

Research Article

Combination Essential Ginger Oil and Acupressure Relaxation Techniques to Nausea and Vomiting

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ABSTRACT

Introduction: Nausea and vomiting are effects of chemotherapy that can decrease in the health condition of cancer patients. **Objective:** The aim of this study was to determine the effect of the combination of essential ginger oil therapy and acupuncture relaxation techniques on nausea and vomiting in cancer patients undergoing chemotherapy. **Methods:** This research used a quasi-experimental design. The population of this study was 124 adults undergoing chemotherapy. Sampling used purpose-based sampling with a sample size of 34 respondents (17 people in the treatment group and 17 people in the control group). Nausea and vomiting were measured using the Rhodes Index Nausea, Vomiting and Retching instrument. **Results:** The study results showed that before receiving the intervention, the intervention group's nausea and vomiting score averaged around a score of 6, in the control group the mean score was around 6. After the intervention, the nausea and vomiting score of the intervention group was 2, in the control group 10. The Wilcoxon test showed a significant value ($p < 0.001$). **Conclusion:** The combination of essential ginger oil and Acupressure relaxation techniques helped to reduce nausea and vomiting due to chemotherapy in cancer patients. This means that an intervention given regularly can reduce nausea and vomiting. Oncology nurses could give recommendation to the hospital to provide this intervention to the chemotherapy patients.

Keywords: Acupressure, Ginger oil, Nausea vomiting

Introduction

Cancer is a disease that can threaten an individual's health. Cancer can occur at various ages, from children to adults to the elderly, and can affect any part of the body [1]. Cancer is defined as abnormal cell growth that grows progressively and cannot function physiologically, causing a disease characterised by mutations,

genetic changes, cell proliferation, and aberrant cell growth [2]. Cancer cells can escape from original cancer cells (primary cancer) through the bloodstream or lymphatic channels and spread to other parts of the body. The term cancer is usually used to diagnose cancer that occurs in individuals aged children, adults, and the elderly.

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Every year, the prevalence of breast cancer patients continues to increase. The World Health Organisation (WHO) 2021 stated that, in general, every year the number of cancer sufferers in the world increases by around 6.25 million people. In addition, America diagnosed approximately 1,399,790 cases of cancer in 2006; cancer accounts for one in four deaths, with an estimated daily death toll of more than 1500 [3]. According to data, the prevalence of cancer in Indonesia has increased significantly over the last five years. The prevalence of cancer in Indonesia reached 1.79 per 1000 people; this figure increased from 1.4 per 1000 people in 2013 [4]. The data reported by the Global Cancer Observatory (Globocan) in 2018 shows that the incidence of cancer in Indonesia is 136.2 per 100,000 people [5].

Cancer management involves pharmacological and nonpharmacological methods. Chemotherapy is the most commonly used cancer treatment, killing not only cancer cells but also healthy cells. Side effects include nausea and vomiting, diarrhoea, mucositis, epistaxis, bleeding mouth, bruises, alopecia, weight loss, loss of appetite, and apathy [6]. According to the National Cancer Institute, nausea and vomiting are the most common chemotherapy side effects, with quite a high percentage occurring in 80% of cancer patients undergoing chemotherapy [7].

Nausea and vomiting disorders that are not treated immediately can cause a decline in the health condition of cancer patients. Nausea and vomiting can negatively affect quality of life and may be subject to treatment. Cancer patients' nausea and vomiting can lead to reduced compliance and delays in chemotherapy treatment [8,9].

Complementary approaches with nonpharmacological treatments have been widely explored. Several methods used to control chemotherapy-induced nausea and vomiting are distraction techniques, relaxation, hypnosis, acupuncture therapeutic massage, and acupressure [10]. Therefore, we need combination therapy that provides complementary (non-pharmacological) therapy, such as acupressure, to help reduce nausea and vomiting complaints.

Acupressure is massage therapy at specific points in the meridian related to internal organs, depending on the target organ. Instead of using drugs or invasive procedures that injure parts of the body, this therapy uses pressure to activate cells in the body, causing specific responses from the target organs, such as nausea and vomiting, pain, and so on. Acupressure can stimulate the regulatory system and activate endocrine and neurological mechanisms, which are physiological mechanisms [11].

On January 26, 2023, a preliminary study at RSU Bhakti Rahayu Denpasar revealed that 427 cancer patients were undergoing chemotherapy there. From January to December 2022, 289 patients with breast cancer underwent chemotherapy at RSU Bhakti Rahayu Denpasar. Interviews with the head of the room revealed a monthly increase in the number of cancer patients undergoing chemotherapy. According to the interview, the actions taken only used pharmacological measures and did not use non-pharmacological measures, such as providing aromatherapy and acupressure therapy to patients with nausea and vomiting who were undergoing chemotherapy at RSU Bhakti Rahayu Denpasar.

The general objective of this research is to determine the effect of therapy using essential ginger oil and acupuncture relaxation techniques combined on nausea and vomiting in cancer patients undergoing chemotherapy at RSU Bhakti Rahayu Denpasar.

Methods

Study design

This research used a quasi-experimental method with a one-group pre-test-post-test design [12].

Setting and sampling

The event was held at RSU Bhakti Rahayu Denpasar in March 2023. The Slovin formula calculated a purposive sample of 39 people. The inclusion criteria include being over 18 years old, being a cancer patient undergoing chemotherapy, and being cooperative. Meanwhile, patients with gastrointestinal metastases meet the exclusion criteria for cancer patients in weaker condition.

Intervention

The steps of intervention were explained as follows: 1) Minimise external stimuli such as light, sound, visitors, phone calls, and music listening. 2) Identify the pericardium point 6 (P6) located 3 fingers below the patient's wrist. 3) Apply pressure to the pericardium point 6 (P6) using ginger oil for a duration of 30 seconds to 2 minutes. 4) Ensure that the pressure applied to pericardium 6 (P6) remains steady. 5) Cease the therapy after a duration of 30 seconds to 2 minutes. 6) Utilising the synergistic effects of essential ginger oil with acupressure techniques for inducing relaxation.

Instruments

The instruments used for data collection included the acupressure relaxation sheet, an essential ginger oil technique sheet, an observation sheet, and a Rhodes Index Nausea, Vomiting, and Retching (RINVR) score sheet.

Eight self-report items, each with a point value of five, make up the RINVR instrument, which evaluates the subjective and objective aspects of nausea, vomiting, and retching in a variety of settings, including surgical patients and cancer patients undergoing chemotherapy [13]. According to the writers, the RINVR should meet the following requirements: 1) A straightforward, dependable, and legitimate device on a single sheet of paper. 2) The symptoms of nausea, vomiting, and retching should be defined in comprehensive detail and evaluated separately. We designed the patient self-report form to minimize the investigator's time and effort. Additionally, the same instrument can evaluate both the objective and subjective aspects of nausea, vomiting, and retching feelings. Researchers have studied the reliability and validity of the Rhodes index of nausea and vomiting (RINV) for cancer patients during chemotherapy [14].

Data collection

We conducted interviews with participants to collect demographic information, administered a pre-test, and provided guidance on acupressure relaxation therapy combining essential ginger oil. Next, the patient receives acupressure relaxation therapy and essential

ginger oil treatments while undergoing chemotherapy. The patient undergoes a post-test once the chemotherapy is complete. This study used primary data, specifically nausea and vomiting scores from chemotherapy patients before and after receiving acupressure relaxation therapy combined with essential ginger oil.

Ethical considerations

The Institutional Review Board has given their consent to pursue this research in accordance with ethical standards. We discussed with the participants the potential drawbacks and advantages of participating in this study. In addition, researchers have shown their willingness to grant informed consent. Participants who are considering participating in this study have the option to decline participation or terminate their participation if they do not wish to participate in the investigation.

Results and Discussion

The general characteristics of the participants in this study include age, sex, chemotherapy cycle, and type of chemotherapy. The majority of the participants were aged 31-40 years, totalling 21 patients. The number of female participants was greater than that of male participants. There were 22 women and 12 men.

The chemotherapy cycles of the respondents were mainly in cycles 1-3. Cycles 1-3 had 22 people, cycles 4-6 had 8 people, and cycles 7-9 had 4 people. Additionally, the type of chemotherapy respondents were more likely to be moderately emetogenic, 20 people. There were 5 mild emetogenics, 22 moderate emetogenics, and 9 severe emetogenics.

In this study, the respondents underwent measurements of the nausea and vomiting score before receiving the intervention, followed by 3 times acupressure relaxation therapy that combined essential ginger oil and a final score of nausea and vomiting afterward. Table 1 shows the levels of nausea and vomiting scores of participants before and after receiving acupressure relaxation therapy combining essential ginger oil.

Table 1. Nausea and vomiting scores before and after acupressure relaxation therapy combining essential ginger oil

Variable	Group	Mean±SD	Median	Min - Max	CI 95% Min Max
Score Nauseous vomit	Treatment	6.41 ± 1.7	6.00	3 – 10	5.50
	Before				
	That's it	1.12±1.1	2.00	0 – 3	6.67
	Control	5.76±1.5	6.00	3 – 9	4.01
	Before				
	After that	10.29±1.6	10.0	8-13	7.40

Cancer patients who undergo chemotherapy will experience the main problem, namely nausea and vomiting [15]. Untreated nausea and vomiting can disrupt the cancer patient's subsequent treatment process and quality of life.

Table 1 showed a significant reduction in nausea and vomiting scores after receiving the acupressure relaxation therapy intervention combining essential ginger oil. We performed the therapy for nausea and vomiting by manually pressing the forearm on PC6 in the wrist area of three fingers from the distal area between the two tendons (flexor carpi radialis and palmaris longus muscles) for 30 seconds to 2 minutes, and administering ginger oil to the wrist area P6. We carried out this therapy three times during chemotherapy in the treatment group, which included 17 respondents (50%), while 17 respondents (50%) in the control group did not experience a decrease in nausea and vomiting scores.

The results of this study showed that the combination of essential ginger oil and acupressure relaxation techniques in the treatment group could reduce nausea and vomiting scores. In respondents who did not receive the combination of essential ginger oil and acupressure relaxation techniques, there was an increase in nausea and vomiting scores.

This occurred as a result of the side effects of chemotherapy treatment. Specifically, the control group did not experience nausea and vomiting before receiving chemotherapy treatment, or if they did, the symptoms were not severe. However, after chemotherapy, the patients began to experience nausea and vomiting. In contrast, the treatment group did not

experience severe nausea and vomiting prior to chemotherapy, and they did not experience any complaints of nausea or vomiting after chemotherapy. This suggests that administering a combination of essential ginger oil and acupressure relaxation techniques can alleviate chemotherapy-induced nausea and vomiting in cancer patients. The study's results indicate that the use of complementary therapy, which combines essential ginger oil and acupressure relaxation techniques, is increasingly beneficial and yields better results when performed repeatedly and more frequently.

The average age of the respondents to the study was mostly 30–40 years old (62%). The patient's own factors, such as age over 30, influence the risk of developing nausea and vomiting due to chemotherapy. Genetic factors, family history, and unhealthy lifestyles are the main causes of cancer incidence at young ages. The age of the respondents demonstrates that many young people suffer from cancer.

Furthermore, women made up the majority of the respondents, comprising 22 individuals (64%). Women are more sensitive to nausea than men, and they are more sensitive to any type of drug that enters the body, including chemotherapy drugs. One reason is that women have lower cortisol levels than men, which affect blood-brain barrier permeability and limit nausea and vomiting effects. The nature of cortisol itself is that it acts to prevent the release of serotonin in the intestine or prevents the activation of 5-HT receptors in the digestive system, so this causes the intensity of nausea in men to be lower than in women [7].

There were more respondents in cycles 1-3, corresponding to 22 people (64%).

Respondents who had previously undergone chemotherapy were at higher risk of experiencing nausea and vomiting than those who had not. More than 35% of patients experienced nausea within 24 hours after chemotherapy, with 54% experiencing nausea and 32% experiencing vomiting on the second to fifth day after chemotherapy. A history of nausea and vomiting from previous chemotherapy treatment influences the intensity of nausea and vomiting due to chemotherapy, as it activates the chemoreceptor zone (CTZ) through agents that integrate afferent stimulation from various neurological pathways and coordinate emetic reflexes [16].

Furthermore, 22 people, or 64% of the respondents, had a moderate emetogenic level of chemotherapy. Up to 90% of the respondents used the combination of chemotherapy drugs doxorubicin, epirubicin, and cyclophosphamide. The chemotherapy's emetogenic level is moderate. The combination chemotherapy treatment will increase emetogenicity compared to a single dose. Up to 80% of patients who receive chemotherapy will experience nausea and vomiting [17].

Essential ginger oil therapy is a complementary nursing intervention that helps inhibit the activation of the CTZ by integrating afferent stimulation from various neurological pathways and coordinating emetic reflexes.

Limitations

The respondents in this study were not accustomed to performing P6 acupressure, so the researchers and nurses had to focus more on conditioning them during the intervention.

Conclusion

Research findings indicated a decrease in nausea and vomiting scores both before and after respondents received acupressure relaxation therapy combining essential ginger oil. In the intervention group, the score for nausea and vomiting due to chemotherapy decreased from 6 to 2; respondents who did not receive the intervention experienced an increase in the score for nausea and vomiting from 6 to 10. These results indicate that acupressure relaxation therapy combining essential ginger oil can

impact the level of nausea and vomiting due to chemotherapy in cancer patients.

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