

## **Acupressure On Zusanli (St36) And Taibai (Sp3) in Reducing Nausea for Patients with Dyspepsia at Banyumas Hospital**

Rizky Oktaviani,<sup>1</sup> Mardiyono,<sup>2</sup> Deny Achiriyati,<sup>3</sup>

**Background:** Nausea is unpleasant sensation behind the throat and epigastrium often causing vomiting. Nausea is a major symptom in patients with dyspepsia. Typical treatments for nausea are antiemetic drugs and non-pharmacological therapy. Acupressure is a massage with finger to give stimulus at a particular point on the surface of the body. Acupressure on hand could reduce nausea in pregnant women.

**Purpose:** The purpose of this research was to evaluate the effect of acupressure in reducing nausea for patients with dyspepsia at Banyumas hospital.

**Method:** This research was quasi-experimental pretest-posttest control group design. The consecutive sampling technique was employed in this research with 30 subjects, 15 subjects in control and 15 subjects in intervention. In the control group received standard antiemetic drug and routine care. The intervention group was treated with acupressure Zusanli (ST 36) and Taibai (SP 3) for 30 minutes for both legs and received antiemetic drugs. Nausea was measured by Numerical Rating scale for Nausea. Data were analyzed with paired samples test and Mann Withney-U.

**Results:** The findings show that acupressure Zusanli (ST 36) and Taibai (SP 3) for 30 minutes significantly reduced nausea in patients with dyspepsia in the intervention group ( $t=7.91$ ,  $p=0.00$ ) and between group ( $z=-2.884$ ,  $p=0.01$ ).

**Keywords:** *Acupressure, nausea, dyspepsia*

<sup>1</sup>School of Nursing, Faculty of Medicine and Health Sciences, Jenderal Soedirman University, Indonesia.

<sup>2</sup> School of Nursing, Health Polytechnics of Semarang, Indonesia, muh.mardiyono@yahoo.com

## **Introduction**

Nausea is unpleasant sensation behind the throat and epigastrium, which often causes vomiting. Dyspepsia patients usually develop gastrointestinal problems and induce nausea as a major symptom in dyspepsia patients (Marcellus, 2009). Patients with dyspepsia in an upper gastrointestinal tract syndrome manifest nausea that can develop epigastric pain, discomfort, vomiting, and fullness sensation (Mansjoer, 2001).

The common treatments of nausea for patients with dyspepsia are pharmacological and non-pharmacological therapy. The pharmacological therapy includes antiemetic drugs for nausea, such as ranitidine, and Ondansetron. The non-pharmacological therapy for nausea could be music therapy, acupuncture, acupressure and relaxation.

Acupressure is a massage with finger to give stimulus at a particular point on the surface of the body. Acupressure is a complement therapy with non-invasive intervention, safety, no side effect and then done easy by public (Kashanian & Shahali, 2009). Acupressure on Zusanli (ST 36) and Taibai (SP3) are meridian points for gastrointestinal and spleen location of the foot can reduce nausea. Acupressure is commonly performed for 15 minutes each side of leg. Previous studies of acupressure on spleen meridian point (SP 6) could reduce a chemotherapy induced nausea in gynecological patients ( $p < 0.05$ ) (Taspinar & Sirin, 2010). Moreover, acupressure on gastrointestinal and spleen meridian points could reduce nausea in patients with cancer ( $p = 0.00$ ) (Syarif, 2009) and postoperative patients (Angela, Donal & John, 2005). Nausea was measured by Numerical Rating Scale, Visual Analog Scale, INRV, DDS and Marrow Assessment of Nausea and Emesis and Functional Living Index Emesis. NRS is an easy instrument to measure nausea (Lee Jiyeon *et. al*, 2010).

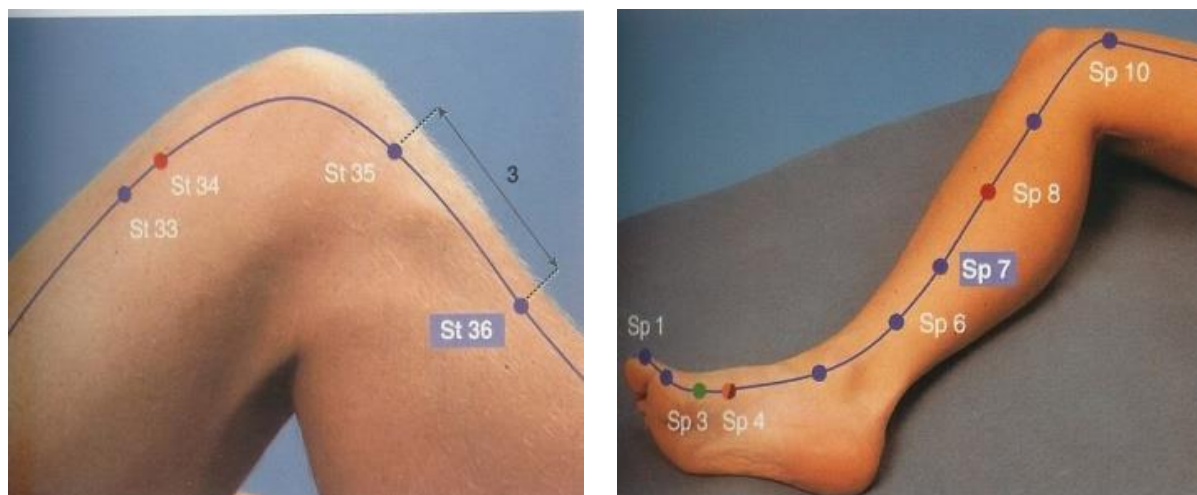
The purpose of the research was to evaluate the effect of acupressure in reducing nausea for patients with dyspepsia.

## Method

This research was quasi- experimental pretest-posttest control group design. The research was conducted in the medical wards at Banyumas hospital from January to march 2013. Patients with dyspepsia who developed nausea were eligible in the research. Consecutive sampling technique was taken for recruiting 30 subjects, 15 subjects in intervention and 15 subjects in control group.

Acupressure was performed by massage on gastrointestinal meridian line under knee to leg finger on lateral side for 2.5 minutes and acupressure with clock-wise on Zusanli (ST 36)-under knee for 5 minutes (Figure 1) and massage on spleen meridian line from thumb of food to under knee joint on medial side for 2.5 minutes and acupressure with clock-wise on Taibai (SP3)-under knee joint for 5 minutes (Figure 1). The entire acupressure procedure took 30 minutes.

Figure 1. *Zusanli and Taibai point*



Data of nausea were measured by Numerical Rating Scale for Nausea ranging 0-10. Demography data were collected before acupressure intervention. Firstly, nausea data were collected before acupressure intervention. Secondly, 15 minutes after acupressure, nausea was measured.

Data of the subject characteristics were presented in frequency and percentage. Data of

nausea were analyzed by inferential paired t-test and Mann-Whitney U.

**Results**

The numbers of sample were 30 subjects, 15 subjects as intervention group and 15 subjects as control group. The subjects’ characteristics were 20-55 years old and the average age was 43.7 years old. Table 1 shows the proportion of subject gender between groups was equal. Length of nausea ranged from 10-60 minutes and there was homogeneity of length of nausea between groups (p=0.57) in Table 2. Table 3 shows the homogeneity of administration of antiemetic drugs between groups (p=0.80).

Table 1 *Proportion of subjects by gender between groups (n=30)*

Gender	Control group		Intervention group	
	n	%	N	%
Female	10	66.7	10	66.7
Male	5	33.3	5	33.3
Total	15	100	15	100

Table 2 *Length of nausea between groups*

Group	Mean	Sd	T	p
Control	31.00’	19.47	0.57	0.57
Intervention	27.33’	15.34		

Table 3 *Administration of antiemetic drugs between groups*

Group	Anti-emetic	Mean range	z	p
Control	Ranitidine	15.13	-.26	.80
	Ondansetron Combination			
Intervention	Ranitidine	15.87		
	Ondansetron Combination			

Table 4 describes that by paired t-test analysis, intervention of acupressure on Zusanli (ST 36) and Taibai (SP 3) reduced significantly nausea in dyspepsia patients (p=0.00);

however, in control group the nausea also decreased significantly ( $p=0.00$ ) that might be influenced by antiemetic drugs.

Table 4 *Reductions of nausea within group*

Group	Pre Sd	Post Sd	t	p
Control	6.47 1.45	4.47 1.06	5.48	0.00
Intervention	6.27 1.10	2.47 1.64	7.92	0.00

Analysis of Mann Whitney-U was conducted to evaluate the effectiveness of acupressure on nausea reduction. The finding shows that acupressure on Zusanli (ST 36) and Taibai (SP 3) between groups was effective to reduce nausea in dyspepsia patients ( $z=-2.88$ ,  $p=0.004$ ) as shown in Table 5.

Table 5 *The difference of nausea reduction between groups (n=30)*

Mean difference	Min-max	Mean range	z	p
Control	3-6	11.00	-2.88	0.004
Intervention	3-8	20.00		

## Discussion

This discussion covers the characteristics of nausea, the findings of nausea reduction, generality, and the acupressure procedure. The characteristics of nausea in dyspepsia patients comprise age, gender, length, frequency, and intensity. The finding reported that the common patients of dyspepsia developing nausea were 41 to 55 years old. It is similar to a previous study that dyspepsia patients were 40 years old ( $n= 30$ , 71.43%) and under 40 years old ( $n=12$ , 28.57%) (Setyono, Prastowo & Saryono, 2006). Nausea often occurs in elderly patients, because antiemetic drugs in the elderly are more difficult than teenagers (Glare et al, 2011). Indonesian females suffered from dyspepsia, which was nausea as common chief complaint (Table 1). It is supported by previous studies that females likely develop dyspepsia (Garret et

al., 2003; Lebaon et al., 2006; Amini et al, 2012).

The finding demonstrates the length of nausea ranging 10-60 minutes and averaging 29.16 minutes (Table 2). The complaints of nausea may come morning, before and after meal (Marcellus, 2009). The intensity of nausea ranges from 0-8 measured by NRS for Nausea (Table 5). Unfortunately, there has no study reporting the peak of nausea in dyspepsia patients. Furthermore, cancer patients usually develop nausea, retching, vomiting (Rhodes & McDaniel, 2011).

Intervention acupressure on Zusanli (ST 36) and Taibai (SP 3) for 30 minutes was effective to reduce nausea in dyspepsia patients ( $z=-2.88$ ,  $p=0.004$ ). The acupressure was performed between 4-5 hours after administration of antiemetic drugs, which last the effect approximately 6 hours (Deglin & Vallerand, 2005). Even though there has been no previous study of acupressure on Zusanli (ST 36) and Taibai (SP 3) for 30 minutes, the finding was supported by previous studies. Three studies reported that acupressure on SP 6 point for 3 minutes each 2 hours during 5 days decreased significantly nausea and vomiting in breast cancer patients ( $n=36$ ) ( $p<0.05$ ) (Molassiotis, Helin, Dabbour & Hummerston, 2007), gynecologic cancer patients ( $n=34$ ) ( $p<0.05$ ) (Taspinar & Sirin, 2010), and cancer patients with chemotherapy ( $n=44$ ) ( $p=0.00$ ) (Syarif, 2009).

On the other hand, acupressure wristband, placebo and antiemetic drugs were insignificantly different among three group, even though one third of patients administered acupressure wristband reported good prevention of nausea (Jones *et al*, 2008).

Acupressure therapy is effective for reduced nausea in dyspepsia patients. Gate control theory explained stimulus at some meridian points in meridian will be forwarded by nerve fibers A-Beta large diameter towards the spinal nerves in the spinal cord and then contained gelatinous substance works as "Gate Control" before passing by afferent nerve fibers to the cells transmission, the transmission channel cells to the central nervous system by decreasing

discomfort, relax and nausea decreased (Hakam, Krisna & Tutik, 2009). Theory of neurotransmitter that acupressure can increase hormone production endorphin that can increase comfort and prevent pain signals to the brain; relaxation occurs (Garret *et al.*, 2003 as cited in Apriany, 2010).

Based on preview studies, researchers were able to conclude either at the point acupressure therapy and SP 3 ST 36, LI 4 or P6 has been proven effective in reducing nausea and vomiting both in dyspepsia, and postoperative chemotherapy, so it can be recommended to do alternative nursing interventions in reducing nausea and vomiting.

Variates antiemetic drug in distric Banyumas hospital for nausea in dyspepsia: ranitidine receptor antagonist class H<sub>2</sub>, ondansetron class prokinetic its have high therapeutic index (Mansjoer, 2001; Garret *et. al*, 2003 as cited in Apriany, 2010). Onset antiemetic drug 1-2 hours and duration until 6 hours after medication (Deglin & Vallerand, 2005). Ondansetron have high therapeutic index quickly overcome nausea (Apriany, 2010).

Dugal and Kochhar (2012), Comparative study of ondansetron and acupressure for postoperative nausea and vomiting after laparoscopic cholecystectomy, the result show scores and level nausea vomiting pasca operation significant lower in combination acupressure and ondansetron group than control group with normal sline 4 ml. White *et al.* (2012), concluded combination acupressure with antiemetic drug was reduced vomiting 0-72 hours after operation with increased patient satisfaction with PONV management.

## **Conclusion**

There is different significant nausea after intervention antiemetic standard ranitidine, ondansetron and combination ranitidine and ondansetron 30 minutes in control group. There is different significant nausea after intervention acupressure point ST36 and SP3 15 minutes and antiemetic drug ranitidine, ondansetron and combination ranitidine and ondansetron 45 minutes in intervention group. There is different significant nausea in control group and

intervention group after intervention acupressure 15 minutes point ST36 and SP3. This study showed that acupressure can be applied in patients with nausea and can be practiced in skill laboratorial course. The recommendation for further research for advanced researchers are acupressure on ST36 and SP3 for nausea of dyspepsia patients 15 minutes without antiemetic drug, acupressure on ST36 and SP3 for nausea, observation long effect acupressure and acupressure for nausea in differen subjects: gastritis and GERD.

## References

- Amini et. al. (2012). Dyspepsia in Iran: SEPAHAN Systematic Review. *International Journal of Preventive Medicine, Special Issue*. 3, 818-825.
- Apriany, D. (2010). *Pengaruh terapi music terhadap mual muntah lambat akibat kemoterapi pada anak usia sekolah yang menderita kanker di RSUP Dr. Hasan Sadikin Bandung*. Thesis: Magister Universitas Indonesia. Fakultas Ilmu Keperawatan.
- Deglin, J.H. & Vallerand, A.H. (2005). *Pedoman obat untuk perawat*. EGC: Jakarta.
- Duggal, G. & Kochhar, S.K. (2012). Comparative study of ondansentron and acupressure for postoperative nausea and vomiting after laparoscopic cholecystectomy. *Journal of Advance Researches in Biological Sciences*. 4 (4), 330-336.
- Galere et. al. (2011). Treating nausea and vomiting in palliative care: a review. *Clinical intervention*. (6).243-295.
- Gotteschling S. et. al. (2008). Acupuncture to alleviate chemotherapy-induced nausea and vomiting in pediatric oncology – A Randomized Multicenter Crossover Pilot Trial. Original Artikel. Departemen of Pediatric Hematology and Oncology University of Saarland Kirrbergerstr; 220, 365-370.
- Hai-Bo, Z., Wan-yin, W. & Xiao-Shu, C. (2006). Effect of puncturing Neiguan (PC6) and zusanli (ST36) on chemotherapy-related vomiting from platinum involved. Therapeutic Project: a report of 26 cases. *Journal of acupuncture and Tuina Science*. 4 (4), 233-235.
- Hakam, M., Yetti, K. & Hariyati, T. S. (2009). Intervensi *spiritual emotional freedom technique* (seft) untuk mengurangi rasa nyeri pasien kanker. *Makara Kesehatan*. 13 (2), 95-99.
- Jones et.al. (2008). Acupressure for chemotherapy-associated nausea and vomiting in children. *Journal of the Society for Integrative Oncology*. 6 (4), 141-145.
- Mansjoer, A. (2001). *Kapita selekta kedokteran*.-Ed.3-. Jakarta: Media Aesculapius.
- Molassiotis, A., Helin, A.M., Dabbour, R. & Hummerston, S. (2007). The effects of P6 acupressure in the prophylaxis of chemotherapy-related nausea and vomiting in breast cancer patients. *Complementary Therapies in Medicine*. 15 (1), 3-13.
- Rhodes, V.A. & McDaniel, R.W. (2004). *Measuring nausea, vomiting and retching in instruments for clinical health-care Research*. (Ed.3). Canada.
- Rhodes, V.A. & McDaniel, R.W. (2001). Nausea, vomiting, and retching: complex problems in palliative care. *CA A Cancer Journal for Clinicians*. 51 (4) :232-248.
- Setyono, J., Prastowo, A., & Saryono. (2006). Karakteristik penderita dispepsia di RSUD Prof. Dr. Margono Soekarjo Purwokerto. *Jurnal Keperawatan Soedirman (The Soedirman Journal of Nursing)*, 1 (1), 27-31.



- Subhuti, D. (2010). Zusanli (stomach-36). Retrieved from [http://www. itmonline.org/ arts/ zusanli.htm](http://www.itmonline.org/arts/zusanli.htm)
- Taspinar, A. & Sirin, A. (2010). Effect of acupressure on chemotherapy-induced nausea and vomiting in gynecologic cancer patients in Turkey. *European Journal of Oncology Nursing*. 14, 49-54.
- White, et al. (2012). Use of a disposable, acupressure device as part of a multimodal antiemetic strategy for reducing postoperative nausea and vomiting. *International Anesthesia Research Society*. 155 (1), 31-37.