

The Effect of Acupressure Wristbands Toward Acute Nausea and Vomiting on Post-Chemotherapy Cervix Cancer Patient in Prof. Dr. Margono Soekarjo Hospital Purwokerto

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Abstract-The most serious side effects of chemotherapy are nausea and vomiting. Through the provision of non-invasive pressure on the P6 point using an acupressure wristbands, the effect of nausea and vomiting can be reduced. This study aims to describe the effect of the use of acupressure wristbands on acute nausea and vomiting after chemotherapy in patients with cervical cancer at prof. dr. Margono Soekarjo hospital Purwokerto.

The research used a quasy experiment design with pre-post test with control group design. The samples were cervical cancer patients who underwent chemotherapy consisting of 40 respondents divided into an experimental group of 20 respondents and a control group of 20 respondents. The Rhodes INVR questionnaire was used to measure acute nausea and vomiting. The measurement was done 12 hours after chemotherapy. Bivariate analyses used were Wilcoxon and Mann Whitney tests ($\alpha = 0.05$).

The result showed that there was a decrease in the average score of acute nausea and vomitting before and after the treatment in experimental group by 0.75 with a significance value of 0.000 ($p < 0.05$), and there was a difference in the mean score (8.75) of acute vomiting after the treatment between experimental and control groups with a significance value of 0.018 ($p < 0.05$).

The conclusion is that the use of acupressure wristbands has a significant effect on reducing acute nausea and vomiting after chemotherapy in cervical cancer patients

Keywords: acupressure wristbands, acute vomiting, chemotherapy, cervical cancer

I. INTRODUCTION

According to the Indonesian Cancer Foundation Bulletin (2017), Indonesia as a country with a population of more than 250 million people, is the 4th most populated country after China, India, and America that will continue

to face the problem of cancer, especially if prevention efforts have not been made to the maximum. Cervical cancer is a cancer with the highest prevalence in Indonesia in 2013 with 0.8%. Central Java and East Java Provinces are the provinces with the most estimated cancer sufferers, around 68,638 and 61,230 people respectively (Infodatin, 2015[1]).

The number of cases of hospitalization for cervical cancer in all hospitals in Indonesia in 2015 based on age group showed that the highest case is within age group of 45-64 with 4082 cases. While the number of cases of inpatient cervical cancer in all hospitals in Indonesia in 2015 according to the province showed that the most cases occurred in the province of Central Java, followed by South Sulawesi and South Sumatra [2].

Cancer medical management can be divided into two, curative and palliative care. Curative medical management is closely related to the administration of chemotherapy, radiation, and hormonal drugs. Whereas palliative care tends to be interpreted as an action taken to improve the quality of life of cancer patients [3],[4].

Curative treatment in the form of chemotherapy is a systemic therapy that can reach cancer cells that have spread and have metastases [5] [4]. The side effects from chemotherapy can arise, including hair loss, nausea, vomiting, stomatitis, dry throat, diarrhea, pancytopenia, hypersensitivity, effects on sexual organs, fatigue, constipation, skin, nerve and muscle problems [6].

Nausea and vomiting due to chemotherapy that is not handled properly can cause dehydration which can worsen the patient's condition and can even cause death. According

to Hesketh (2008) [7] in Firmana (2017) [6], the symptoms of nausea and vomiting can cause psychological problems (anxiety or stress) for patients. It affects the attitude and decision of patients to choose to stop undergoing chemotherapy. This will certainly worsen the patient's condition and life expectancy in the future.

Management of nausea and vomiting in patients undergoing chemotherapy can restore appetite, prevent loss of body fluids (dehydration), and improve the quality of patient's life. A combination of several anti-emetic drugs is needed with different mechanisms of action to give better results compared to the use of single-dose anti-emetic drugs [6]. Anti-emetic drugs have been given, but 60% of patients still complain of nausea and vomiting [8], [4]. Complementary therapy (palliative care) as a complement to primary therapy can be given to help in reducing the effects of nausea and vomiting due to chemotherapy.

Complementary therapy as a form of palliative care can be in the form of acupressure, acupuncture, yoga, aromatherapy, music therapy, remembrance therapy, distraction, and herbal ingredients [6]. Acupressure is the act of emphasizing the body's strategic points using or without using assistive devices [9], [4]. One of the acupressure points that is believed to reduce nausea and vomiting after chemotherapy is the Pericardium 6 (P6) point, which is a point located at the base of the inner wrist [8], [10], [4].

One of the tools used in acupressure therapy is the acupressure wristbands which has the function of pressing certain acupressure points or desired points. Pressing stimulation at point P6 (Pericardium 6 or Nei Guan) located in the anterior part of the forearm, which is about three fingers from the wrist fold between the Palmaris longus tendon and flexor carpi radialis is believed to improve energy flow in the stomach so that problems in the stomach including nausea and vomiting can be reduced [11], [6]. The use of this acupressure wristband has been widely used in reducing nausea and vomiting, either due to travel sickness, chemotherapy, post-surgery, or pregnancy nausea and vomiting.

According to research conducted by Supartha et al (2018) [4], entitled "Application of nursing action based on P6 acupressure research and nurse education on the nausea and vomiting of cancer patients undergoing chemotherapy" conducted for 5 (five) days on 12 (twelve) cancer patients on the fourth and eighth floors of RSCM building, explained that the application of EBN acupressure point P6 using the Sea-Band acupressure wristband is easy to apply,

safe and effective in reducing nausea and vomiting of cancer patients undergoing chemotherapy.

Based on a study conducted by Taspinar and Sirin (2010) [12] entitled "Effect of acupressure on chemotherapy-induced nausea and vomiting in gynecologic cancer patients in Turkey" on 34 patients with gynecological cancer explained that there was a significant value between the average score of nausea and the use of antiemetics was accompanied by the use of acupressure wristbands, when compared to the average score of nausea and the use of antiemetics before the application of the wristbands ($p < 0.05$).

Prof. dr. Margono Soekarjo Hospital is a provincial hospital as a reference center for various patient problems including cancer. Based on the observations of researchers, in Prof. dr. Margono Soekarjo Hospital Purwokerto, the use of acupressure wristband has never been done as one of the nursing actions in reducing nausea and vomiting due to chemotherapy.

Based on the results of the pre-survey the number of cervical cancer patients at Prof. dr. Margono Soekarjo for from January 1st to November 6th, 2018 were 508 for in patients and 5,000 for outpatient, and cervical cancer was ranked 10th in the chemotherapy room of Prof. dr. Margono Soekarjo Hospital with a total of 5020 visits.

Based on the description above, the writer is interested in researching the effect of the use of acupressure wristbands on acute nausea and vomiting on post-chemotherapy of cervical cancer patients in Prof. dr. Margono Soekarjo Hospital Purwokerto.

II. METHODS

This study used quasi experimental design with pre-post test with control group design. This study was conducted at Prof. dr. Margono Soekarjo Hospital Purwokerto. The population were 46 cervical cancer patients undergoing chemotherapy at Prof. dr. Margono Soekarjo Hospital Purwokerto (period 28th October – 28th November 2018). The sampling technique used was consecutive. The samples were 40 patients of cervical cancer who underwent chemotherapy and then they were divided into an experimental group consisting of 20 respondents and a control group consisting of 20 respondents. The measurement of acute nausea and vomiting was done using the Rhodes INVR questionnaire taken 12 hours after chemotherapy. The bivariate analysis employed the Wilcoxon and Mann Whitney test ($\alpha = 0.05$). Univariate analysis was performed by presenting the results of each variable with a frequency distribution. Bivariate analysis was used to test hypotheses between independent

and dependent variables. Bivariate analysis using the wilcoxon test was used to determine the differences of nausea and vomiting before and after the treatment in the experimental group (paired), while mann whitney test was used to determine the differences of nausea and vomiting before and after the treatment in the experimental group and the control group (2 groups not in pairs).

III. RESULTS AND DISCUSSION

1. Frequency distribution of acute nausea and vomiting in the control group and experimental group before the treatment (given acupressure wristbands) in chemotherapy patients

Table 1.1 Acute nausea and vomiting in the control group and in the experimental group before the treatment (given the acupressure wristbands) in chemotherapy patients

Acute nausea and vomiting	Experimental		Control		Total	
	F	%	F	%	F	%
None	0	0	0	0	0	0
Mild	3	7.5	2	5	5	12.5
Moderate	7	17.5	7	17.5	14	35
Severe	4	10	8	20	12	30
Poor	6	15	3	7.5	9	22.5
Total	20	50	20	50	40	100

Based on table 1.1 it is known that the results of the frequency distribution of acute nausea and vomiting before the treatment using acupressure wristbands showed that most respondents were in the moderate category of acute nausea and vomiting with 17.5% (7 people). In the control group, the majority of respondents were in severe nausea and vomiting or it can be said in the heavy category with 20% (8 people).

Madiylu (2017) [13] revealed that in cancer patients especially cervical cancer, nausea and vomiting still continue to be the most stressful among other chemotherapy side effects, even though the development of antiemetic agents is now more effective. According to Supartha et al (2018) 60% of cancer patients undergoing chemotherapy still complain of nausea and vomiting although they were given anti-emetic. Rukayah (2013) [14] also revealed that nausea and vomiting in patients using moderate emetogenic chemotherapy also occurred. 47% of the respondents experienced acute nausea, 28% of respondents experienced acute vomiting, 57% of them experienced nausea and 41% of the respondents experienced vomiting on the second to fifth day, although the majority of patients (84%) were given 5HT3 antagonists that was combined with corticosteroids.

2. Frequency Distribution of Acute Nausea and Vomiting in the Control and Experimental Groups After the Treatment (Use of Acupressure Wristbands) in Chemotherapy Patients

Table 2.1 Acute Nausea and Vomiting in the Control and Experimental Groups After the Treatment (Use of Acupressure Wristbands) in Chemotherapy Patients

Acute Nausea and Vomiting	Acupressure Wristbands					
	Experiment		Control		Total	
	F	%	F	%	F	%
None	3	7.5	0	0	3	7.5
Mild	7	17.5	1	2.5	8	20
Moderate	4	10	7	17.5	11	27.5
Severe	1	2.5	6	15	7	17.5
Bad	5	12.5	6	15	11	27.5
Total	20	50	20	50	40	100

Table 2.1 showed the results of the frequency distribution of acute nausea and vomiting after being given the treatment using acupressure wristbands. In the experiment group it was found that most respondents were in the category of mild acute nausea and vomiting as many as 7 people (17.5%). In the control group, most respondents were in the moderate category of acute nausea and vomiting as many as 7 people (17.5%).

One of the acupressure points that is often used to reduce nausea and vomiting is point P6. Point P6 is a point located in the meridian lining of the pericardium which has two branches, a branch that enters the pericardium and the heart, then continues down through the diaphragm, into the middle and lower chambers of the abdomen. These meridians also pass the stomach and large intestine [15], [13].

The way to determine the P6 point is by placing 3 patient's fingers above the wrists, precisely about 6 cm above the wrists and between two protruding muscles that are clearly visible when holding hands tightly [11], [6].

One of the tools that can be used in acupressure therapy is the acupressure wristbands. This tool is made of several types of materials, such as latex, artificial plastic, magnetic botton, and elastic fabric. The acupressure wristbands has a circular plastic button (1 cm in diameter) or a magnet with particular size that has a function of pressing certain or desired acupressure points [6].

3. Analysis of the Differences in Acute Nausea and Vomiting Before and After Treatment (Use of

Acupressure Wristbands) in the Control and Experiment Groups

Table 3.1 Differences in Acute Nausea and Vomiting Before and After Treatment (Use of Acupressure Wristbands) in the Control and Experiment Groups

		Mean	Std. Deviation	Difference
Experiment	Pre-test	3.65	1.089	0.75
	Post-test	2.90	1.447	
Control	Pre-test	3.60	0.883	0.25
	Post-test	3.85	0.933	

Table 3.1 shows an average difference in acute nausea and vomiting before and after the treatment. The difference of nausea and vomiting in the control group increased by 0.25, from 3.60 to 3.85, while in the experiment group it decreased by 0.75 from 3.65 to 2.90.

Basically, despite getting antiemetic drugs, cervical cancer patients undergoing chemotherapy still experience the effects of nausea and vomiting. Based on interviews with respondents, nausea and vomiting are the most difficult to be tolerated compared to other side effects such as dizziness, loss of appetite, thick palms and legs. Tarcin et al. (2004) [16] in Firmana (2017) [6], also revealed that stimulation at point P6 has the benefit of increasing beta endorphin release in the pituitary around the Chemoreceptor Trigger Zone (CTZ). Beta endorphins are endogenous antiemetics that can inhibit the impulse of nausea and vomiting in the vomiting center and Chemoreceptor Trigger Zone (CTZ).

This is in line with a study conducted by Taspinar and Sirin (2010) [12] entitled "Effect of acupressure on chemotherapy-induced nausea and vomiting in gynecologic cancer patients in Turkey" in 34 patients with gynecological cancer. The finding showed that there was a significant value between the mean scores of nausea and the use of antiemetic with the use of acupressure wristbands when it was compared to the one before installing the wristband ($p < 0.05$).

4. Analysis of the Differences in Acute Nausea and Vomiting before and after Being Given Acupressure Wristbands in the Experimental group

Table 4.1 Differences in Acute Nausea and Vomiting Before and After Being Given Acupressure Wristbands in the Experiment Group

		Mean	Difference	Z	P value
Experimental	Pre-test	3.65	0.75	-3.750	0.000
	Post-test	2.90			

Table 4.1 showed the mean of acute nausea and vomiting before and after the treatment in the experiment group decreased by 0.75, with a Z value of -3.750 and a significance value of 0.000 ($p < 0.05$), so that H_0 was rejected and H_a was accepted. These results indicate that there is an effect on the use of acupressure wristbands to reduce post-chemotherapy acute nausea in the experiment group.

Hutagaol (2010) [17] revealed that acupressure is intended to restore the balance in the body, by providing stimulation so that the flow of life energy can flow smoothly. Acupressure also aims to balance Yin and Yang (Hartono, 2012) [18].

Symptom such as nausea is due to lack of energy (Qi), stagnation (excess) of energy (Qi), or disharmony (Qi) of the spleen and stomach. Acupressure devices (acupressure rings) have been developed to provide passive acupressure to P6 to reduce nausea, and it can be given by health care providers, family members, or patients themselves and it does not involve puncturing the skin [19], [4].

5. Analysis of Differences in Post-Chemotherapy Acute Nausea and Vomiting in the Control Group and Experiment Groups

Table 5.1 Differences in Post-Chemotherapy Acute Nausea in the Control Group and Treatment Group

		Mean	Std. Deviation	Differences	Sig. (2-tailed)	Z	df
Acute Nausea & Vomiting Before	Experiment	20.80	1.089	0.60	0.871	-0.163	40
	Control	20.20	0.883				
Acute Nausea & Vomiting After	Experiment	16.13	1.447	8.75	0.018	-2.371	40
	Control	24.88	0.933				

Table 5.1 shows that the average difference in acute nausea and vomiting before the treatment in the experiment and control groups is 0.60 with a significance level of 0.871 (p value > 0.05), while the average difference in acute nausea and vomiting after the treatment in the experiment group and control group was 8.75 with a significance level of 0.018 (p value < 0.05). In other words there was a difference in the results of acute nausea and vomiting after the treatment using an acupressure wristbands.

According to Fengge (2012) [15], acupressure is useful for increasing endurance even though the user is not sick (promotive), preventing the entry of disease source, maintaining body condition (preventive), healing the disease (curative), and rehabilitation.

While from the medical model, Hutagaol (2010) [17] revealed that acupressure techniques can be useful for endorphin release, blocking pain receptors to the brain, cervical dilatation, and increasing the effectiveness of uterine contractions.

Pressing stimulation at point P6 (Pericardium 6 or Nei Guan) located in the anterior part of the forearm, which is about three fingers from the wrist crease between the tendon of Palmaris longus and flexor carpi radialis is believed to improve the flow of energy in the stomach in order to reduce interference with the gastric nausea including vomiting [11], [6].

IV. RESEARCH LIMITATIONS

The limitations when conducting this research were:

1. The acupressure wristband made from knitted fabric must be removed when taking a bath to avoid from getting wet. It is likely that the respondent does not put it back in the right position, at point P6.
2. The size of the wristbands cannot be changed. When it is worn by the respondents with a big wrist, it feels tighter. Hence, it is necessary to open it when installing.
3. It is sometime less - monitoring in the adherence of wearing the wristband. The respondents sometimes forget to wear it back after taking it off when taking a bath.
4. It is less- monitoring in the amount of anti-emetic that the respondents consume.
5. It is difficult to observe the respondents 12 hours after the chemotherapy. Several patients prefer to go home or return to the ward directly after finishing the treatment. The observation is then done through whatsapp or cell phone.

Picture 1
Documentation of Wristband and Activities when Wearing Acupressure Wristband



V. CONCLUSION

The conclusion is that the use of acupressure wristband has a significant effect on reducing acute nausea and vomiting after chemotherapy in patients with cervical cancer.

The use of acupressure wristband has an effect on reducing acute nausea and vomiting in post-chemotherapy patients in Prof. dr. Margono Soekarjo Hospital Purwokerto with a decrease in the average score of acute nausea and vomiting within the treatment group by 0.75 and a significance value of 0.000 (p value < 0.05). In addition, there was a difference in the average score of acute nausea and vomiting after the treatment between the experimental group and the control group by 8.75 with a significance value of 0.018 (p value < 0.05).

The results of this study showed that many nurses were curious and interested in this wristband. They wanted to try and prove themselves the effect of this acupressure wristband. Some of them used it to deal with nausea and vomiting due to travelling and pregnancy sickness. There were also many patients who are interested in this wristband.

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