



Effect of Dry Cupping in Treatment of Nausea and Vomiting during Pregnancy

Eman A. Mohamed^{1*}

¹*Department of Physical Therapy for Women's Health, Faculty of Physical Therapy, Kafrelsheikh University, Egypt.*

Author's contribution

The sole author designed, analyzed and interpreted and prepared the manuscript.

Article Information

DOI: 10.9734/BJAST/2017/33684

Editor(s):

- (1) Lesley Diack, School of Pharmacy and Life Sciences, Robert Gordon University, UK.
(2) Meng Ma, Anhui University, Hefei, Anhui, China and Icahn Institute for Genomics and Multiscale Biology, Icahn School of Medicine at Mount Sinai, New York, USA.

Reviewers:

- (1) Terry Ellapen, School of Health Science, University of Kwa Zulu Natal, South Africa.
(2) Confidence Alorse Atakro, Christian Service University College, Kumasi, Ghana.
(3) Ashraf Ramadan Hafez, Deraya University, Egypt.
(4) Ayhan Goktepe, Selcuk University, Konya, Turkey.

Complete Peer review History: <http://www.sciencedomain.org/review-history/19330>

Original Research Article

Received 25th April 2017
Accepted 26th May 2017
Published 3^d June 2017

ABSTRACT

Aims: This study was conducted to detect the impact of dry cupping therapy on acupuncture point P6 in alleviating nausea and vomiting symptoms during pregnancy.

Study Design: Randomized control trial.

Place and Duration of Study: This study was conducted in Outpatient Clinic of Obstetrics Department at Sidi Salm Hospital from March, 2016 to January, 2017.

Methodology: Randomized controlled study, 30 pregnant females, their age ranged from (18-30) years, 7- 14 weeks of gestation and their body mass index not exceeds 30 kg/m². They were randomly divided in to two equal groups (A & B). Both groups were advised to change their life style, divided their diet on five or six meals, avoid spicy or fatty food and advised to take vitamin B6 tablet once daily. In addition to dry cupping on acupuncture point P6 in group A. Both groups were evaluated by pregnancy unique qualification of emesis and nausea questionnaire (PUQE) at the beginning of the study and after 2 weeks.

Results: There was significant reduction in frequency of nausea and vomiting between both groups at post treatment ($p < 0.05$) and this significant reduction in favor to group A. Also there was improvement in the quality of life between both groups at post treatment ($p < 0.05$) and this significant increase in favor to group A.

*Corresponding author: E-mail: emanabdelfatah123@yahoo.com;

Conclusion: Dry cupping on acupuncture point p6 is a simple, safe and easy method used in treatment of nausea and vomiting symptoms during pregnancy.

Keywords: Cupping therapy; P6 acupuncture point; nausea and vomiting.

1. INTRODUCTION

Morning sickness defined as nausea and vomiting during pregnancy, they affect around 80 -90% of pregnant females [1], these symptoms normally appear at 4 – 9 weeks of pregnancy achieving a peak 7–12 weeks, and dying down by week 16 [2], around 15-30% of pregnant females complains still present after 20 weeks of gestation or till the time of delivery [3].

Hyperemesis gravidarum (HG) is severe and persistent vomiting during pregnancy, which causes electrolyte disturbances, dehydration and liver damage, possible fetal damage and in severe cases, the death of the mother [2]. Medical drugs include anticholinergics, antihistamines; dopamine antagonists may affect the growth of the fetus [4].

Frequent vomiting causes dehydration, metabolic imbalance, nutritional deficiencies and weight loss [5]. Extreme maternal weight reduction in early pregnancy has been connected with fetal complication, for example, development retardation or preterm [6,7].

Non-pharmaceutical medicines are progressively used to treat nausea and vomiting in pregnancy. They may be perceived as natural and safe than medications. These include acupuncture, acupressure and stimulation bands that, include the application of constant pressure on specific points [8]. Stimulation of P6 (Neiguan point) has been shown to significantly control nausea and vomiting in a World Health Organization (WHO) study [9], Moreover, stimulation of P6 also has a sedative effects [10,11]. Another modalities were used in treatment of morning sickness as relaxation, hypnotherapy, herbal remedies as ginger, chamomile, peppermint, dietary interventions, activity interventions, emotional support, psychological interventions and behavioral interventions [12,13].

Cupping therapy is old method of treatment, it has many types, the classification according to its application is wet or dry cupping. Wet cupping involves bloodletting, that is, the evacuation of waste products from affected areas. Dry cupping is applying a quick, vigorous, rhythmical suction

on intact skin [14]. Therefore, dry cupping is a noninvasive and inexpensive technique [15]. More specifically, in this technique, the skin and underlying tissues are pulled into the suctioning cupping glass by heat production to increase the local blood and lymphatic circulation [16,17], also, this technique has been used in the management of many pathological conditions as excessive menstrual bleeding, edema, sciatica, postpartum perineal pain, chronic neck pain and low back pain [17,18]. There are many studies using acupuncture stimulation by needle or electrical stimulation in treatment of morning sickness during pregnancy In this study we use the cupping therapy to stimulate the acupuncture point(p6) without pain or electrical sensation.

2. MATERIALS AND METHODS

This study is a prospective, randomized controlled study, parallel group, with a 1:1 allocation ratio. Thirty pregnant females complain from nausea and vomiting of pregnancy. They were selected from Outpatient Clinic of Obstetrics Department at Sidi Salm Hospital. Inclusion criteria: their age ranged from (18-35) years, gestational age 7- 14 weeks and their body mass index (BMI) not exceeds 30 kg/m². Exclusion criteria: All participants were free from gastrointestinal disorder, diabetes, hyperemesis and dehydration. This study was done from March, 2016 to January, 2017.

All participants provided written consent. Recruitment began after approval of the Faculty of Physical Therapy Ethics Committee (reference number P.T.REC/012/001539). All participants were randomly divided in to two equal groups; group A (experimental group) & group B (control group). The randomization occurred by using the envelope method, by using cards with written words either, "A" or "B" in sealed envelopes, these envelopes were given to a staff physical therapist who did not share in this study; she/he picked one envelope. Depending on which card was selected, participants were allocated to their respective group. Both groups were advised to change their life style, divided their diet to five or six meals, avoid spicy or fatty food and vitamin B6 once daily. In addition, the participants in group A sit in comfortable long sitting position

with supported forearm then the therapist detect the P6 point (The location of point P6 point is between the flexor carpi radialis and the palmaris longus muscle tendons, about 2 inches proximal to the distal crease of wrist) the therapist using of small cup fit on the participant's wrist of the dominant hand on P6 point with negative pressure (60–100 mmHg) induced for 3-5 minutes 3 times per day for 2 weeks. The therapist detects the p6 acupuncture point for each woman and allows them to apply the application by themselves. Women in this group were instructed to send daily telephone photo to the study investigator and daily telephone call from study investigator to assess their general sense of well-being and to encourage compliance with participating in the trial.

Both groups were evaluated by pregnancy unique qualification of emesis and nausea questionnaire (PUQE) at the beginning of the study and after 2 weeks This questionnaire divided in 2 parts, the first part for detection of frequency of nausea & vomiting and dry heaviness without vomiting and the second part for detect the effect of the first part on quality of life in those pregnant women [19].

2.1 Statistical Analysis

Statistical analysis was conducted using SPSS for windows, version 18 (SPSS, Inc., Chicago, IL). Normality test of data using Shapiro-Wilk test was used, that reflect the data was normally distributed for unique qualification of emesis and nausea questionnaire, so parametric statistical tests in the form of (paired t test) was used to compare between "pre" and "post" treatment for each group and "unpaired t test" was conducted to compare unique qualification of emesis and nausea questionnaire between both groups in the "pre" and "post" treatment. While, normality test of data using Shapiro-Wilk test was used, that reflect the data was not normally distributed for quality of life questionnaire, so non parametric statistical tests in the form of (Wilcoxon Signed Rank tests) was used to compare between "pre"

and "post" treatment for each group and "Mann-Whitney tests" was conducted to compare quality of life questionnaire between both groups in the "pre" and "post" treatment. The alpha level was set at 0.05.

3. RESULTS AND DISCUSSION

3.1 Baseline and Demographic Data

The difference concerning age, BMI and gestational age were found to be statistically non-significant ($P < 0.1$, 0.07 and 0.45) respectively, which denotes homogeneity between both groups (A & B) at the starting of the study as represented in Table 1.

3.2 Nausea Questionnaire

Regarding within group's comparison, statistical analysis using "Paired t test" revealed that there was a significant reduction in nausea questionnaire at post treatment in compare to pretreatment at both groups with ($p < 0.05$), as present in Table 2. Considering the effect of the tested group (first independent variable) on nausea questionnaire, "unpaired t test" revealed that there was significant difference between both groups at post treatment ($p < 0.05$) and this significant reduction in favor to group A.

3.3 Quality of Life Questionnaire

Regarding within group's comparison, statistical analysis using Wilcoxon Signed Rank tests revealed that there was a significant increase in quality of life questionnaire at post treatment in compare to pretreatment at both groups with ($p < 0.05$).

Considering the effect of the tested group (first independent variable) on quality of life questionnaire, "Mann-Whitney U test" revealed that there was significant difference between both groups at post treatment ($p < 0.05$) and this significant increase in favor to group A as represented in Table 3.

Table 1. Physical characteristics of patients in both groups (A&B)

Items	Group A	Group B	Comparison	
	Mean ± SD	Mean ± SD	t-value	P-value
Age (years)	21.4±2.22	21.4±2.02	0.000	1.00
BMI (Kg/m ²)	24.66±2.02	25.86±1.45	-1.864	0.073
Gestational age (weeks)	9.26±1.16	9.6±1.24	-0.759	0.454

Table 2. Mean ± SD, t and P values of Nausea questionnaire pre and post treatment at both groups

Nausea questionnaire	Means ± SD	Means ± SD	Mean difference	% of improvement	t-value	P- value
	Pre test	Post test				
Group A	10.66±2.12	6.73±2.43	3.93	36.8	7.834	0.0001*
Group B	9.66±2.05	9.06±1.98	0.6	6.2	3.674	0.003*
Mean difference	1	-2.33				
t-value	1.308	0.337				
P- value	0.201	0.008*				

Table 3. Median, U, Z, and p values of quality of life questionnaire pre and post test at both groups

Quality of life questionnaire	Pre test median	Post test median	Z-value	p- value
Group A	1	7	-3.428	0.001*
Group B	1	2	-3.438	0.015*
U-value	100.5	10		
Z-value	-0.547	-4.298		
p- value	0.584	0.0001*		

3.4 Discussion

One of the most common complains during early pregnancy are nausea and vomiting [20], these symptoms affect the quality of life in pregnant females and may lead to depression in severe cases [21]. The causes of these symptoms are thought to be due to increase levels of human chorionic gonadotropin (hCG) or estrogens [22]. Nausea and vomiting of pregnancy may affect maternal, fetal and neonatal mortality, down syndrome, abnormalities in nervous system, low birth weight baby. Malnutrition and weight loss in severe cases may lead to premature delivery [8].

Due to the side effects of pharmacological treatment, non-pharmacological treatments are preferable such as vitamins, behavioral therapy, acupuncture, and acupressure [23].

The current study results demonstrated that there were decrease frequency of vomiting and nausea between both groups at post treatment ($p < 0.05$) and this significant reduction in favor to group A with stimulation of P6 point. Also there was improvement in quality of life in both groups at post treatment ($p < 0.05$) and this significant increase in favor to group A.

Cupping is a physical method used by acupuncturists or other therapists, which utilize cup of glass or bamboo to create suction on the skin over a painful area or acupuncture point. Dry cupping pulls the skin into the cup without drawing blood [24]. The results of study are in

line with with Farhadi et al. [25] who suggested that dry cupping treatments at the acupressure P6 decrease nausea, vomiting, and need for rescue therapy after laparoscopic cholecystectomy surgery. The mechanism of cupping therapy was explained by Cui [16], who suggested that, the application used in dry cupping is similar to acupuncture. The mechanisms of acupuncture's effects have been explained that it can stimulate and release neurochemicals, such as β endorphins, enkephalins, and serotonin [26]. Also, acupuncture alters the opioidergic and/or monoaminergic neurotransmission activity in the brainstem, thalamus, hypothalamus, and/or pituitary [27]. Another explanation that acupunctures effects is mediated through regulation of the autonomic nervous system. According to the site of stimulation, acupuncture can alter sympathetic and parasympathetic nervous system activity [28].

Another theory explained by Wang et al. [29], proposed that acupuncture stimulation activates A- δ and C afferent fibers in muscle, causing signals to be transmitted to the spinal cord, which then results in a local release of dynorphin and enkephalins. These afferent pathways propagate to the midbrain, triggering a sequence of excitatory and inhibitory mediators in the spinal cord. The resultant release of neurotransmitters, such as serotonin, dopamine, and nor epinephrine onto the spinal cord leads to pre and postsynaptic inhibition and suppression of the pain transmission.

This explanation is in line with Lin et al. [30] who state that, electrical stimulation of acupuncture points improve the regularity of gastric mobility and decrease secretion of gastric acid and improvement in stomach motion. Also, the mechanism of cupping therapy explained by Cui, [16] who suggested that it can maintain the balance between Yin and Yang and promote the flow of "Qi," which signifies power and movement similar to energy. [17] also the result is agree with Smith et al. [31] who suggested that acupuncture on P6 point is an effective treatment for women who experience nausea and dry retching in early pregnancy, and in improving women's physical and psychological well-being. Suction by cupping therapy is similar to acupressure mechanism, Forouharie et al. [32] suggested that acupressure has no side effects; simple ways off, comfortable and available and less costs in treatment of morning sickness and reduce the risks of pharmacological treatment. Cupping mechanism explained by improve local blood circulation microcirculation, promoting capillary endothelial cell repair, in the regional tissues, and relax the muscle spasm, and improve patient's functional state [33]. Both cupping therapy and acupressure can be used as effective methods in relieving of postpartum anxiety in primiparous women [17], as the cupping therapy improving microcirculation, promoting capillary endothelial cell repair, accelerating granulation, and angiogenesis in the regional tissues [16,33].

4. CONCLUSION

Dry cupping on p6 point is a simple, safe and easy method used in treatment of nausea and vomiting symptoms during pregnancy.

CONSENT

The author declares that written informed consent was obtained from the patient before starting in the study.

ETHICAL APPROVAL

This study was approved by ethical committee of faculty of Physical Therapy, Cairo University under unique number P.T.REC/012/001539.

ACKNOWLEDGEMENT

The authors gratefully acknowledge all the participants and Doctor Magdy ELsaied, physician of obstetrics and gynecology in Sidi

Salem Hospital for the effort devoted to this study.

COMPETING INTERESTS

Author has declared that no competing interests exist.

REFERENCES

1. Miller F. Nausea and vomiting in pregnancy: The problem of perception--is it really a disease? *Am J Obstet Gynecol.* 2002;186(5):182-3.
2. Ebrahimi N, Maltepe C, Einarson A. Optimal management of nausea and vomiting of pregnancy. *Int J Womens Health.* 2010;4(2):241-8.
3. Badell ML, Ramin SM, Smith JA. Treatment options for nausea and vomiting during pregnancy. *Pharmacotherapy.* 2006;26(9):1273-87.
4. Koren G, Levichek Z. The teratogenicity of drugs for nausea and vomiting of pregnancy: Perceived versus true risk. *Am J Obstet Gynecol.* 2002;186(5):248-52.
5. Verberg MF, Gillott DJ, Al-Fardan N, Grudzinskas JG. Hyperemesis gravidarum, a literature review. *Hum Reprod Update.* 2005;11:527-539.
6. Vandraas K, Vikanes A, Vangen S, Magnus P, Stoer N, Grijbovski A. Hyperemesis gravidarum and birth outcomes-a population-based cohort study of 2.2 million births in the Norwegian Birth Registry. *BJOG.* 2013;13:1654-60.
7. Dodds L, Fell DB, Joseph KS, Allen VM, Butler B. Outcomes of pregnancies complicated by hyperemesis gravidarum. *Obstet Gynecol.* 2006;107:285-92.
8. Davis M. Nausea and vomiting of pregnancy: An evidence based review. *J Perinat Neonatal Nurs.* 2004;18(4):312-28.
9. World Health Organization. Acupuncture: Review and analysis of reports on controlled clinical trials. Geneva: WHO; 2002.
10. Gan TJ, Jiao KR, Zenn M, et al. A randomized controlled comparison of electro-acupoint stimulation or ondansetron versus placebo for the prevention of postoperative nausea and vomiting. *Anesth Analg.* 2004;99:1070-75.
11. Rowbotham DJ. Recent advances in the non-pharmacological management of postoperative nausea and vomiting. *Br J Anaesth.* 2005;95:77-81.

12. Niebyl JR, Goodwin TM. Overview of nausea and vomiting of pregnancy with an emphasis on vitamins and ginger. *Am J Obstet Gynecol.* 2002;186(5):253–55.
13. Jewell D. Nausea and vomiting in early pregnancy. *Am Family Physician J.* 2003;68(1):143–4.
14. Mehta P, Dhapte V. Cupping therapy: A prudent remedy for a plethora of medical ailments. *J Tradit Complement Med.* 2015;5:127–134.
15. Rozenfeld E, Kalichman L. New is the well-forgotten old: The use of dry cupping in musculoskeletal medicine. *Journal of bodywork and movement therapies.* 2016;20:173-78.
16. Cui S, Cui J. Progress of researches on the mechanism of cupping therapy. *Zhen Ci Yan Jiu.* 2012;37:506–10.
17. Akbarzade M, Ghaemmaghami M, Yazdanpanahi Z, et al. Comparison of the effect of dry cupping therapy and acupressure at BL23 point on intensity of postpartum perineal pain based on the short form of McGill pain questionnaire. *J Reprod Infertil.* 2016;17:39–46.
18. Cao H, Li X, Yan X, et al. Cupping therapy for acute and chronic pain management: A systematic review of randomized clinical trials. *Journal of Traditional Chinese Medical Sciences.* 2014;1:49–61.
19. Koren G, Boskovic R, Hard M, Maltepe C, Navioz Y, Einarson A. Motherisk-pregnancy-unique quantification of emesis and nausea (PUQE) scoring system for nausea and vomiting of pregnancy. *Am J Obstet Gynecol.* 2002;186:228–31.
20. O'Brien B, Relyea MJ, Taerum T. Efficacy of P6 acupressure in the treatment of nausea and vomiting during pregnancy. *Am J Obstet Gynecol.* 1996;174(2):708-15.
21. Wills G, Forster D. Nausea and vomiting in pregnancy: What advice do midwives give? *Midwifery.* 2008;24(4):390-8.
22. Goodwin TM. Nausea and vomiting of pregnancy: An obstetric syndrome. *Am J Obstet Gynecol.* 2002;186:184-89.
23. Aikins P. Alternative therapies for nausea and vomiting of pregnancy. *Obstet Gynecol J.* 1998;91:149-55.
24. Cao H, Li X, Liu J. An updated review of the efficacy of cupping therapy. *PLoS One.* 2012;7(2):e31793
25. Farhadi K, Choubsaz M, Setayeshi K, Kameli M, Bazargan-Hejazi S, Heidari Zadi Z, Ahmadi A. The effectiveness of dry-cupping in preventing post-operative nausea and vomiting by P6 acupoint stimulation A randomized controlled trial. *Medicine (Baltimore).* 2016;95(38):e4770.
26. Berman B, Langevin H, Witt C, Dubner R. Acupuncture for chronic low back pain. *N. Engl J. Med.* 2010;363:454-461.
27. Lin J, Chen W. Acupuncture analgesia: A review of its mechanisms of actions. *Am J Chin Med.* 2008;36(4):635-645.
28. Cabioglu M, Ergene N, Tan U. Smoking cessation after acupuncture treatment. *Int J Neurosci.* 2007;117(5):571-78.
29. Wong R, Lee T, Sihoe A, Wan I, Park J, Linde K, Manheimer E. Analgesic effect of electroacupuncture in postthoracotomy pain: A prospective randomized trial. *Ann Thorac Surg.* 2006;81(6):2031-2036.
30. Lin X, Liang J, Ren J, et al. Electrical stimulation of acupuncture points enhances gastric myoelectrical activity in humans. *Am J Gastroenterol.* 1997;92:1527–30.
31. Smith C, Crowther C, Franzcog F. Acupuncture to treat nausea and vomiting in early pregnancy: A randomized controlled trial. *Birth.* 2002;29(1):1-9.
32. Forouhari S, Ghaemi S, Roshandel A, Moshfegh Z. The effect of acupressure on nausea and vomiting during pregnancy. *Researcher.* 2014;6(6):27-43.
33. Lauche R, Materdey S, Cramer H. Effectiveness of home-based cupping massage compared to progressive muscle relaxation in patients with chronic neck pain- A randomized controlled trial. *PLOS ONE.* 2013;8:1–9.

© 2017 Mohamed; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:
The peer review history for this paper can be accessed here:
<http://sciedomain.org/review-history/19330>