

Ginger as a Treatment for Nausea and Vomiting in Pregnancy by Teraporn Vutyavanich, Theerajana Kraissarin, and Rung-Aroon Ruangsri (1998–2001)

In 1998 and 1999, Teraporn Vutyavanich, Theerajana Kraissarin, and Rung-Aroon Ruangsri in Thailand showed that ginger alleviated nausea in pregnant women. Vutyavanich and his colleagues found that the group of pregnant women who took ginger capsules reported significantly fewer nausea symptoms and vomiting episodes than the group who only received the placebo. Vutyavanich and his team's study at Chiang Mai University in Chiang Mai, Thailand, was one of the earliest to investigate and support the use of ginger as an effective treatment for relieving pregnancy-related nausea and vomiting.

During pregnancy, women commonly experience side effects of vomiting and nausea. These symptoms are called morning sickness, though they can occur anytime during the day, and affect pregnant women to varying degrees, usually appearing and subsiding early in the pregnancy. In mild cases, nausea and vomiting during pregnancy cause discomfort and disrupt the woman's daily life. In severe cases, nausea and vomiting endanger the health of both the woman and the fetus. The most severe vomiting occurs in a condition called hyperemesis gravidarum, which often requires hospitalization due to weight loss, low nutrition, and low fluid levels. For the majority of women who do not require hospitalization, pregnancy-related nausea and vomiting can lead to maternal malnourishment and affect fetal development. According to Vutyavanich and his colleagues, the condition can also be problematic for employed women who may have to take time off from work due to nausea and vomiting.

Often, standard pharmaceutical drugs to treat pregnancy-related vomiting and nausea hindered fetal development, making treatment of certain pregnancy-related conditions difficult. According to the researchers, many women chose alternative treatments, such as changes to diet or lifestyle, to manage their pregnancy symptoms. One such treatment involves the consumption of ginger, a plant native to many Asian countries. In addition to being a common spice in Asian and Indian cuisine, the ginger plant root was also a common herbal remedy for nausea, motion sickness, and indigestion. However, prior to their study, Vutyavanich and his colleagues said that few had studied the efficacy of ginger for pregnancy-related symptoms. They pointed to the sparse literature and the lack of commercially available ginger capsules in Thailand as reasons to conduct an experiment evaluating the effectiveness of ginger as a treatment for pregnancy-related nausea and vomiting.

In 1998, Vutyavanich and his team conducted a randomized, placebo-controlled, and double-masked study on ginger as a treatment for preventing nausea and vomiting in pregnant women. The researchers randomly assigned pregnant women into two groups, with one group receiving a ginger capsule and the second group receiving a similar but inactive capsule, called a placebo. Both the participants and the physicians who administering the capsules were unaware of which women received which type of capsule. The researchers distributed ginger capsules and non-ginger placebo capsules to two groups of pregnant women and measured how the capsules affected the women's vomiting and nausea symptoms. The researchers recorded the subjects' initial assessment of their symptoms before a four-day treatment of ginger capsules and non-ginger placebo capsules, and compared the initial notes with the subjects' final assessment of their nausea and vomiting symptoms. They chose a four-day study period because a previous study had indicated that the health effects of ginger were evident within a few days and that participants were more compliant during a short study period than a longer study period.

Vutyavanich and colleagues, all physicians at the department of obstetrics and gynecology of Chiang Mai University, recruited their subjects from the prenatal clinic at Maharaj Nakorn Chiang Mai University Hospital in Chiang Mai, Thailand. They only studied women who visited the clinic with nausea symptoms before seventeen weeks of pregnancy, after which the symptoms are less common. In order to ensure that the symptoms were pregnancy-related, the researchers excluded women with other medical disorders that might cause nausea or vomiting or women who had recently taken medication that could cause nausea as a side effect. To further minimize the impact of other factors the study results, they also excluded women who had language or geographic barriers, women with mental disabilities, or women who could not return for follow-up visits.

The seventy women who participated in the study underwent general physical examinations at the beginning of the experiment. Then, a research nurse randomly assigned each woman to one of two groups, a ginger group or a placebo group. The ginger group received four days' worth of ginger treatments, and the placebo group received the same amount of inactive capsules. To prevent incidental bias from influencing the results, the group assignments and the type of capsule were designed so that neither the women nor the physicians administering the medicine knew the identity of the capsules. Pharmacology faculty at Chiang Mai University prepared the ginger and identical-looking placebo capsules. To ensure the quality of ginger capsules, the pharmacist used only fresh ginger roots, which were chopped, baked, ground into a powder, weighed, and packed into 250-milligram capsules. Thirty-eight women in the placebo group and thirty-two women in the ginger group each took one capsule four times a day for four days. After the four-day period ended, researchers asked subjects to return after one week to assess the effects of the treatment.

Vutyavanich and his team employed several methods to assess how the women's perceptions of their nausea and vomiting changed throughout the study. First, at several points during the trial the researchers asked the participants to record the number of times they had vomited within twenty-four hours of the first day of treatment, and on each subsequent day of treatment. Because nausea is a subjective feeling of discomfort, the research team used two methods, a visual analog scale and the Likert scale, to measure the women's perception of nausea. Previous nausea research had found that both nausea measurement scales were equally reliable methods for measuring participants' perceptions.

For the visual analog scale, patients approximated the severity of their nausea by drawing a mark on a ten-centimeter straight line. A mark at zero centimeters meant no nausea, and a mark at ten centimeters meant the worst nausea symptoms. The women marked the visual analog scale twice a day for the four days that they took the ginger or placebo capsules. The researchers measured the markings to calculate average nausea scores over each day, and over the four-day study period.

For the Likert scale, patients answered survey questions about their nausea by choosing from five graded answers: "much worse," "worse," "same," "better," and "much better." A week after the trial ended, the women returned to the clinic for follow-up visits and completed the Likert scale. Three of the thirty-eight women in the placebo group did not return for follow-up visits, and Vutyavanich and his colleagues excluded their initial data from the experiment.

After completing the treatment and collecting results, Vutyavanich and his collaborators analyzed the results from the number of vomiting episodes that the women recorded pre-trial and during the trial, the visual analog scale, and the Likert scale. All thirty-two women in the ginger group and thirty-three of thirty-five women in the placebo group had vomited at least once during the twenty-four hours before treatment. After four days of treatment, twelve of the thirty-two women in the ginger group had vomiting episodes, compared to twenty-three of thirty-five women in the placebo group. The researchers concluded that the decreased number of vomiting episodes in the ginger group indicated that the ginger treatment was effective for minimizing vomiting symptoms. Based on the visual scale, the research team found that women in the ginger group experienced a significantly greater reduction in their perceived nausea scores, but only on the final day of treatment. According to the Likert scale results, twenty-eight out of thirty-two ginger-treated women reported improved symptoms, compared to only ten out of thirty-five women in the placebo group. Overall, Vutyavanich and his fellow researchers concluded that the women who took the ginger capsules had both a greater reduction in the number of vomiting episodes and improved nausea symptoms.

During the participants' follow-up visit, the researchers collected data about the possible side effects of taking the ginger capsules during pregnancy. Vutyavanich and his colleagues noted that five women in the placebo group and six women in the ginger group reported headaches. Additionally, in the ginger group, three women reported abdominal discomfort, heartburn, or diarrhea. However, the researchers considered the side effects to be minor side effects that were not necessarily due to the ginger capsule treatment. The researchers also followed up with women in both groups after they gave birth, to see if the ginger had adverse effects on the infant. None of the infants of women from either group had any recognized birth defects. Though there were three miscarriages in the placebo group and one in the ginger group, the researchers do not attribute them to the ginger capsule or placebo treatments.

Vutyavanich and his colleagues concluded from their study that ginger relieved nausea and vomiting in pregnant women. They found that using both the visual analog scale, and the Likert scale provided objective and subjective measures of nausea which strengthened their results, because the two independent scales could be reused in similar studies. Finally, the researchers concluded that because of ginger's lack of adverse effects on infants, it warranted further research as a treatment for nausea and vomiting during pregnancy.

In 2001, the researchers published the results of their experiment in *Obstetrics & Gynecology*, and in 2005, the journal also published a literature review of six double-blind, randomized controlled trials, including Vutyavanich and his colleagues' study, investigating the efficacy and safety of ginger therapy for pregnancy-related nausea and vomiting. The authors of the literature review concluded that ginger was likely an effective treatment for nausea and vomiting during pregnancy, though they called for more studies and larger randomized clinical trials to further confirm such conclusions. By 2016, the American Medical Association, headquartered in Chicago, Illinois, included ginger in its family medical guide as a treatment for relieving nausea and vomiting during pregnancy.

Sources

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