

Effectiveness of Auricular Acupressure in the Treatment of Nausea and Vomiting in Early Pregnancy

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Objective: To evaluate the effectiveness of auricular acupressure in the treatment of nausea and vomiting in early pregnancy.

Material and Method: Ninety-eight volunteer pregnant women with symptoms of nausea and vomiting in early pregnancy before 14 weeks gestation were enrolled. The participants were randomized into two groups: treatment group and control group. Each patient in the treatment group received magnet pellets, placed at both auricles. They were taught to start acupressure from the third to the sixth day. Outcome measurement was Rhodes index score, which describe the severity and frequency of nausea and vomiting in the form of a questionnaire. The patients from both groups were asked to complete and return the forms including the amount of anti-emetic drug taken. Mean Rhodes index score and total number of anti-emetic drug taken from day 4-6 were used to compare the treatment effect. Student's *t* test, Chi-square test and Mann-Whitney *U* test were used for statistical analysis.

Results: Ninety-one pregnant women who returned the questionnaires were evaluated. The Rhodes index scores of the treatment group were lower than that of the control group especially after day 4 to day 6 when the acupressure was started. However, when comparing the mean score between the two groups, there were no statistically significant differences ($p > 0.05$). The total amount of anti-emetic tablets in day 4-6 after acupressure intervention was compared and there were no statistically significant differences ($p > 0.05$) between the groups.

Conclusion: Auricular acupressure therapy in treatment of nausea and vomiting in early pregnancy may not relieve nausea and vomiting in early pregnancy and need further clinical research to confirm the effectiveness.

Keywords: Acupressure, Nausea, Vomiting, Rhodes index, Pregnancy

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Nausea and vomiting are common symptoms of early pregnant women. Seventy to eighty-five percent of them have nausea and about half of them experience vomiting. Different methods of treatment are used including anti-emetic medication, oral ginger root extract, and acupressure⁽¹⁾. Because of the reports regarding fetal anomalies associated with anti-emetic drugs, some doctors or even patients are reluctant to use these medications for example thalidomide, anxiolytic and sedative drug, can produce limb-reduc-

tion defects in fetuses⁽²⁾. Other problems include side effects of the drugs for example: drowsiness, sedation heartburn or arrhythmia⁽³⁾.

Auricular acupressure began with the original Chinese medical text, the Yellow Emperor's Classic of Internal Medicine, compiled in 500 BC⁽⁴⁾. Nowadays, auricular acupressure can be used for reducing anxiety and pain during emergency transportation^(5,6). A recent study reported the effectiveness of acupressure on chemotherapy-induced nausea vomiting in cancer patients⁽⁷⁾.

In Chinese traditional medicine, morning sickness is usually caused by failure of gastric qi (vital life energy). Therefore, one of the therapeutic methods

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is to stimulate stomach acupoint, which is believed to restore health by correcting the energy flow^(4,8). Because of the simplicity of auricular acupressure and no side effects from pharmaceutical treatment, acupressure may have a clinically relevant impact if this method was effective. To our knowledge, there is no RCT study evaluated the effectiveness of auricular pressure that use the round iron pellets as an acupressure device to treat nausea and vomiting in early pregnancy. The purpose of the present study was to evaluate the effectiveness of auricular acupressure in the treatment of nausea and vomiting in early pregnancy.

Material and Method

The present study was approved by the Ethics Committee, Rajavithi Hospital and an acupressure device was supplied by the acupuncture and moxibustion clinic, Rajavithi Hospital. The present study was conducted at the antenatal care clinic, Rajavithi Hospital between July 2004 and September 2004. Ninety-eight volunteer pregnant women who had symptoms of nausea and vomiting were recruited. Every patient underwent routine physical examination and obstetrics ultrasonography to confirm gestational age and rule out multifetal pregnancy or blighted ovum. The inclusion criteria were patients who were not over 14 weeks gestation. The exclusion criteria were women who had molar pregnancy, multifetal pregnancy, blighted ovum, hyperemesis gravidarum, or current use of anti-emetic medications. Gestational age was established by reliable history and confirmed by ultrasonographic evaluation.

Sample size calculated, based on a previous acupressure study of Belluomini (1994)⁽⁹⁾ was thirty-eight cases in each group. To allow for a 13% dropout rate, a sample of 49 in each group was used. After completion of the written informed consents, the patients were randomized into two groups, treatment and control group by using a table of random number. The standard ear pellets used were round magnetic balls, 1 mm in diameters, and were imported from China (Fig. 1). In the treatment group, the magnet pellets were placed with adhesive tape at the auricles of both ears. The auricular point of each ear was on the inner surface of auricle at the concha ridge zone (Fig. 2) according to the meridian concepts of Traditional Chinese Medicine^(4,8).

The patients were instructed to start pressing the magnets for 30 second four times a day (before meals and at bedtime), starting on the third day until

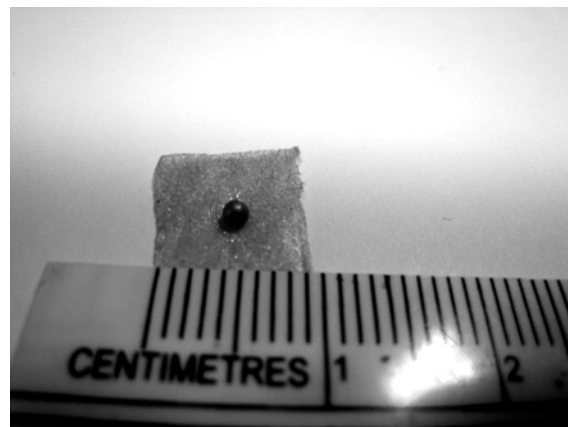


Fig. 1 The ear pellet with adhesive tape



Fig. 2 The position for placing the ear pellet

the sixth day whereas the control group received no treatment except oral anti-emetic drug. Patients from both groups were allowed to take 1 tablet of 50 mg dimenhydrinate every 6 hours if they could not tolerate their nausea and vomiting symptoms.

Demographic data were taken from the patients in both groups at the beginning of the present study. The Rhodes index scale, which is an assessment scale ranging from 0-32 score to describe the severity and frequency of nausea vomiting symptoms, was included in the questionnaires. It is a tool consisting of eight 5-point (range 0-4 point) self report items

measuring the patient's perception of duration of nausea, frequency of nausea, distress from nausea, frequency of vomiting, amount of vomiting, distress from vomiting, frequency of retching, and distress from retching. The details of the measurement have been described elsewhere⁽¹⁰⁻¹²⁾.

The patients from both groups were instructed to fill up the questionnaires each morning of six consecutive days. The scores from the first two days of the present study were used as control because no acupressure was done. The number of the anti-emetic tablets taken per day was also recorded.

The present study ended at one week, when the patients returned for a follow-up visit. The numbers of the anti-emetic tablets left were counted to check their compliance and the questionnaire forms were collected and analyzed.

Statistical analysis

Mean Rhodes index scores data from the first two consecutive days were used as pre-treatment scores. Data from day 3 were discarded to allow 24 hours for the acupressure to take effect. Mean Rhodes scores and total amount of anti-emetic tablet taken from day 4-6 were used to measure treatment effect. The data was analyzed by using Student's t test, Chi-square test or Mann-Whitney U test depending on type of data and distribution. P-value of 0.05 was used to determine statistical significance.

Results

Ninety-eight patients were enrolled in the present study. Seven patients were lost to follow up; four in the treatment group and three in the control group. Data from 91 patients with completed data were used to analyze. There was no difference in the baseline characteristics between these two groups except education, occupation, and income (Table 1).

Nausea and vomiting score demonstrating severity of nausea and vomiting from day 1 to day 6 of both groups were shown in mean score and standard deviation. The scores of treatment group are lower than that of the control group especially after day 4-6 when the acupressure was started. However, when comparing mean Rhodes index score between the two groups analyzed by Student's t test, there were no statistically significant differences ($p > 0.05$)(Table 2). The amounts of anti-emetic tablets in day 4-6 after acupressure intervention were compared and there were no statistically significant differences between the groups ($p > 0.05$) (Table 3).

Table 1. Baseline characteristics

Characteristics	Acupressure (n = 45)	Control (n = 46)	p-value
Age			0.609*
Mean \pm SD (year)	26.4 \pm 5.6	27.0 \pm 5.74	
Parity (%)			0.607**
1	48.9	43.5	
≥ 2	51.1	56.5	
Gestational age			0.777*
Mean \pm SD (week)	11.1 \pm 2.1	11.2 \pm 2.3	
Body mass index	22.2 \pm 3.9	22.6 \pm 4.0	0.634*
Education (%)			<0.001**
Primary school	44.4	13.0	
Secondary school and higher	55.6	87.0	
Occupation (%)			0.026**
Business owner	22.2	4.3	
Civil servant	6.7	13.0	
Employee	40.0	32.6	
Housewife	20.0	45.7	
Student	4.4	2.2	
Others	6.7	2.2	
Income (baht/month) (%)			0.032**
< 5,000	57.8	32.6	
5,000-10,000	37.8	65.2	
> 10,001	4.4	2.2	

* Student's t test

** Chi-square test

Table 2. Nausea vomiting score of treatment group and control group

	Acupressure (n = 45)	Control (n = 46)	p-value*
	Nausea vomiting score (mean \pm SD)	Nausea vomiting score (mean \pm SD)	
Day 1	11.1 \pm 4.8	14.3 \pm 7.1	0.074
Day 2	10.2 \pm 4.9	12.7 \pm 8.2	0.318
Day 3	9.3 \pm 4.3	11.0 \pm 8.7	0.420
Day 4	8.7 \pm 4.3	10.6 \pm 8.9	0.387
Day 5	8.0 \pm 5.0	11.6 \pm 9.3	0.274
Day 6	7.7 \pm 4.9	11.3 \pm 9.2	0.252

* Student's t test

In general, no patient in the treatment group experienced any adverse effect from acupressure. Most of them (85%) were satisfied with this treatment because it was convenient and effective in relieving

Table 3. Number of anti-emetic drug used

	Acupressure (n = 45)	Control (n = 46)	p-value*
	Tablets used (mean ± SD)	Tablets used (mean ± SD)	
Day 4	0.3 ± 0.7	0.9 ± 0.9	0.068
Day 5	0.3 ± 0.9	0.4 ± 0.9	0.781
Day 6	0.3 ± 0.7	0.4 ± 0.6	0.481
Total of day 4-6	0.9 ± 2.1	1.7 ± 1.9	0.226

* Mann-Whitney U test

nausea and vomiting symptoms. All of them will recommend this treatment to their friends.

Discussion

Nausea and vomiting are common during early pregnancy. Many medications and alternative therapies including acupressure are used for relieving nausea and vomiting symptoms. Many researchers reported the effectiveness of using wrist acupressure at P6 point⁽¹³⁻¹⁵⁾. Auricular acupressure is another technique of acupressure used in the present study. Although, the actual mechanism of auricular acupressure is not known yet many explanations were proposed such as neurophysiological theory and embryological theory⁽⁸⁾. To the authors' knowledge, this is the first clinical trial research using the magnet pellets as an acupressure device to treat nausea and vomiting in early pregnancy. This method is simple, non-invasive and has no drug side effects.

Considering the baseline characteristics, although there are some differences in level of education, occupation, and income between the two groups, these variables are considered to cause minimal effect since the task of completing the score or counting the tablets is simple.

The authors did not use the placebo point at the ear of the control group as in other studies using wrist acupressure at P6 acupoint^(9,14) because the ear has a limited area and performing the acupressure at the placebo points may affect the treatment point.

Because the severity of nausea and vomiting was difficult for the patients to describe and was subjective, Rhodes index scores were used as a reliability tool to assess these symptoms. This score is still widely used in many studies concerning nausea and vomiting in pregnancy^(3,16). Considering the scores, it seems that the treatment group symptoms are less severe than

the control group but there were no statistically significant differences when compared to each other.

The amount of medication used is also measured as an indirect evidence of severity of symptoms in the present study. Patients' instructions also affected the outcome so the same information about how to fill the questionnaire and how to perform acupressure were carefully given to each patient by the same doctor. Although the patients used the same technique of acupressure, the magnitude of force used in acupressure is uncontrollable and can interfere with the result.

The improvement of symptoms observed in the present study may be a result of anti-emetic drug use. Medication ingestion could not be permitted due to ethical reason. When considering the amount of medication between groups, the authors found no statistically significant differences between the groups. This suggests that acupressure and no acupressure have no difference in effectiveness.

Another confounding factor is the tendency for morning sickness to resolve spontaneously as gestation advances. In the present study, the mean gestational age is nearly the same gestational age and was limited by the short time period. However, gestational age should be the same when comparing the effectiveness because this can affect the severity of nausea and vomiting. Psychological effect may be another uncontrollable factor to interfere with the results.

In further study, a larger sample size and other acupressure points may be considered. The objective data such as body weight change, urine ketone, and blood electrolyte may be useful to support the efficacy of acupressure. Perinatal outcome may be followed up to reassure that there is no long-term adverse effect to the baby.

In conclusion, auricular acupressure may not relieve nausea and vomiting in early pregnancy but needs further clinical research to confirm the effectiveness.

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ประสิทธิผลของการกวดจุดที่ใบหูเพื่อรักษาอาการคลื่นไส้อาเจียนในสตรีตั้งครรภ์ระยะแรก

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วัตถุประสงค์: เพื่อประเมินประสิทธิผลของการกวดจุดบนใบหูในการรักษาอาการคลื่นไส้อาเจียนในสตรีตั้งครรภ์ระยะแรก

วัสดุและวิธีการ: รับอาสาสมัครสตรีตั้งครรภ์อายุครรภ์ไม่เกิน 14 สัปดาห์ที่มีอาการคลื่นไส้อาเจียน จำนวน 98 คน แบ่งเข้าร่วมโครงการเป็น 2 กลุ่ม คือกลุ่มที่ทำการรักษาและกลุ่มควบคุม แต่ละคนที่อยู่ในกลุ่มรักษาได้รับการติดเม็ดแม่เหล็กที่หูสองข้างและได้รับการสอนให้เริ่มทำการกวดในวันที่สามถึงวันที่หก การวัดผลใช้คะแนนโรเดส (Rhodes index of nausea and vomiting) ซึ่งบอกความรุนแรง ความถี่ของอาการคลื่นไส้อาเจียน โดยบันทึกในแบบสอบถาม ทั้งสองกลุ่มจะต้องตอบแบบสอบถาม รวมทั้งปริมาณยาแก้อาการคลื่นไส้อาเจียนที่รับประทาน ค่าเฉลี่ยของคะแนนและปริมาณยาแก้อาเจียนทั้งหมดที่ใช้ตั้งแต่วันที่ 4-6 จะนำมาใช้เปรียบเทียบผลการรักษา สถิติที่ใช้ คือ Student's t test, Chi-square และ Mann-Whitney U test

ผลการศึกษา: มีสตรีตั้งครรภ์ 91 คน ส่งคืนแบบสอบถามและนำมาประเมิน พบว่า คะแนนโรเดส ในกลุ่มรักษาต่ำกว่ากลุ่มควบคุม โดยเฉพาะวันที่ 4-6 ซึ่งเป็นวันที่เริ่มมีการกวดจุดแล้ว อย่างไรก็ตาม เมื่อนำมาเปรียบเทียบยังไม่พบความแตกต่างอย่างมีนัยสำคัญทางสถิติ ($p > 0.05$) และปริมาณยาแก้อาการคลื่นไส้อาเจียนทั้งหมดที่ใช้ในช่วงวันที่ 4-6 ได้นำมาเปรียบเทียบไม่พบความแตกต่างอย่างมีนัยสำคัญทางสถิติเช่นกัน เนื่องจากกลุ่มตัวอย่างและกลุ่มศึกษามีจำนวนน้อยน่าจะมีการศึกษาตัวอย่างให้มากขึ้น

สรุป: การกวดจุดที่หูเพื่อการรักษาอาการคลื่นไส้อาเจียนในสตรีตั้งครรภ์ระยะแรก อาจไม่ลดอาการคลื่นไส้อาเจียนและจำเป็นต้องมีการศึกษาต่อไปเพื่อยืนยันเรื่องประสิทธิผล
