254 patients. This indicated that the incidence of phlebitis was still common in the hospital. The initial study on 5 patients with phlebitis showed that all of them experienced a reddish reaction (hyperemia). In addition, there was no standard operational procedure for phlebitis in Brig. Hasan Basri Hospital Kandangan.

Phlebitis can be treated pharmacologically and non-pharmacologically. Non-pharmacological treatments include skin stimulation in the form of warm compress therapy.[2] It is independently done by the nurse, economical, and no side effects. Doengos[8] stated that warm compress can cause vasodilation of blood vessel and increase oxygen circulation in the hypoxia area, thereby decreasing the inflammatory reaction.[9]

If phlebitis is not treated early, it can caused sepsis with the most common symptom of pain and hyperemia. The incidence of phlebitis in the ward is often ignored by the nurse. The nurse simply replaces the catheter, but does not provide adequate care to treat the phlebitis. Warm compress therapy can be used as an alternative care of nursing for the treatment of symptoms of phlebitis, especially hyperemia.

This study will examine the effect of warm compress therapy on the incidence of hyperemia in patients with phlebitis.

RESEARCH METHODS

The design of this study was quasi-experimental with two groups of pretest-posttest design. Study group was given intervention, while the control group was not, with each was measured twice, before and after treatment.

The samples were all phlebitis patients in the Inpatient ward of H. Hasan Basry Kandangan General Hospital aged 17 years to 44 years, not in chemotherapy or postoperative patients. The number of samples were 40 people, with each group was 20 people.

Data was collected by measuring the diameter of hyperemia before and after warm compress therapy using a ruler.

The data obtained were tested using an unpaired T test to know the effect

of warm compresses on hyperemia in the intervention and control groups, and paired T test to compare changes in the hyperemia reaction of intervention group before and after treatment.

RESULTS AND DISCUSSION

The sample were 40 respondents, with characteristics presented in table 1.

Table 1. The Distribution frequency of subject's characteristic

Subject's characteristic	Study group		Control group	
	N	%	n	%
Age (year)				
17 – 25	11	55	10	50
26 – 35	7	35	7	35
36 – 45	2	10	3	15
Total	20	100	20	100
Sex				
Male	8	40	5	25
Female	12	60	15	75
Total	20	100	20	100
Education				
Elementary school	5	25	5	25
Junior high school	4	20	5	25
Senior high school	11	55	9	45
University	0	0	1	5
Total	20	100	20	100
Occupation				
Employed	9	45	7	35
Unemployment	11	55	13	65
Total	20	100	20	100

The diameter of hyperemia in the intervention group before and after treatment is shown in Figure 1. Warm compress therapy can reduce the diameter of hyperemia in phlebitis patients. In addition, the mean comparison of hyperemia diameter in the control and intervention groups was presented in Figure 2. The results in Fig 2 showed that the diameter of hyperemia in the control group is lower than the intervention group. The results were then tested for data distribution normality. It showed that the data was normal in distribution (table 2). Due to normal distributed data, the statistical analysis used paired and unpaired T test. It showed that the mean ratio of hyperemia diameter between the control group and the intervention was significantly different ($p < 0.05$) (Table 3). The mean ratio of intervention group hyperemia diameter before and after treatment was significantly different ($p < 0.05$) (table 3).

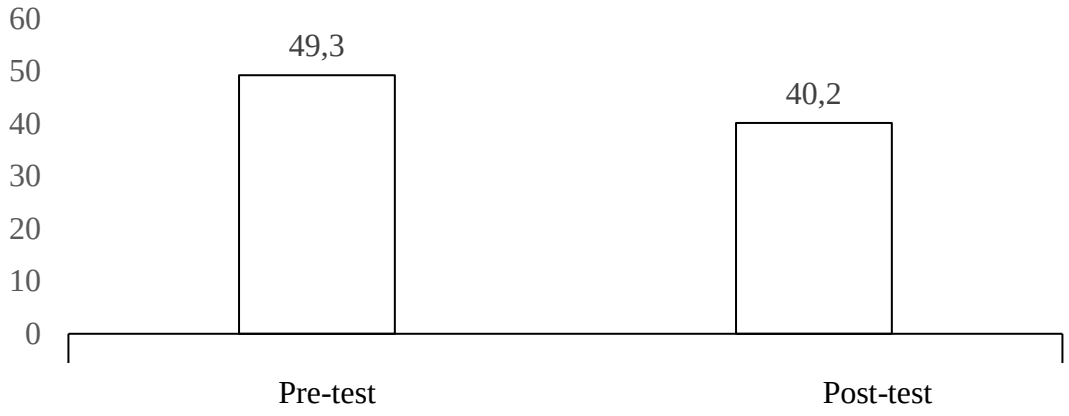

Figure 1. The average diameter of hyperemia in pre-post test on the subject's group

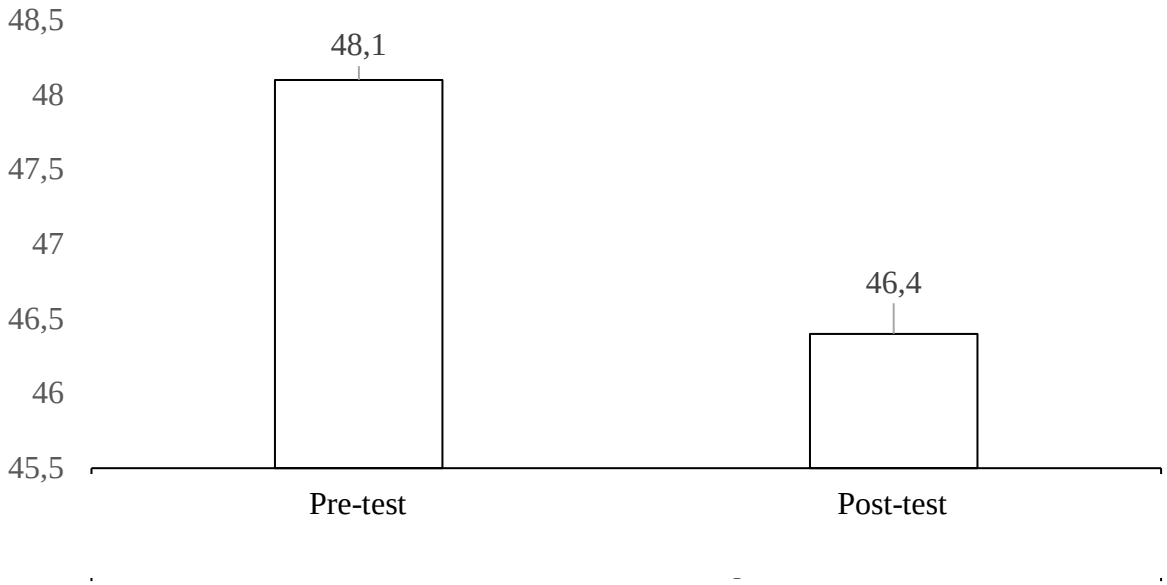

Figure 2. The average diameter of hyperemia in pre-post test on the control group

The results showed that the reaction of hyperemia in patients with phlebitis in this study reduced after the patient was given warm water compress. It is supported by the results of Temple and Johnson[10] which stated that water was able to help the process of tissue epithelization which accelerate the process of wound healing without causing negative impact on patients. This was proven when a warm compress treatment was given for 2 days. There was no side effects that are detrimental to the respondent. In addition, Doengos[8] et al also proved that warm compresses can cause vasodilation of blood vessels and increase oxygen circulation in the hypoxia area also decrease the intensity of pain and the reaction of hyperemia. Kozier[9] stated that hot or cold compresses produce physiological changes in tissue temperature, blood vessel size, capillary blood pressure, capillary surface area for fluid and electrolyte exchange, and tissue metabolism.

.

Table 2. Normality Test of Pretest and Post Treatment, and hyperemia Changes in study and Control Group

No	Group	*Sig. Shapiro-Wilk*
1	Diameter of hyperemia pre treatment	0,659
2	Diameter of hyperemia post treatment	0,212
3	Hyperemia changes on the study group	0,275
4	Hyperemia changes in the control group	0,366

Table 3. The effect of warm water compress therapy on the hyperemia in the study and control group of phlebitis patient

No	Group	*Mean* Diameter of lowering hyperemia (mm)	*p-value*	95% CI
1	Study group	9,1	0,000	5,207 – 9,593
2	Control group	1,7		

Water is usually used for hydrotherapy, solvents, and wound cleansers. Besides it's ability to help heal wounds, it is also easy and cheap to provide. In addition, warm water compresses can be provided without having to make a prescription in advance. Warm water also helps to reduce the pain caused by the reaction of hyperemia in patients with phlebitis. This study proved that water in these conditions made the patient to feel more comfortable and decreased the reaction of hyperemia. It is caused by vasodilation and increasing blood circulation on the hyperemia vessel due to warm water.

CONCLUSIONS

Based on the results of the study, it can be concluded that the action of warm water compresses affect the diameter of hyperemia of patients with phlebitis. It proves to be effective in providing comfort and lowering hyperemia reactions due to phlebitis with minimal side effects. Thetefore, warm water compress can be used as an alternative action in patients with phlebitis. Further research may be needed to assess the mechanism of warm water in reducing hyperemia in phlebitis patients.

REFERENCES

1. Darmadi. *Infeksi nosokomial problema dan pengendaliannya*. Jakarta: Salemba Medika.2008.
2. Weinstein SM.*Buku saku terapi intravena*. 2nd ed. Jakarta: EGC.2012.
3. Potter PA, Perry AG. *Fundamentals of Nursing*. 7th ed. Elsavier.2010.
4. Alexander M, Corrigan A, Gorski L, RN, MS, C, et al. *Infusion Nursing: An Evidence Based Approach*. Alexander M, editor. Saunders Elsevier Inc.2010.
5. Nurdin, Khumaidi, Rany H., Andriani. *Deskripsi kejadian flebitis di ruang G2 (bedah) RSUD Prof. Dr. Aloei Saboe Kota Gorontalo Tahun 2013.* Thesis. Nursing Science Program study, Faculty of Health Sciences and sport; Gorontalo State University.2013.
6. Iradiyanti, W. P., & Kurnia, E. *Pemberian obat melalui IV terhadap kejadian plebitis pada pasien rawat inap di rumah sakit*. STIKES RS Baptis Kediri.2013.
7. Rizky, Wahyu. Analisis Faktor yang Berhubungan dengan Kejadian Phlebitis pada Pasien yang Terpasang Kateter Intravena di Ruang Bedah Rumah Sakit Ar. Bunda Prabumulih.

Journal Ners and Midwife Indonesia. JNKI, Vol. 4, No. 2, Tahun 2016, 102-108.2016.

8. Doengoes, M.*Rencana Asuhan Keperawatan: pedoman untuk perencanaan dan pendokumentasian*. Alih Bahasa Monica Ester. Jakarta: EGC.2010.
9. Kozier Erb. *Buku Ajar Praktik Keperawatan Klinis.* Alih Bahasa Eny Meiliya. Jakarta: EGC.2009.
10. Temple JS dan Johnson JY Buku Saku Prosedur Klins Keperawatan. Alih Bahasa Esty Wahyuningsih. Jakarta: EGC.2010