Indonesian Journal of Global Health Research
Volume 5 Number 4, November 2023
e-ISSN 2715-1972; p-ISSN 2714-9749
http://jurnal.globalhealthsciencegroup.com/index.php/IJGHR

NAUSEA, VOMITING OF PREGNANCY AND P6 ACUPRESSURE

Amel Dawod Kamel Gouda[1,2]*, Noura Mohamed El Toukhi[2], Livana PH[3], Hend Al Ghadeer[4,5]
[1]King Saud Bin Abdul Aziz University for Health Sciences, Collage of Nursing, King Abdullah International Medical Research Center, Riyadh, Saudi Arabia - Ministry of the National Guard – Health affair, Riyadh Central, Saudi Arabia.
[2]Faculty of Nursing, Cairo University, Cairo, Kasr El Ainy, Old Cairo, Egypt
[3]Nursing of Program Study, Sekolah Tinggi Ilmu Kesehatan Kendal, Jln Laut 31 Kendal, Central Java 51311, Indonesia
[4]King Abdulla International Medical Research Center (KAIMRC), Ministry of National Guard Health Affairs, Riyadh, Saudi Arabia
[5]College of Medicine, King Saud bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia
*dawod@cu.edu.eg

ABSTRACT
Nausea and vomiting of pregnancy (NVP) has been recognized as a feature of early pregnancy for well over 2000 years. Pregnancy is a unique period of life for most women. Multiple hormonal, physiological, and biomechanical changes, such as increased blood volume and heart rate, weight gain and shift in the center of mass, proceed normally in almost all pregnant women. Nausea and vomiting is a physically morbid disease, it's severity significantly impacts pregnant woman life and her pregnancy experience, specially the quality of life and work function during early pregnancy.

Keywords: nausea; pregnancy; p6 acupressure; vomiting

First Received	Revised	Accepted
18 August 2023	29 August 2023	14 September 2023
Final Proof Received		**Published**
20 October 2023		8 November 2023

How to cite (in APA style)
Goudia, A., Toukhi, N. M. E., & PH, L. (2023). Nausea, Vomiting of Pregnancy and P6 Acupressure. *Indonesian Journal of Global Health Research*, *5*(4), 711-716. https://doi.org/10.37287/ijghr.v5i4.2421.

Nausea and vomiting of pregnancy (NVP) has been recognized as a feature of early pregnancy for well over 2000 years. Hippocrates who lived from 460 to 370 BC wrote "when a woman who is suffering from amenorrhea and is liable to nausea, she is pregnant (Chadwick & Mann, 1950). Nausea and vomiting in pregnancy are commonly experienced symptoms in pregnancy, especially in early pregnancy that affects the health of a pregnant woman and her fetus, affecting up to 70–85% of all women during the first half of pregnancy. Symptoms usually start between 6 and 8 weeks of gestation, rise to a peak before the end of the first trimester and, in the majority of women, resolve by 20 weeks (Ellilä et al., 2018). Between 70 and 85% of pregnant women experience nausea with or without vomiting in the first trimester, and these moderate symptoms may be regarded as a part of the physiology of pregnancy. "Morning sickness" is the term often used to describe mild nausea and vomiting due to pregnancy (and not due to an illness), even though symptoms may occur at any time of day and many women feel sick throughout the day or even at night. , and its severity can range from mild to severe, HG is considered the serious form of NVP, which is reported in 0.3–10.8% of pregnant women. Nausea and vomiting of pregnancy has a relatively benign course, but HG can be linked with some poor maternal, fetal, and offspring outcomes (Mitsuda, Eitoku, Maeda, Fujieda & Suganuma, 2019).

Pregnancy is a unique period of life for most women. Multiple hormonal, physiological, and biomechanical changes, such as increased blood volume and heart rate, weight gain and shift in the center of mass, proceed normally in almost all pregnant women (DiPietro et al., 2019). Although the exact cause of nausea and vomiting is not known yet, some studies assumed it to be multifactorial and sometimes considered an evolutionary response that protects the woman from ingesting harmful foods, which may further contribute to its under treatment (Erick, Cox & Mogensen, 2018). Although this is not a life-threatening problem, it can be stressful both for pregnant women and for their families. Nausea and vomiting during pregnancy can have a profound effect on the life and performance of pregnant women, including a significant reduction in the quality of life, individual and social performance of them (Kamali, Abedian, Saber, & Dehnavi, 2018).

Risk Factors

1. *Hormonal Factors* as GDF15-GFRAL axis, Human chorionic gonadotropin, Thyroid hormones (Dekkers et al., 2020). Thyroid hormones, Fejzo et al. (2019) hypothesised that mutations in genes involved in the ryanodine receptor signalling system may increase the risk of HG; however, further research is necessary to confirm this hypothesis because the cause of the association is unknown.
2. Helicobacter pylori recently, many studies have noted an underlying association between Helicobacter pylori (H. pylori) infection and the pathogenesis of HG and NVP, Chronic H. pylori infection is a risk factor for HG and NVP even though it may not be the single cause of the disorder, (Poveda, Carrillo, Monje, Cruz & Cancino, 2014).
3. Gastrointestinal Dysmotility, upper intestinal motility disorder has been hypothesized to be a cause of HG and NVP Many disorders of the gastrointestinal tract are common in pregnancy. Elevated levels of progesterone may lead to alterations in gastrointestinal motility which could contribute to nausea, and vomiting (Brody & Christie 2016).
4. Placenta Related Factors, a healthy placenta and a conductive environment in the uterus are essential for fetal growth, and placental weight has been thought to represent placental function (Vandraas et al., 2013). 6- Psychosocial Factors, women who are pregnant and have psychological illnesses are more likely to experience negative health consequences, such as NVP and HG (Dekkers et al., 2020).

Nausea and vomiting is a physically morbid disease, it's severity significantly impacts pregnant woman life and her pregnancy experience, specially the quality of life and work function during early pregnancy. Both nausea and vomiting and social support significantly and independently affect mental quality of life. Health professionals should recognize these impacts and be aware that social support contributes to improve mental quality of life (Hirose et al., 2020) and (Heitmann, Nordeng, Havnen, Solheimsnes & Holst, 2017). Nausea and vomiting during pregnancy is significantly associated with several characteristics, including daily life functioning, quality of life and willingness to become pregnant again. The negative impact was greater the more severe the symptoms were, although considerable adverse effects were also seen among women with mild and moderate NVP symptoms. Women with severe NVP considered terminating the pregnancy due to NVP, and others considered not to get pregnant again. Severity of NVP remained significantly associated with reduced global quality of life when adjusting for maternal characteristics and illnesses with β (95% CI) = −10.9 (−16.9, −4.9) for severe versus mild NVP (Heitmann et al., 2017). Nausea and vomiting during pregnancy can also impact quality of life, reducing ability to carry out daily parenting or work tasks, with increased reliance on childcare arrangements, up to 35% of women with NVP report depression (Bustos, Venkataramanan & Caritis, 2017).

Management

There is no uniform international guideline for the treatment of nausea and vomiting of pregnancy currently exists (Tsakiridis et al., 2019). When managing patients with NVP, the goals are to:

1. Determine the severity of disease: nausea alone, vomiting without hypovolemia, or vomiting with hypovolemia. These designations refer to the patient's primary problem and are somewhat arbitrary as the frequency of vomiting typically varies from day to day.
2. Correct hypovolemia, ketonuria and electrolyte abnormalities, if present.
3. Reduce symptoms and improve quality of life through dietary and lifestyle changes followed by initiation of treatment with medications, if necessary.
4. Prevent serious complications of persistent vomiting and hypovolemia, including vitamin deficiencies (eg, Wernicke encephalopathy) and extreme weight loss.
5. Minimize the fetal effects of maternal pharmacologic treatment.

Early intervention and treatment of patients with mild and moderate symptoms may prevent progression to severe disease (ACOG, 2018). Hyperemesis gravidarum has been reported to be associated with an increased risk for adverse pregnancy outcomes such as low birth weight, preterm birth, and small-for-gestational age infants. Woman's QoL can be adversely affected by nausea and vomiting in pregnancy and HG. In addition non pharmacological treatment is cost effective, safe and has no teratogenicity. The findings of this study will add to the evidence supporting the effectiveness/ impact of nutritional intervention for nausea and vomiting during pregnancy. This may improve the pregnancy outcomes as well as maternal well-being during pregnancy.

Complementary Alternative Medicine (CAM)

Defining Complementary Alternative Medicine (CAM) is defined as a broad set of healthcare services and practices that are not necessarily integrated as a part of the country's tradition of the dominant healthcare paradigm and establishment, (Koc, Sağlam & Topatan, 2017). Complementary alternative medicine methods classified under the following categories: mind-body medicines, biologically based practices, manipulative and body-based practices, energy therapies, and whole medical systems include homeopathic medicine and naturopathic medicine. Complementary alternative medicine incorporates a variety of practices with the intention of preventing or treating disease by way of promoting health, wellness, and teaching individual's self-care practices that can enhance a pregnant woman's quality of life (Balouchi et al., 2018). Day care management of NVP is cost effective compared to inpatient management (Murphy et al., 2016).

Acupressure

PC-6 acupoint is a traditional Chinese medicine point, located 2 cm above the transverse crease of the wrist, between the tendon of palpal longus and the tendon of flexor carpi radialis which is believed to be an effective point for the treatment of nausea and vomiting. Through applying pressure to PC-6 points can slowly block abnormal energy and relieve symptoms related to PC-6 points. In addition, a review of seven trials also showed that PC-6 acupuncture points can help with nausea. Acupressure can reduce the intensity of nausea and vomiting in pregnant women who experience hyperemesis gravidarum as well as the intensity of labor pain in pregnant women (Fitriana, Kristiyanto & Prasetya, 2021). Acupuncture is an effective non-pharmaceutical method of treating HG by inserting needles into the PC-6 acupoint (Liu et al., 2022). Mohd et al., (2022), who conducted a randomized controlled trial to study the effect of acupressure at p6 on nausea and vomiting in pregnancy. The primary outcome was different in modified PUQE scores among the groups ($p = 0.001$). Another

quasi-experimental (pre/post-test) study was conducted at the antenatal clinics at Ain Shams University Maternity Hospital; all women received the evidence-based intervention which includes lifestyle modification, besides, one of the following: herbal therapy, acupressure, and aromatherapy. The study shows a highly statistically significant difference between the mean score of nausea and vomiting before and after intervention (p-value 0.000), and demonstrates a highly statistically significant association between measures used and the relief of nausea and vomiting at the fourth week of intervention at a p-value 0.01 (Marak, El-Sheikh, & Ahmed, 2021).

Ozgoli, and Naz (2018), who carried out a systematic review in Iran to evaluate the efficacy and safety of several non-pharmacological methods for treating NVP, such as ginger, P6, and acupressure. From 2000 to 2015, randomized controlled trials were employed in this systematic review. Additionally, it contained 31 clinical trials, six of which were related to pericardium 6 (P6) acupressure. The majority of research has shown a beneficial effect in lowering NVP, although no adverse effects were noted. The majority of methods employed were effective in reducing the incidence of NVP, among which ginger and P6 acupressure can be recommended with more reliability. Sheikhi, 2017, who investigated the effects of acupressure on pregnancy nausea and vomiting in Iranian pregnant women. He found that the P6, KID21, and K-K9 acupressure points have a "positive impact in the reduction of nausea and vomiting in pregnancy

REFERENCES

Balouchi, A., Mahmoudirad, G., Hastings-Tolsma, M., Shorofi, S. A., Shahdadi, H., & Abdollahimohammad, A. (2018). Knowledge, attitude and use of complementary and alternative medicine among nurses: A systematic review. *Complementary Therapies in Clinical Practice, 31,* 146-157. https://doi.org/10.1016/j.ctcp.2018.02.008

Brody, C., & Christie, J. A. (2016). Gastrointestinal diseases in pregnancy. *Gastroenterology Clinics of North America, 45*(2), 267–283. https://doi.org/10.1016/j.gtc.2016.02.005

Bustos, M., Venkataramanan, R., & Caritis, S. (2017). Nausea and vomiting of pregnancy-What's new? *Autonomic Neuroscience, 202*, 62-72. https://doi.org/10.1016/j.autneu.2016.05.002

Chadwick, J., & Mann, W. N. (1950). The medical works of Hippocrates. London. Oxford Blackwell *Scientific Publications.* Retrieved from: http://117.239.25.194:7000/jspui/bitstream/123456789/129/1/PRILIMINERY%20AND%20CONTENTS.pdf

Dekkers, G., Broeren, M., Truijens, S., Kop, W., & Pop, V. (2020). Hormonal and psychological factors in nausea and vomiting during pregnancy. Psychological Medicine, 50(2), 229-236. https://doi.org/10.1017/S0033291718004105

DiPietro, L., Evenson, K. R., Bloodgood, B., Sprow, K., Troiano, R. P., Piercy, K. L., ... & Powell, K. E. (2019). Benefits of physical activity during pregnancy and postpartum: an umbrella review. *Medicine and Science in Sports and Exercise, 51*(6), 1292. https://doi.org/10.1249/MSS.0000000000001941

Ellilä, P., Laitinen, L., Nurmi, M., Rautava, P., Koivisto, M., & Polo-Kantola, P. (2018). Nausea and vomiting of pregnancy: A study with pregnancy-unique quantification of emesis questionnaire. *European Journal of Obstetrics & Gynecology and Reproductive Biology, 230,* 60-67. https://doi.org/10.1016/j.ejogrb.2018.09.031

Erick, M., Cox, J. T., & Mogensen, K. M. (2018). American College of Obstetricians and Gynecologists, practice bulletin 189: nausea and vomiting of pregnancy. *Obstetrics & Gynecology*, *131*(5), 935. https://doi.org/10.1097/AOG.0000000000002604

Fejzo, M. S., Fasching, P. A., Schneider, M. O., Schwitulla, J., Beckmann, M. W., Schwenke, E., & Mullin, P. M. (2019). Analysis of GDF15 and IGFBP7 in hyperemesis gravidarum support causality. *Geburtshilfe and Frauenheilkunde*, *79*(04), 382-388. http://dx.doi.org/10.1055/a-0830-1346

Fitriana, A., Kristiyanto, A., & Prasetya, H. (2021). The effect of acupressure on hyperemesis gravidarum and birth delivery pain in pregnant women: A Meta analysis. *Journal of Maternal and Child Health*, *6*(03), 365-375. https://doi.org/10.26911/thejmch.2021.06.03.11

Heitmann, K., Nordeng, H., Havnen, G. C., Solheimsnes, A., & Holst, L. (2017). The burden of nausea and vomiting during pregnancy: Severe impacts on quality of life, daily life functioning and willingness to become pregnant again–results from a cross-sectional study. *Pregnancy and Childbirth*, *17*(1), 1-12. https://doi.org/ 10.1186/s12884-017-1249-0

Hirose, M., Tamakoshi, K., Takahashi, Y., Mizuno, T., Yamada, A., & Kato, N. (2020). The effects of nausea, vomiting, and social support on health-related quality of life during early pregnancy: A prospective cohort study. *Journal of Psychosomatic Research*, *136*, 110168. https://doi.org/10.1016/j.jpsychores.2020.110168

Kamal Ali Farag, W., Hassan Mohamed Alam, T., & Mansour Lamadah, S. (2020). Effect of compression stockings on morning sickness among primigravidas. *Egyptian Journal of Health Care*, *11*(2), 468-484. https://doi.org/10.21608/EJHC.2020.147927

Koc, Z., Sağlam, Z., & Topatan, S. (2017). Determination of the usage of complementary and alternative medicine among pregnant women in the Northern Region of Turkey. *Collegian*, *24*(6), 533-539. https://doi.org/10.1016/j.colegn.2016.11.003

Liu, C., Zhao, G., Qiao, D., Wang, L., He, Y., Zhao, M., & Jiang, E. (2022). Emerging progress in nausea and vomiting of pregnancy and hyper emesis gravidarum: challenges and opportunities. *Frontiers in Medicine*, *8*, 2940. https://doi.org/10.3389/fmed.2021.809270

Marak, A. I., El-Sheikh, M. A., & Ahmed, E. M. (2021). Effectiveness of evidence-based measures on nausea and vomiting during first trimester of pregnancy. *Evidence-Based Nursing Research*, *3*(4), 9. https://doi.org/10.47104/ebnrojs3.v3i4.225

Mitsuda, N., Eitoku, M., Maeda, N., Fujieda, M., & Suganuma, N. (2019). Severity of nausea and vomiting in singleton and twin pregnancies in relation to fetal sex: *The Japan Environment and Children's Study (JECS). Journal of Epidemiology, 29*(9), 340-346.340-346. https://doi.org/10.2188/jea.JE20180059

Mohd Nafiah, N. A., Chieng, W. K., Zainuddin, A. A., Chew, K. T., Kalok, A., Abu, M. A., ... & Nur Azurah, A. G. (2022). Effect of acupressure at P6 on nausea and vomiting in women with hyperemesis gravidarum: A randomized controlled trial. *International Journal of Environmental Research and Public Health*, *19*(17), 10886. https://doi.org/10.3390/ijerph191710886

Murphy, A., McCarthy, F. P., McElroy, B., Khashan, A. S., Spillane, N., Marchocki, Z., & Higgins, J. R. (2016). Day care versus inpatient management of nausea and vomiting of pregnancy: Cost utility analysis of a randomized controlled trial. *European Journal of Obstetrics & Gynecology and Reproductive Biology, 197,* 78-*82.* https://doi.org/10.1016/j.ejogrb.2015.10.022

Ozgoli, G., & Naz, M. S. G. (2018). Effects of complementary medicine on nausea and vomiting in pregnancy: A systematic review. *International Journal of Preventive Medicine, 9.* https://doi.org/10.4103/ijpvm.IJPVM_430_16

Poveda, G. F., Carrillo, K. S., Monje, M. E., Cruz, C. A., & Cancino, A. G. (2014). Helicobacter pylori infection and gastrointestinal symptoms on Chilean pregnant women. *Revista da Associação Médica Brasileira, 60,* 306-310. https://doi.org/10.1590/1806-9282.60.04.008

Sheikhi, M. (2017). Investigating the impact of acupressure on pregnancy nausea and vomiting (A systematic review). *International Journal of Advanced Research in Biological Sciences (IJARBS), 4*(12), 201–212. https://doi.org/10.22192/ijarbs.2017.04.12.

Tsakiridis, I., Mamopoulos, A., Athanasiadis, A., & Dagklis, T. (2019). The management of nausea and vomiting of pregnancy: Synthesis of national guidelines. *Obstetrical & Gynecological Survey*, *74*(3), 161-169. https://doi.org/ 10.1097/OGX.0000000000000654

Vandraas, K. F., Vikanes, Å. V., Støer, N. C., Vangen, S., Magnus, P., & Grjibovski, A. M. (2013). Is hyperemesis gravidarum associated with placental weight and the placental weight-to-birth weight ratio? A population-based Norwegian cohort study. *Placenta, 34*(11), 990-994*.* https://doi.org/10.1016/j.placenta.2013.08.001