Effectiveness of P6 Acupressure on Reduction of Nausea, Vomiting & Retching among Antenatal Women attending Antenatal Clinic at District Hospitals of Sikkim

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Result: A significant difference was observed on 5th, 6th and 7th day after performing the intervention in experimental group as compared to control group. Further, the mean duration, discomfort and frequency of nausea, vomiting and retching scores in experimental group showed significant decrease as compared to the control group (p <0.001).

Conclusion: Acupressure on P6 point has proved to be effective to reduce the duration, discomfort and frequency of nausea, vomiting and retching.

Keywords: Nausea, Vomiting, Retching, P6 Acupoint, Acupressure Wristband, Pregnancy
Introduction

Nausea and vomiting are among the cardinal signs of early pregnancy, recognized since the time of Hippocrates. Globally 90% of pregnant women experience nausea and/or vomiting, retching during the first trimester of pregnancy. The problem is time-limited, with onset at fifth week after the Last Menstrual Period (LMP), a peak at 8 to 12 weeks, and resolution by 16 to 18 weeks for most women. Considering the adverse effects caused by most drugs used during pregnancy to control these symptoms, alternative treatments such as acupressure at P6 or Nei Guan are suggested. Studies have shown a significantly reduced nausea and vomiting among antenatal women by using acupressure wristband, have been suggested in various studies.

Acupressure is a part of traditional Chinese medicine and is actually one of the branches where there is no need to use the needles. A growing desire for the use of this medicine in obstetrics activities is observed. World Health Organization says: sufficient evidence to confirm the effects of acupressure is to be used as part of curing. Acupressure is used to reduce stress and fatigue and to gain physical comfort and satisfaction. It reduces the costs associated with the disease also. Out of 2,000 pressure points on the body 200 points can be used for treatment. Acupressure is a method which stimulates energy channels below the skin surface. P6 or Neiguan-acupoint is the most commonly used acupressure point to achieve the anti-emesis purpose. It is located on the anteromedial aspect of the forearm between the tendons of flexor carpi radialis and palmaris longus muscles, at a distance of three of the pregnant woman’s finger-breathths from the distal palmar crease.

Acupressure wristband is the product which is applied at Neiguan point in performing acupressure. It comprises an elastic wristband incorporating a raised and smooth plastic button to apply skin pressure at particular acupoint. Studies have shown a significantly reduced nausea and vomiting among antenatal women by using acupressure wristband at P6 acupoint which is a potential innovation in relieving nausea and vomiting.

Figure 1. Acupressure wristband

Although some pharmacologic anti-emetics are available, but many pregnant women are reluctant to take them for fear of possible teratogenic effects on the fetus during this critical embryogenic period. Clearly, with no dependable non-pharmacologic treatment available, there is a great need for an intervention that is safe, effective, and free of side effects. In recent years, acupressure has been looked as a treatment modality for possibly meeting these criteria. It is a non-invasive, inexpensive, and safe treatment that may be successful and self-help option for pregnant women experiencing nausea and vomiting of pregnancy. Nancy MS et al. conducted a quasi-experimental study with posttest-repeated measure design to identify the effect of acupressure by wrist bands on nausea and vomiting of pregnancy among healthy pregnant women in their 1st trimester had at least one episode of nausea, vomiting, or both before their prenatal clinic visit where they were recruited and revealed that the treatment group had significantly less frequency and severity of nausea and vomiting of pregnancy while wearing the wrist bands than did the placebo group hence the study inferred that wristbands with acupressure buttons are a non-invasive, inexpensive, safe and effective treatment for the nausea and vomiting of pregnancy.

Many studies have shown the effect of acupressure on nausea and vomiting related different ailments but studies related to effectiveness of P6 acupressure through wrist band for reduction of nausea, vomiting and retching in pregnancy was very limited in Indian scenario. The investigator didn’t document any review of literature related to P6 acupressure with wrist band. Therefore, considering the growing tendency to use acupressure wristband to treat various diseases as well as therapies for nausea and vomiting, ease of use, low cost, safe practice encourages the investigator to evaluate the effect of acupressure on nausea and vomiting among antenatal mother attending antenatal clinic in district hospitals of Sikkim.

Methodology

It was a 7-days non-blinded randomized clinical trial conducted in outpatient department of District Hospitals of Sikkim among 80 antenatal women having mild nausea, with or without vomiting or retching within 8th to 12th weeks of gestational period from October 2017 to November 2017. The administrative approval and formal permission were sought from the Department of Health and Family Welfare, Government of Sikkim. Self-introduction and establishment of rapport with the participants were done to gain their co-operation. The study was approved by the Institutional Ethics Committee.

The study was conducted in one randomly selected district hospital of Sikkim. On the first day of OPD (before initiation of intervention), each woman enrolled in the study (according to inclusion criteria) was interviewed. Aims and method of data collection were explained to the women. Medical record was reviewed, to obtain the
socio-demographic data and the obstetrical history. The participants after giving informed consent were requested to fill the baseline information (Day 0) on Rhodes Index form. After consecutive sampling, participants were randomly assigned to experimental and control groups

- By using the close envelope containing card written on it P6 acupressure or control group comprising 40 women in each group.
- The envelope was opened by the investigator in the presence of the patient.
- Demonstration on application of wristband at P6 Neiguan point was shown to the experimental group.
- The experimental group was instructed to complete the Rhodes Index of Nausea, Vomiting, and retching Form for 3 days as a pre-test assessment.
- Everyday 7 to 8 antenatal women were included in the study as experimental group till the desired sample achieved.
- Beginning on the morning of the fourth day each antenatal woman in experimental group applied the acupressure wrist band and self-assessed symptoms were recorded twice a day as per Rhodes Index Scale.

The antenatal women were further instructed to leave the wristband in place for the next 24 hours for 4 days except while taking bath, they can remove it, and unless they had any side effects (redness, swelling, and tenderness or paranesthesia). If there are any side effects, the patient was instructed to remove the acupressure wristband for 15 minutes and then replace it and note the time and cause in a diary. Participants in the control group was asked that each morning and evening for 7 consecutive days to fill the Rhodes Index of Nausea, Vomiting and retching Form describing the severity and frequency of symptoms, that occurred. They did not receive any intervention but was asked to record the self-assessed symptoms as per Rhodes Index Scale and if they have taken any antiemetic drugs or any other treatment then it should be noted in the diary and it was checked for the association with the level of nausea, vomiting and retching Data from the first 3 days were used as pre-treatment scores. Data of day 4 was discarded to allow 24 hours for the treatment to take effect. Data from days 5-7 were used to measure treatment effect. Antenatal women were also advised to start a medication if the treatment failed or vomiting is more than 5 times per day and withdraw from the study.

Results and Discussion

Findings Related to Demographic Data of Antenatal Women

The result shows that the majority of the antenatal women (55%) were in the age group of 20-25 years, 60% were married in the age group of 20-25 yrs., 70% were from urban area, 57.2% were housewife and 55% had attended up-to primary level of education and 95% of the antenatal women were non-vegetarian and 55% preferred boiled.

Figure 2. Diagram of non-blinded randomized controlled trial
The result also shows that the majority of the women i.e. 45% were primi antenatal women, 30% had one living children and 20% had two living children and 5% had three or more living children in experimental group and in control group 30% was primi, 45% had one living children, 25% had 2 living children. Majority of the women did not have any history of abortion however 30% in experimental and 25% in control group had history of abortion. 70% antenatal women 85% in control group had unplanned pregnancy. Majority in experimental group i.e. 80% and in control group 87.5% knew their LMP whereas 80% in experimental group and 85% in controlled group knew their Expected Date of Delivery (EDD).

**Findings Related to Obstetrical Profile of the Antenatal Women**

In both the groups, majority of antenatal women were in the 10\(^{th}\)-12\(^{th}\) week of gestational period. In experimental group 65% of the antenatal women were in the 10\(^{th}\) week-12\(^{th}\) week of gestational period and in control group 60% women were in the 10\(^{th}\) week-12\(^{th}\) week of gestational period. All (100%) antenatal women of experimental and control group had complained of nausea, vomiting, and retching and none (100%) were taking any remedies. Majority i.e. 55% of experimental group had previous history of nausea, vomiting and retching during pregnancy and 70% of control group also had previous history of nausea, vomiting and retching during pregnancy and none (100%) of them any remedies for nausea, vomiting, retching in previous pregnancy.

| Day  | Groups   | Mean±SD  | df |  \(t\)  |  \(P\)  |
|------|----------|----------|----|----------|---------|
| 2    | Experimental | 14.02±2.10 | 78 | 1.25 | P>0.05 |
|      | Control   | 15.02±0.95 |    |      |         |
| 3    | Experimental | 13.32±1.88 | 78 | 1.5  | P>0.05 |
|      | Control   | 14.9±0.99  |    |      |         |
| 4    | Experimental | Measurement not included | | | |
|      | Control   | Measurement not included | | | |
| 5    | Experimental | 7.87±3.80  | 78 | 3.6  | P<0.05 |
|      | Control   | 14.9±1.00  |    |      |         |
| 6    | Experimental | 2.12±2.04  | 78 | 15.8 | P<0.05 |
|      | Control   | 14.89±0.99 |    |      |         |
| 7    | Experimental | 0.7±1.04   | 78 | 28   | P<0.05 |
|      | Control   | 15.04±1.04 |    |      |         |

The mean symptoms score for day 1, 2, 3 in experimental and control group was found to be similar as evident by t-value (\(p>0.05\)) at df 78. This shows that there was no significant difference found initially between the groups. The average mean score was significantly decreased from 14.77 to 0.7 in experimental group after the administration of acupressure wrist band from day 5 to day 7 whereas in case of control group the average mean score remained constant from day 1 to day 7 which shows the effectiveness of P6 acupressure in terms of day wise comparison as evident by t-value (\(p<0.05\)) at df 78.

**Findings Related to Difference in Mean Duration, Discomfort and Frequency of Vomiting, Nausea and Retching**

![Figure 3. Distribution of antenatal women in terms of their decision regarding pregnancy](image)

**Findings Related to Day Wise Comparison of Symptoms at Different Days in Experimental and Control Group**

| Assessment                      | Variables                                                                 |
|---------------------------------|---------------------------------------------------------------------------|
|                                 | Duration, discomfort and frequency of nausea | Duration, discomfort and frequency of vomiting | Symptoms of retching |
| Before applying acupressure wristband | Mean±SD | Mean±SD | Mean±SD |
| 26.77±8.19                      | 9.55±12.77                     | 5.9±6.78                     |
| After applying acupressure wristband | 6.35±3.77                     | 4.42±3.85                     | 2.6±2.24                     |
| Paired-t-test Before applying acupressure wristband | 7.43 (\(P<0.05, 0.001\)) | 5.4 (\(P<0.05, 0.001\)) | 3 (\(P< 0.05\)) |
| Paired-t-test After applying acupressure wristband | Measurement not included | Measurement not included | Measurement not included |

\(df 78*=2.00)\.

The mean symptoms score for day 1, 2, 3 in experimental and control group was found to be similar as evident by t-value (\(p>0.05\)) at df 78. This shows that there was no significant difference found initially between the groups. The average mean score was significantly decreased from 14.77 to 0.7 in experimental group after the administration of acupressure wrist band from day 5 to day 7 whereas in case of control group the average mean score remained constant from day 1 to day 7 which shows the effectiveness of P6 acupressure in terms of day wise comparison as evident by t-value (\(p<0.05\)) at df 78.

**Findings Related to Difference in Mean Duration, Discomfort and Frequency of Vomiting, Nausea and Retching**

**Table 2.Difference in mean duration, discomfort and frequency of nausea, vomiting and retching before and after applying acupressure wristband in experimental group**

(n=40)
The mean nausea (26.77±8.19), vomiting (9.55±12.77) and retching score (5.9±6.78) before applying P6 acupressure wristband was higher than the mean nausea (6.35±3.77), vomiting (4.42±3.85) and retching score (2.6±2.24) after applying acupressure wristbandin terms of duration, discomfort and frequency and this difference was found statistically significant as evidenced from paired t test-value for duration, discomfort and frequency of nausea (5.4, p<0.05, 0.001), vomiting (7.43, p<0.05, 0.001), frequency and symptoms of retching (3, p<0.05) at df 39 (2.02) at 0.05 as well as 0.001 level of significance.

The mean score for nausea (26.77±8.19), vomiting (10.09±2.38) and retching (5.82±0.90) was remain similar on day 1,2,3 over the time with mean score of nausea (27.5±2.58), vomiting (10.61±14.08), and retching score (5.5±1.5) on day 5, 6, 7 in terms of duration, discomfort and frequency and this difference was also not found statistically significant.

| Assessment on Day 1-3 | Duration, discomfort and frequency of Nausea | Duration, discomfort and frequency of Vomiting | Symptoms of Retching |
|-----------------------|---------------------------------------------|-----------------------------------------------|----------------------|
| Mean±SD               | 27.3±2.99                                   | 10.09±2.38                                   | 5.82±0.90           |
| Assessment on Day 5-7 | 27.5±2.58                                   | 10.61±14.08                                  | 5.5±1.5             |
| Paired-t-test         | .09                                         | .09                                           | .6                   |

df* 39=2.02, p> 0.05.

### Table 3. Difference in mean duration, discomfort and frequency of vomiting, nausea and retching in control group

| Group                  | Mean       | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | ‘t’ | df  | Sig. (2-tailed) |
|------------------------|------------|----------------|-----------------|------------------------------------------|-----|-----|-----------------|
| Experimental group     | 24.500     | 5.267          | .833            | 22.815 - 26.185                          | 29.418 | 39 | .000            |
| Pre-post               | 0.025      | 2.082          | 0.329           | -.641 - .691                            | .076 | 39 | 0.940           |

df* 39=2.02.

The table represents that the mean post test score was lower than the mean pre-test score which was found statistically significant this shows that P6 acupressure wrist band was found effective in reducing the symptoms of nausea vomiting and retching among antenatal women.

## Discussion

The present study findings reveal that there was an effectiveness of P6 acupressure in reduction of nausea in the experimental group. This finding is consistent with the findings of Forouhari S et al, who found the symptoms and severity as well as the frequency of nausea, decreased in the experimental group after intervention was started and concluded that by pressing the P6 point it is effective in reducing the severity of nausea. In the same line Norheim JA et al. studied the acupressure treatment in morning sickness in pregnancy; they found that, 71% of women in the intervention group reported both less intensive morning sickness and reduced duration of symptoms. Nancy MS et al. who had conducted a double-blind cross-over study to evaluate the effectiveness of acupressure in the treatment of early morning sickness, found that acupressure was significantly more effective on the study group than their control group who received placebo acupressure. The finding is consistent with the Norheim JA et al. who concluded in the study by stating that acupressure wristband might be an alternative therapy for vomiting in early pregnancy, especially before pharmaceutical treatment is considered. Robertshaw P who studied the effect of acupressure on vomiting during pregnancy mentioned that, there was highly significant reduction in the severity of vomiting for both the treatment and placebo groups. Salem S examined the effect of acupressure wristband on the first trimester pregnant women with morning sickness; he mentioned that, the application of acupressure wristband on P6 acupoint decreases the complaints of vomiting in the first trimester pregnant women.
The findings of the present study also reveals that there was an effectiveness of P6 acupressure band in reduction of retching as the mean score of the retching in experimental group significantly decreased after applying acupressure wristband, the severity of retching as well as the frequency was significantly decreased in the experimental group. The finding is consistent with the Suzan EM et al. who stated in the study that there was a significant decrease in the average mean scores of retching and the total score from the baseline to 4th day and concluded that using P6 acupressure has an effective role in reducing retching episodes in hyperemesis gravidarum.

The findings in the present study reveals that the there was no statistical significant difference in the characteristics of the nausea, vomiting and retching score between the P6 acupressure group and the control group before application of acupressure wristband, but there was a significant decrease in the average mean scores of nausea, vomiting and retching and the total score after applying P6 acupressure band. The findings were also consistent with the study conducted by Werntoft E and Dykes AK and found that acupressure using sea-bands daily for two weeks (removed only when showering) significantly reduced nausea in healthy pregnant women as compared with both control (no antiemetic) and placebo (Sea-Bands at non-meridian) groups (n=60). Jemigorn M and Phupong V who conducted a randomized study to evaluate the effect of acupressure and vitamin B6 to relieve nausea and vomiting in pregnancy, found that the acupressure using sea-bands for 24 hours a day for five days reduced nausea and vomiting in 60 pregnant women compared with vitamin B6 and placebo wrist bands. Molassiotis AM et al. found that acupressure using Sea-Bands continuously for five days significantly reduced vomiting, and retching in patients with breast cancer receiving chemotherapy when compared to a control group receiving standard care (n=36).

**Conclusion**

It is concluded that P6 acupressure was an effective measure in reducing nausea, vomiting and retching episodes in antenatal women. Therefore, inclusion of P6 acupressure as an intervention may improve patient care outcomes. These measures might be effective in reducing the use of anti-nausea and anti-vomiting drugs and their posed risks during pregnancy. P6 acupressure is a non-invasive method that may have a place as prophylactic antiemetic therapy during obstetrical and gynecological surgery.

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**Conflicts of Interest:** None

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