



The effectiveness of acupressure combination neiguan and zusanli points to decrease emesis gravidarum in the first trimester of pregnancy

Siti Cholifah¹, Yanik Purwanti¹, Cholifah Cholifah², Dian Aprilia¹

¹Departement of Midwifery, Faculty of Health Sciences, Universitas Muhammadiyah Sidoarjo

²Departement of Health Information Management, Faculty of Health Sciences,
Universitas Muhammadiyah Sidoarjo

Jalan Mojopahit No.666 B, Sidowayah, Celep, Kec. Sidoarjo, Kabupaten Sidoarjo, Jawa Timur

*Corresponding author: siticholifah@umsida.ac.id

ABSTRAK

Latar Belakang: Emesis gravidarum merupakan keluhan yang paling sering dialami ibu hamil sebesar 50-90%, menyebabkan penurunan nafsu makan sehingga mengakibatkan perubahan keseimbangan elektrolit kalium, kalsium dan natrium yang berdampak pada perubahan metabolisme tubuh. Sebesar 2% berakhir menjadi mual muntah berlebihan (hiperemesis gravidarum) yang bisa membahayakan ibu maupun janin. Penanganan emesis gravidarum saat ini masih banyak yang menggunakan terapi farmakologi, metode farmakologi lebih mahal, dan berpotensi mempunyai efek samping. Sedangkan nonfarmakologi bersifat murah, simpel, efektif, dan tanpa efek yang merugikan. Salah satu metode non farmakologi untuk mengatasi mual muntah adalah akupresur.

Tujuan: Untuk mengetahui efektifitas akupresur kombinasi titik neiguan (PC6) & titik zusanli (ST 36) terhadap penurunan emesis gravidarum di praktik mandiri bidan Sidoarjo.

Metode: Desain penelitian menggunakan quasi experimental with one group pretest-posttest design. Populasi penelitian ibu hamil trimester I yang mengalami emesis gravidarum dan memenuhi kriteria bersedia diteliti dan tidak mengalami komplikasi dengan teknik consecutive sampling mulai tanggal 2 Februari - 20 Maret 2022 berjumlah 40 responden. Pengukuran emesis gravidarum menggunakan instrument indeks Rhodes. Analisis data menggunakan Wilcoxon test dengan α 0,05.

Hasil: hasil penelitian menunjukkan bahwa skor emesis gravidarum sebelum diberikan akupresur Mean \pm SD 22.0 \pm 4.01, sedangkan skor emesis gravidarum setelah dilakukan akupresur Mean \pm SD 13.0 \pm 3.14. Hasil uji Wilcoxon didapatkan nilai $P= 0.001 < \alpha$ 0,05 sehingga ada perbedaan bermakna skor emesis gravidarum sebelum dan setelah diberikan akupresur.

Kesimpulan: Akupresur pada titik Neiguan (PC6) dan titik Zusanli (ST 36) efektif menurunkan emesis gravidarum pada ibu hamil trimester I. Saran tenaga kesehatan khususnya bidan dapat menerapkan dan mengajarkan akupresur pada ibu hamil untuk menurunkan keluhan mual muntah.

KATA KUNCI : akupresur; emesis gravidarum; ibu hamil; trimester satu

ABSTRACT

Background: Emesis gravidarum is the most common symptoms in pregnancy which about 50-90% causing a decrease in appetite and will affect changes in potassium, calcium and sodium electrolyte balance, thus will impact on changes in body metabolism. As much as 2% of pregnant women experienced excessive nausea and vomiting (hyperemesis gravidarum) which can harm the mother and fetus. The current management of emesis gravidarum still uses pharmacological therapy, but pharmacological methods are more expensive, and more potential to have side effects. Instead of pharmacological methods,

non-pharmacological methods are cheap, simple, effective, and have no side effects. One of the non-pharmacological methods to treat nausea and vomiting is acupressure.

Objectives: was to determine the effectiveness of the combination Neiguan point (PC6) & Zusanli point (ST 36) to decrease emesis Gravidarum in the first trimester of pregnancy in midwives independent practice Sidoarjo.

Methods: This research used quasi-experimental with one group pretest-posttest design. The study population are pregnant women in the first trimester who experienced emesis gravidarum, who met inclusion criteria and were willing to be studied and had no with consecutive sampling technique from February 2 to March 20, 2022 totaling 40 respondents. Measurement of emesis gravidarum using the Rhodes index instrument. Data analysis using Wilcoxon test with α 0.05.

Results: The results showed that the score for emesis gravidarum before acupressure was Mean+SD 22.0+4.01, while the score for emesis gravidarum after acupressure was Mean+SD 13.0+3.14. The results of the Wilcoxon test showed P value = 0.001 < 0.05 so there was a significant difference in the emesis gravidarum score before and after acupressure was given.

Conclusions: Acupressure at the Neiguan point (PC6) and Zusanli point (ST 36) is effective in reducing emesis gravidarum in first trimester of pregnant women.

Health workers, especially midwives, can apply and teach acupressure to pregnant women to reduce nausea and vomiting complaints.

KEYWORD : acupressure; emesis gravidarum; pregnant women; first trimester

Article Info :

Article submitted on April 19, 2022

Article revised on May 23, 2022

Article received on June 27, 2022

DOI: [http://dx.doi.org/10.21927/jnki.2022.10\(2\).164-169](http://dx.doi.org/10.21927/jnki.2022.10(2).164-169)

INTRODUCTION

Nausea and vomiting (emesis gravidarum) are normal during pregnancy, about 50-90% of pregnant women experience nausea in the first trimester and about 25% of pregnant women experience problems with both nausea and vomiting, thus need time to rest from work (1,2). Nausea and vomiting are most common in early pregnancy, starting from the 6th week after the first day of the last menstrual period until 16th week of gestation. The most severity of nausea and vomiting occurs at 7th – 9th week. For pregnant women who experience nausea and vomiting, 50% of them could overcome at 14th week and 90% could overcome in week 22 (3). Severe nausea and vomiting can cause symptoms of dehydration, acidosis, alkalosis, weight loss and which could affect the mothers' health (4). The condition of nausea and vomiting could develop into

hyperemesis which occurs about 2% in pregnant women and is characterized by electrolyte fluid imbalance and more than 5% weight loss(5). The cause of nausea and vomiting cannot be known for sure, but it is thought to be caused by the increased levels of sex hormones (estrogen and progesterone) produced during pregnancy. After 12 weeks, the symptoms usually disappear as the body adjusts to pregnancy. Another effect of pregnant women who experience nausea and vomiting, they will also experience in some activity disturbance. Psychologically, nausea and vomiting during pregnancy affects more than 80% of pregnant women and have significant effects on quality of life.(1,6).

The Emesis gravidarum causes a decrease in appetite and will affect changes in potassium, calcium and sodium electrolyte balance, thus have an impact on changes in

body metabolism (7). *Emesis gravidarum* will gradually become hyperemesis gravidarum which causes the mother to vomit continuously every time she drinks or eats, as a result the mother's body becomes weaker, paler, and the frequency of urination decreases drastically so that body fluids are reduced and the blood thickens (hemoconcentration) thus slowing blood circulation namely oxygen and tissue, and further it could cause tissue damage that can endanger the health of the mother and the development of the fetus she carries (5). The management of nausea and vomiting can be done pharmacologically on emesis gravidarum using medicines and vitamins such as vitamin B6 (pyridoxine), antihistamines and pro-kinetic agents (8). On the other hand, non-pharmacological or complementary treatments include therapy using acupressure techniques, acupuncture, hypnotherapy, ginger extract, aromatherapy and others. Complementary therapies are cheaper, easily available and have no pharmacological effects (4).

Based on a preliminary survey conducted on November 3 – December 23, 2021, in Lusi Wahyuni's *midwives independent practice* from the 25 pregnant women in the first trimester, 76% of them are experiencing emesis gravidarum. Based on these data, most pregnant women still experienced emesis gravidarum and most of the treatments is still using pharmacological therapy or is ignoring the emesis gravidarum. Nausea and vomiting can impact on the fetus and the mother's social activities. Therefore, handling nausea and vomiting in mothers needs to be done to improve the health of the mother. Non-pharmacological therapy is effective in reducing nausea and vomiting without any side effects. Acupressure as one of the alternative for pregnant women who are experiencing nausea and vomiting to reduce side effects or adverse effects on pregnancy. Thus, it is necessary to do research in "Effectiveness of acupressure

combination Neiguan (PC6) and Zusanli (ST 36) points on reducing nausea and vomiting in pregnant women.

MATERIALS AND METHODS

The research design used in the study was a quasi-experimental with one group pretest-posttest design. The study population of first trimester pregnant women who experienced emesis gravidarum, met inclusion criteria, were willing to be studied, and had no complications with consecutive sampling technique from from the visit to *midwives independent practice* at Sidoarjo on 2nd February to 20th March 2022. The instrument for measuring nausea and vomiting uses the Rhodes index. Observations were made before treatment (pretest), then acupressure intervention was given for 15 minutes. Before being given acupressure treatment, nausea and vomiting were measured (pretest), then acupressure intervention was given using olive oil for 15 minutes within 3 days. Pregnant women should be in a relaxed position, they could sit or lie in bed, then press point PC 6 for 10 minutes by massaging in clockwise direction using the thumb, then continue pressing on point ST 36 for 5 minutes. After 3 days of measurement of nausea and vomiting again (post test), the data were analyzed using the Wilcoxon test with a significance level of $P < 0.05$. Normality test was carried out with Shapiro - Wilk, the results obtained that the data was not normally distributed so that the Paired t test could not be carried out, then it was analyzed using the Wilcoxon test with a significance level of $P < 0.05$.

RESULTS AND DISCUSSION

RESULTS

Based on research data taken from February 2, 2022 to March 20, 2022 at midwives independent practice Sidoarjo, there were 50 first trimester pregnant women, 40 respondents met the inclusion criteria, 10 respondents did

not meet the criteria, 3 were not willing to be studied and 7 people did not experience nausea and vomiting thus cannot be used as research subjects. The research was conducted at midwives independent practice Sidoarjo, each of which is a midwifery practice center led by a certified midwife. They are various types of midwifery services provided including care and examination of pregnant women, birth services, postpartum, infants and toddlers health (immunization and growth development checks), family planning and reproductive health services. Antenatal services or antenatal care are provided in accordance with service standards, include weight measurement on pregnant women, blood pressure checks, abdominal obstetric examinations, providing immunization, blood and multivitamin tablets, providing counselling and counseling, and others. Both heads of PMB have attended acupressure training.

Table 1. Physical characteristics of respondents and homogeneity

Characteristics	Mean \pm SD	p
Age	26.9 \pm 4.72	0.01
parity	2.00 \pm 0.84	0.79
Gestational Age	9.55 \pm 2.09	0.83

Based on **Table 1**, it shows the description the characteristics of respondents, age is not homogeneous, while parity and gestational age of respondents is homogeneous. The mean age of the respondents was 26.9 \pm 4,72, the mean parity was 2.00 \pm 0.84 and gestational age, 9.55 \pm 2.09

Table 2. Results of wilcoxon's test analysis

Emesis Gravidarum	n	median (Min-Max)	Mean \pm SD	P
Pretest	40	23 (16-30)	22.0 \pm 4.01	0.001
Posttest	40	13 (8-12)	13.0 \pm 3.14	

Wilcoxon test, 0.05.

Based on **Table 2** shows the mean of emesis gravidarum at the time of pretest Mean

\pm SD 22. Wilcoxon test results *P* value = 0.001 < 0.05 which means that there is a significant difference in emesis gravidarum in pregnant women before and after acupressure.

DISCUSSION

The results of the study showed that the characteristics of the respondents are homogeneous and almost all of them are at the age that is not at risk for pregnancy. This is obtained because almost all of the respondent's ages in this study were not at risk and the education of the respondents was medium and high, most of the respondents were primigravida and all of them were planning a pregnancy. Age of pregnant women will affect the nausea and vomiting during pregnancy; for those in age risk of pregnancy, the risk of complications in pregnant women is also high, including experiencing excessive nausea and vomiting or hyperemesis gravidarum (9). Most respondents are multigravida, from the level of nausea multigravida tend to experience moderate nausea than primigravida, thus parity increases the occurrence of nausea and vomiting (9).

The mean score of emesis gravidarum in pregnant women before acupressure action Mean \pm SD 22.0 \pm 4.01 and after being given acupressure Mean \pm SD 13.0 \pm 3.14, Wilcoxon statistical test results showed that there was a significant difference in the mean of emesis gravidarum in pregnant women before and after acupressure was performed at the point PC6 and ST 36. This shows that acupressure at points PC6 and ST 36 can reduce nausea and vomiting. This is supported by another study on PC6 point, acupressure effective in reducing nausea and vomiting on pregnant women (5,10,11). In addition, research conducted by Nanik et al (2020) also showed that acupressure had the effect of reducing nausea and vomiting on pregnant women. PC6 point is a point on the meridian line of the heart membrane, located

2 cun or 3 fingers above the wrist between the flexion carpi radialis and palmaris longus tendons. By massaging this PC 6 point has the effect of stimulating the release of beta endorphins in the pituitary and ACTH along the chemoreceptor trigger zone (CTZ) which blocks or inhibits the vomiting center. Thus, by pressing PC6 point can reduce nausea and vomiting. The CTZ is located in the area postrema at the base of the caudal end of the IV ventricle outside the blood-brain barrier. This CTZ contains receptors for various neuro-active compounds that can cause a gag reflex (10,12). On the other hand, ST 36 point is the most widely used acupressure point of the existing acupressure points, because it has many benefits and indications. ST 36 point is located on the foot meridian, which is 3 cun (4 fingers) below the kneecap and 1 finger lateral to the tibia bone. The indication of this zusanli point is to treat diarrhea caused by unhealthy Qi flow. This point could eliminate bloating, overcome belching and other digestive disorders. By putting pressure on the ST 36 point can improve digestive function, increase stamina and the immune system, improve the function of the internal organs such as spleen and intestines, which the effects includes vomiting, gastric disorders or diarrhea. Therefore, by pressing this point can reduce nausea and vomiting in pregnant women (13,14).

The results of this study indicate that acupressure is effective in reducing nausea and vomiting. If acupressure is compared with pharmacological therapy (vitamin B6) in reducing nausea and vomiting there is no significant difference, both are equally effective in reducing nausea and vomiting, acupressure ($p=0.001$) and B6 administration ($p= 0.001$) (5). However, giving vitamin B6 can cause side effects such as nausea, headache, stomach pain, loss of appetite, drowsiness, and mild numbness or tingling, while acupressure has no side effects. On the other hand, if Acupressure is compared

to other non-pharmacological therapies such as giving ginger and aromatherapy showed that acupressure was no more effective than ginger and lemon aromatherapy in reducing nausea and vomiting, so to further increase its effectiveness in overcoming nausea and vomiting, acupressure could be combined with other non-pharmacological therapies (4,15).

CONCLUSION AND RECOMMENDATION

The conclusion of the study showed that the average nausea and vomiting before being given acupressure is 22.0 ± 4.01 , and the average after given acupressure is 13.0 ± 3.14 , there was a significant difference in the reduction of nausea and vomiting.

Suggestions that can be given based on the results of this study are that health workers, especially midwives, can apply and teach acupressure to reduce complaints of nausea and vomiting in pregnant women.

REFERENCES

1. Magfirah M, Fatma S, Idwar I. The effectiveness of Acupressure Therapy and Aromatherapy of Lemon on The Ability of Coping and Emesis Gravidarum in Trimester 1 Pregnant Women at Langsa City Community Health Centre, Aceh, Indonesia. *Open Access Macedonian Journal Medical Sciences* [Internet]. 2020;8(E):188–92. Available from: <https://oamjms.eu/index.php/mjms/article/view/4008>
2. Cholifah S, Nuriyanah TE. Aromaterapi Lemon Menurunkan Mual Muntah pada Ibu Hamil Trimester I. *Jurnal Kebidanan Midwiferia* [Internet]. 2019;4(1):36–43. Available from: <https://midwiferia.umsida.ac.id/index.php/midwiferia/article/view/1613>
3. Kia PY, Safajou F, Shahnazi M, Nazemiyeh H. The effect of lemon inhalation aromatherapy on nausea and vomiting of pregnancy: A double-blinded, randomized, controlled

- clinical trial. Iranian Red Crescent Medical Journal [Internet]. 2014;16(3):e14360. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4005434/pdf/ircmj-16-14360.pdf>
4. Ozgoli G, Naz MSG. Effects of Complementary Medicine on Nausea and Vomiting in Pregnancy: A Systematic Review. International Journal of Preventive Medicine [Internet]. 2018;9(75):1–10. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6177529/>
 5. Saberi F, Sadat Z, Abedzadeh-Kalahroudi M, Taebi M. Acupressure and Ginger to Relieve Nausea and Vomiting in Pregnancy : A Randomized Study. Iranian Red Crescent Medical Journal. 2013;15(9):854–61.
 6. Mattison DR, Halbert L-A. Introduction. 2nd ed. Clinical Pharmacology During Pregnancy. United States: Academic Press; 2022. 1–4 p.
 7. Niebyl JR. Nausea and Vomiting in Pregnancy. The New England Journal of Medicine [Internet]. 2010 Oct 14;363(16):1544–50. Available from: <https://doi.org/10.1056/NEJMcp1003896>
 8. RCOG. The Management of Nausea and Vomiting of Pregnancy and Hyperemesis Gravidarum: Green-top Guideline No. 69. RCOG Green-top Guidel No 69. 2016;(1):1–27.
 9. Norheim AJ, Pedersen EJ, Fonnebo V, Berge L. Acupressure treatment of morning sickness in pregnancy - A randomised, double-blind, placebo-controlled study. Scandinavian Journal Primary Health Care [Internet]. 2001;19(1):43–7. Available from: https://www.researchgate.net/publication/12029952_Acupressure_treatment_of_morning_sickness_in_pregnancy_-_A_randomised_double-blind_placebo-controlled_study
 10. Masdinarsyah I. Akupresur dalam mengurangi emesis gravidarum. Jurnal Asuhan Ibu Anak. 2022;7(1):45–51.
 11. Indah Sari D, Wahyuningsih S. The Effectiveness of Acupressure Therapy on Decreasing Complaints of Nausea and Vomiting in Pregnant Women. Nursing and Health Sciences Journal. 2021;1(1):20–30.
 12. Lu H, Zheng C, Zhong Y, Cheng L, Zhou Y. Effectiveness of Acupuncture in the Treatment of Hyperemesis Gravidarum: A Systematic Review and Meta-Analysis. Evidence-based Complementary and Alternative Medicine [Internet]. 2021;2021:1–14. Available from: <https://www.hindawi.com/journals/ecam/2021/2731446/>
 13. Putri, Anis H, Rahayu, Esti, Setyowati H, Priyo. Pengaruh Akupresur Terhadap Morning Sickness Di Kecamatan Magelang Utara Tahun 2014. Prosiding Seminar nasional dan Internasional Lembaga Penelitian dan Pengabdian Kepada Masyarakat Universitas Muhammadiyah Semarang [Internet]. 2014;36–43. Available from: <https://jurnal.unimus.ac.id/index.php/psn12012010/article/view/1417/1470>
 14. Handayani N, Anggasari Y. The Effect of Acupressure on Decreasing Nausea and Vomiting in Pregnant Women in Midwives Independent Practice Sidoarjo. Strada Jurnal Ilmiah Kesehatan [Internet]. 2020;9(2):1134–40. Available from: <https://sjik.org/index.php/sjik/article/view/436>
 15. Ferlatiyana; A. Efektifitas Pemberian Akupresur di Titik P6 Dibandingkan Aromaterapi Lemon terhadap Penurunan Frekuensi Mual Muntah Ibu Hamil Trimester I di Wilayah Kerja Puskesmas Ngesrep dan Sronol Kota Semarang [Internet]. Prodi DIV Keperawatan Semarang Poltekkes Kemenkes Semarang; 2018 [cited 2022 Jun 10]. Available from: http://repository.poltekkes-smg.ac.id//index.php?p=show_detail&id=16380