

Therapy Acupressure to Reduce Nausea and Vomiting of Post General Anesthesia in RSUD Wates Kulon Progo

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Abstract—Postoperative nausea vomiting is one of common side effects within the first 24 hours after general anesthesia. The incidence of postoperative nausea vomiting is approximately 1/3 of all patients undergoing surgery or occurring 30-70% within the first 24 hours. One of the non-pharmacological therapies to reduce nausea of vomiting is acupressure therapy. To know the effect of acupressure therapy to reduces nausea and vomiting post general anesthesia in RSUD Wates Kulon Progo. The method in this research was quasi experiment, pretest and posttest with control group design. Data collection was done using consecutive sampling technique for 64 respondents. The data were analyzed using univariate and bivariate analysis with Wilcoxon and Chi Square test. The result of this research shows the difference of nausea vomiting response before and after intervention in comparison group is $p = 0,057$, while in intervention group, the difference of nausea vomiting response before and after given acupressure is p value = 0,000. There are differences response nausea vomiting of intervention group and comparison group based on Chi Square test (p value = 0,000). Based on this research, it can be concluded that acupressure therapy reduces nausea and vomiting post general anesthesia in RSUD Wates Kulon Progo.

Keyword: nausea, vomiting, acupressure, anesthesia

1. INTRODUCTION

General anesthesia is a condition loss reversible awareness that is affected by drug induction¹. The effect of general anesthesia in patients are nausea, vomiting, dry cough, sore throat, headache, back pain, itching, injection in the area of the injection, and temporary memory loss².

Postoperative nausea and vomiting are two of the side effects that often occur in 24 hours after general anesthesia³. The incidence of postoperative nausea and vomiting is experienced approximately 1/3 of patients who undergo surgery or occur 30-70% in hospitalized patients in the first 24 hours⁴. The incidence of nausea and vomiting in patients who carried out 50% inhalation general anesthesia compared to regional anesthesia is 25%. It is because the therapy and drugs used in general anesthesia directly trigger more stimulation to the chemoreceptors in the medulla oblongata or vomiting center 5.

There are several approaches that can be done to overcome postoperative nausea and vomiting, including pharmacology and non-pharmacology. One of non-pharmacological therapies that reduce nausea and vomiting is acupressure therapy. Acupressure or commonly known as totok or finger prick therapy is provided by massage and stimulation at certain points on the body⁶.

Acupressure therapy can be used to treat nausea and vomiting, either preventing or reducing by pressing or massaging the influential meridian points of the hand, namely P.6 (heart membrane / pericardium). At that point there is a flow of energy that conducts nerves that affect the response to nausea and vomiting. The pressure or massage of the energy point is the same as blocking the stimulation of nausea and vomiting⁷.

2. RESEARCH METHODS

This type of research was a quasi-experimental design with pretest and posttest with control group design. This research was conducted in Wates Hospital in March- May 2018. There were 64 respondents divided in two groups in which there were 32 respondents in each group. Sampling in this study was carried out by consecutive sampling. Samples were obtained according to the inclusion criteria. They were elective surgery patients with general anesthesia, ASA I and II, aged 18-45 years old, BMI 18-25 kg / m² and willing to be

respondents. While the exclusion criteria were the patients with post-anesthesia, swelling, fractures, wounds, tumors and bruises on the skin surface that would be treated on both upper extremities. It included the patients with vomiting nausea given anti-emetic drugs in the recovery room or during research observation. The research instruments used were an observation sheet based on Gordon (2003) and an Alderete Score assessment, acupressure measures point P.6.

The procedure of this study was carried out when the patient was in the recovery room (RR) after having surgery. If the patient reached ≥ 8 of the Alderete score measured, the patient could be observed and evaluated for the nausea and vomiting according to Gordon observation sheet nausea score in the comparison group and intervention. The researchers gave acupressure in the intervention group with their thumb at point P.6 and 3 fingers (5cm) under the palm of the hand and between the two tendons within 3 minutes and 30 times moderate stress (2.5-15mm). Acupressure was done by the right hand or left hand which was not attached to the infusion or injured, swollen, bruised or broken. After 3 minutes the administration of acupressure was completed in the intervention group, the patient was transferred to the inpatient room and a reassessment score of nausea was performed after 30 minutes. The comparison group was observed and a score of nausea and vomiting was performed again with the same time span as the intervention group. Bivariate analysis in this study used a non-parametric test (ordinal data scale) with two times analysis. First, categorical comparative analysis was performed in pairs with the Wilcoxon Test to determine differences of values before and after the therapy was done in both the intervention and comparison group. Second, the difference in response to nausea and vomiting from the intervention group and the comparison group was compared to do analytical categorical comparative tests and it was not paired with Chi Square Test. The data from the research were carried out by the Wilcoxon statistical test and Chi Square test.

3. RESULTS

Characteristics of Respondents

	Characteristic	Intervention		Comparison Intervention		TOTAL	
		f	%	f	%	f	%
1. Age (year)	18-25	3	9,1	6	18,8	8	14,1
	26-35	10	30,3	9	28,1	19	29,7
	36-45	19	57,6	17	53,1	44	68,8
2. Motion sickness	Yes	21	63,6	23	71,9	44	68,8
	No	11	33,3	9	28,1	20	31,3
3. ASA	ASA I	23	69,7	27	84,4	50	78,1
	ASA II	9	27,3	5	15,6	14	21,9
4. Length of surgery	$\leq 30'$	3	9,1	3	9,4	6	9,4
	31-60'	24	72,7	26	81,3	50	78,1
	61-90'	3	9,1	3	9,4	6	9,4
	$\geq 91'$	2	6,1	0	0	2	3,1
5. Type of surgery	Laparoscopy	1	3,0	0	0	1	1,6
	THT	3	9,1	0	0	3	4,7
	Breast surgery	4	12,1	3	9,4	7	10,9
	Digestive surgery	1	3,0	6	18,8	7	10,9
	Mouth surgery	1	3,0	3	9,4	4	6,3
	Gynecology surgery	7	21,2	11	34,4	18	28,1
	Orthopedics	6	18,2	4	12,5	10	15,6
	Thyroidectomy	3	9,1	2	6,3	5	7,8
Others (debridement, exist, exploration)	6	18,2	3	9,4	9	14,1	

Based on Table 1, it is known that the characteristics of the respondents are mostly in the 36-45 year age range of 56.3% consisting of the intervention group 57.6% and the comparison group 53.1%. The majority of respondents in this study had experienced a history of motion sickness, which amounted to 68.8% consisting of the intervention group 63.6% and the comparison group 71.3%. The majority of the study respondents were ASA I which was 78.1% consisting of the intervention group 69.7% and the comparison group 84.4%. The duration of surgery was mostly in the 31-60 minute period which was 78.1% consisting of the intervention group 72.2% and the comparison group 81.3%. The most common type of surgery was gynecological surgery with 28.1% consisting of an intervention group of 21.2%, while the comparison group was 34.4%.

Table.1 Characteristic of Respondent

Nausea and vomiting	Intervention group				Comparison group			
	Before		After		Before		After	
	F	%	F	%	F	%	f	%
No	8	24,2	30	90,9	16	50,0	9	28,1
Nausea	9	27,3	2	6,1	7	21,9	10	31,3
Nausea and vomiting	15	45,5	0	0	9	28,1	13	48,6

2. Nausea Vomiting Before and After Intervention Acupressure

Based on Table 2, in the intervention group before acupressure, the majority had nausea vomiting of 45.5% and a minority of 24.2%. In addition, the response after being given acupressure was most of the respondents had no experience nausea and vomiting increased to 90.9%.

While, in the comparison group, the patients who did not experience nausea and vomiting before the intervention was 50% and the lowest response was patients experiencing nausea of

Table 2. Nausea Vomitting before and after Invention

Category	F	Mean	Sum	Z	P value
After < Before	24	12,5	30		
After > Before	0	0	0	-4,419	p=0,000
After = Before	8	-	-		

While, in the comparison group, the patients who did not experience nausea and vomiting before the intervention was 50% and the lowest response was patients experiencing nausea of 21.9%. The other result showed the lowest response to nausea and vomiting after the intervention response was 9 respondents without nausea and the majority of patients who experienced nausea and vomiting increased to 13 respondents (48.6%).

3. Difference of nausea vomiting before and after being given an acupressure at the Wates Hospital

Table 3. The differences before and after intervention of intervention group

Category	f	Mean	Sum	Z	P-value
After < Before	4	6,88	27,50		
After > Before	11	8,41	92,50	-1,196	p=0,057
After = Before	17	-	-		

The statistical tests of nausea and vomiting responses before and after being given acupressure in the intervention group conducted by the Wilcoxon test obtained a p value = 0,000 ($p < 0.05$) indicating that there were significant differences in nausea and vomiting response before and after acupressure in the intervention group.

4. Difference of nausea vomiting before and after the intervention of the comparison group

Table 4. The Differences Before and After Intervention of Comparative Group

Group	Decreasing Response nausea and vomiting		Total	p-value
	No	Yes		
Intervention	8	24	32	
Comparison	28	4	32	p=0,000
Total	36	28	64	

The test results of the response to nausea vomiting before and after intervention in the comparison group conducted by the Wilcoxon test obtained a p value = 0.057 ($p > 0.05$) indicating that the statistical test was not significant.

5. Differences Nausea Vomiting in Intervention Groups with Comparative Groups

The test of difference nausea and vomiting responses in the intervention and the comparison group performed with chi square test obtained p value = 0,000 ($p < 0.05$), which showed that the statistical test was significant. This result showed that there was a difference in nausea response in the intervention group given acupressure with the comparison group that did not take acupressure.

DISCUSSION

1. Nausea Vomiting Before and After Acupressure Based on Table 2, it was found that the patients in the intervention group before acupressure was given experienced nausea and vomiting of 45.5% and who did not experience nausea and vomiting of 24.2%. While after being given acupressure, most of the respondents who did not experience nausea and vomiting increased to 90.9% and no respondents experienced nausea and vomiting.
2. The incidence of postoperative nausea and vomiting is due to several factors, such as anesthesia, surgery or the individual itself⁸. Response to nausea and vomiting after a postoperative patient depends on individual. Absorption of anesthetics in each individual is also influenced by many factors such as age, obesity, systemic disorders⁹. The

- incidence of nausea and vomiting in respondents depends on individual and it is influenced by gender factors, length of surgery, type of surgery, history of motion sickness, use of opioid drugs that trigger nausea and vomiting after general anesthesia.
3. Difference of nausea vomiting before and after being given an acupressure of the intervention group Based on the table 3, it showed that there was a significant difference in the response to nausea vomiting in the intervention group given acupressure which was the decrease in the incidence of nausea and vomiting between before the administration of acupressure and after the administration of acupressure. The reduction in post vomiting nausea response in the intervention group can be due to the administration of acupressure therapy stimulating the acupressure point P6 (Nei Guan) which can mediate the release of β -endorphins in the cerebrospinal fluid reinforcing the endogenous antiemetic action of the μ receptor. Then the receptor will affect CTZ directly transmitting the transmitter to the center of nausea vomiting in the brain and medulla oblongata to reduce the nausea and vomiting response¹¹.
 4. Differences of nausea vomiting before and after the intervention of the comparison group Based on Table 4, the results of the statistical test showed there were no significant differences in the response to nausea vomiting before and after the intervention in the comparison group. This was proven by the differences in respondent's nausea and vomiting responses before and after the intervention that showed a decrease in non-nausea and vomiting responses and an increase in nausea and vomiting responses. The response to postoperative nausea vomiting in the control group as a result of the statistical test of postoperative nausea and vomiting scores on the first and second measurements obtained p value (0.26) meaning there was no difference in the mean score of postoperative nausea and vomiting¹⁰. Other studies suggest differences in the response of nausea and vomiting in the control group and experimental group before and after intervention are due to the absence of proper management of prevention of postoperative nausea and are influenced by risk factors such as history of motion sickness, use of inhalation agents, types of administration, types of anesthesia.
 5. Differences Nausea Vomiting in Intervention Groups with Comparative Groups Based on Table 5, H_a is accepted, so there were differences in nausea and vomiting responses in the intervention group given acupressure with a comparison group that was not given the acupressure. There was significant difference in the response to nausea and vomiting in the intervention group compared to the comparison group. The difference in the decline of the response to nausea vomiting before and after the intervention in the comparison group with the intervention group was meaningful but there was only slight difference. It was because the majority of respondents' characteristics included ASA, type of surgery, length of surgery, history of motion sickness, and age in the comparison group and intervention group were almost the same. The characteristics of respondents in the intervention group and the comparison group were in the 36-45 year age group, ASA I. Besides, they had a history of travel sickness, length of surgery in the 31-60 minute period, and the majority of types of gynecological surgery. Based on the theory of Yin and Yang, giving acupressure therapy to a decrease in the response to nausea and vomiting provides a sensation of relaxation because massage at point P.6 gives a sense of comfort and indirectly stimulates nerves . It is also related to chemoreceptors which inhibits the release of receptor nausea and thus it decreases nausea response in vomiting patients⁶. Other studies suggest a decrease in the frequency of vomiting is due to the inhibition of sympathetic nerves which will increase the work of the sympathetic nerves. It then slows down intestinal peristalsis worsening intestinal peristalsis. It results in physiologically

slowing down in pregnancy due to stimulation of the hormone progesterone¹². Acupressure can reduce acute nausea and vomiting due to chemotherapy in cancer patients in general by manipulation of the acupressure point. Manipulation at the acupressure points P6 and St36 can provide benefits in the form of improved energy in the meridian of the spleen and stomach, thus strengthening the cells of the digestive tract to the effects of chemotherapy which can reduce nausea and vomiting stimulation to the vomiting center¹³. At the local level the noxious stimulus (massage acupressure) will turn into a nociceptive impulse involving some local substance which is released when there is tissue damage. At the general level, stimulation of the pericardial point 6 can activate the modulation system in the opioid system, the non-opioid system and inhibition of the sympathetic nerve which is expected to decrease the frequency of nausea⁹. The occurrence of a local inflammatory reaction can stimulate nitric oxide in the body which can increase intestinal motility and it is expected to reduce the incidence of nausea and vomiting. Physiologically vomiting can occur if nausea cannot be tolerated. By blocking nausea stimulation, the stimulation of nausea will not be continued into a vomiting response⁹. Decrease in nausea and vomiting response in post-general anesthesia patients given acupressure in accordance with the Gate Control theory explains that stimulation at one point of acupoint on a meridian pathway will be forwarded by large-diameter A-Beta fibers to the spinal nerves which then have substance in the spinal cord gelatinosa working as a "Gate Control" before being passed on by afferent nerve fibers to transmission cells. This transmission cells channel to the central nervous system by reducing the sense of relaxed discomfort and nausea¹⁴. Different from the supporting studies above, a study states that the incidence of nausea and vomiting in the postoperative period is lower in the metoclopramide and acupressure groups compared with the control group. The administration of anti-emetics and acupressure is equally influential in reducing nausea and vomiting, but in the group given metoclopramide it is found that reduction in nausea and vomiting was more significant than the group given acupressure¹⁵. Based on the theory and research above, most of the research supports that there is an effect of P.6 acupressure (Neiguan) on the incidence of post-general vomiting nausea as well as antiemetic administration. But the influence of the antiemetic drugs given to each respondent was also found in this study. Another reason, the effect of reducing the patient's nausea and vomiting response after general anesthesia can be caused by a combination of administered acupressure and antiemetics. Acupressure is as effective as antiemetic drugs in reducing the incidence of nausea and vomiting after general anesthesia.

CONCLUSIONS AND RECOMMENDATIONS

1. Conclusion

- a. In the intervention group before being given acupressure, the majority of the patients experienced nausea and vomiting and after being given acupressure therapy, the patients did not experience nausea and vomiting.
- b. In the comparison group before the intervention, the majority of the patients did not experience nausea and after the intervention, they experienced nausea and vomiting.
- c. There were differences of the incidence of nausea and vomiting before and after being given acupressure in the intervention group of general anesthesia respondents in IBS RSUD Wates.

- d. There were differences of the incidence of nausea and vomiting before and after intervention in the comparison group of general anesthesia respondents in IBS RSUD Wates.
- e. Acupressure therapy decrease post-general anesthesia nausea and vomiting in IBS RSUD Wates.

2. Suggestions

- a. For Anesthesia Nurses The anesthetist nurse should be able to take part in the training of acupressure therapy, so that in the future it can be used in providing complete perianesthesia nursing care.
- b. For other researchers The next researcher is expected to conduct research on the effect of acupressure therapy on the incidence of nausea and vomiting in post-general anesthesia patients. It is expected that the intervention is not done once and examined rapidly but it can be examined for a longer response of vomiting nausea.

REFERENCES

- Mangku, G., Senopati, G. A. (2010). *Buku Ajar Ilmu Anestesi dan Reanimasi*. Bali : PT Indeks
- Majid, A., Judha, M., Istianah, U. (2011). *Keperawatan Perioperatif*. Yogyakarta : Gosyen Publishing
- Supatmi, A.(2015).
- Aroma terapi Inhalasi sebagai terapi komplementer menurunkan kejadian mual dan muntah post operasi dengan anestesi umum. *Jurnal. Akper Karya Bakti*
- Gundzik, K. (2008). Nausea and vomiting in the ambulatory surgical setting. *Orthopaedic Nursing.Jurnal. 27 (3), 182-187*
- Zainumi, C. M. (2009). Perbandingan Antara Skor Apfel dan Skor Koivuranta terhadap Prediksi Terjadinya Post Operative Nausea and Vomiting pada Anestesi Umum. *Thesis. FK. Universitas Sumatra Utara*
- Fengge, A. (2012). *Terapi Akupresur :Manfaat&Teknikpengobatan*. Crop Circle Crop : Yogyakarta
- Iwan, R. (2011). *Akupresuruntukberbagaipenyakit*. Jakarta :GarisBuku.
- Ayu, K. (2015). EfektivitasPemberianKombinasiDeksametason 2,5 Mg Dan Ondansetron 4 Mg
- Intravena Dalam Mencegah Kejadian Mual Dan Muntah Pasca operasi Dengan Anestesi Umum. *Tesis. UniversitasUdayana*.
- Annisa, H. (2014). Pengaruh Akupresur Terhadap Morning Sickness Di KecamatanMagelang Utara Tahun 2014. *Skripsi. Universitas Muhammdiyah Magelang*
- Rahmayati, E. (2017). Pengaruh Terapi Komplementer AkupresurterhadapMualMuntahPascaOperasi di RSUD Dr. H. Abdul MoeloekProvinsi Lampung. *Skripsi. Poltekkes Tanjung karang*
- Nunley C., Wakim J., Guinn C. (2008).The Effects of Stimulation of Acupressure Point P6 on Postoperative Nausea and Vomiting. *Journal Medical Research*.

Sickness Di KecamatanMagelang Utara Tahun 2014. *Skripsi*. Prosiding Seminar Nasional&Internasional (Vol.2,No.2).

Syarif, H., Nurachmah, E., Gayatri, D. (2011). TerapiAkupresurDapatMenurunkanKeluhanMualMuntahAkutAkibatKemoterapiPadaPasien Kanker:

Randomized Clinical Trial.*Jurnal*. JurnalKeperawatan Indonesia, 14(2), 133-140.

Oktaviani, R. (2013). AkupresurZusanli (St36) Dan Taibai (Sp3) UntukMenurunkanMualPadaPasienDispepsia di RSUD Banyumas. *Skripsi*. Purwokerto: FakultasKedokteran Dan Ilmu-IlmuKesehatanUniversitanSoedirman

Moghadam, A., Koshravi A. (2013). Effect of Acupressure on Post-Operative Nausea and Vomiting in CesarianSection : A Randomised Controlled Trial. *Journal of NCBI*