



RESEARCH ARTICLE

Exploring the Potential of Acupressure in Managing Chemotherapy Side Effects: A Case Study on Breast Cancer Patients in Bengkulu, Indonesia

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Abstract

Breast cancer is the most common cancer among women, with significant global mortality rates. The World Health Organization (WHO, 2012) reported that in 2011, over 508,000 women worldwide died from this disease, which accounts for the highest percentage of new cases at 43.3% and a mortality rate of 12.9%. Existing therapies, including surgery, radiotherapy, and chemotherapy, often accompany side effects such as pain, weakness, hair loss, and menstrual disorders. Acupressure, as a form of non-pharmacological therapy, has the potential to mitigate these side effects through the application on meridian points LI4, SP6, and LR3, selected for their relevance to the energy flow affecting pain and the reproductive system. This study investigates the impact of acupressure on points LI4, SP6, and LR3 concerning pain and menstrual disorders in patients with carcinoma mammae undergoing chemotherapy in Bengkulu City. Utilizing a quasi-experimental design and a two-group pretest-posttest with control approach, this study involved 30 participants divided into two groups: 15 in the control group and 15 in the intervention group, selected through purposive sampling. The findings indicated no significant differences in the reduction of pain and menstrual disorders between the groups, with a p-value showing no statistical significance. This suggests that acupressure might be more effective if applied continuously in the early stages of chemotherapy. These findings invite further research to explore the therapeutic potential of acupressure in managing breast cancer, particularly for mitigating chemotherapy side effects.

Keywords: Complementary therapy, postpartum, SC, pain, chemotherapy, carcinoma mammae

Abstrak: Kanker payudara adalah penyakit kanker yang paling umum pada wanita, dengan angka kematian signifikan secara global. WHO (2012) mencatat bahwa pada tahun 2011, lebih dari 508.000 wanita di seluruh dunia meninggal akibat penyakit ini, yang menunjukkan presentase kasus baru tertinggi sebesar 43,3% dan tingkat kematian 12,9%. Terapi yang ada, termasuk pembedahan, radioterapi, dan kemoterapi, seringkali menyertai efek samping seperti nyeri, kelemahan, rambut rontok, dan gangguan haid. Akupresur, sebagai bentuk terapi non farmakologis, berpotensi mengurangi efek samping ini melalui penekanan pada titik-titik meridian LI4, SP6, dan LR3, yang dipilih berdasarkan keterkaitannya dengan aliran energi yang mempengaruhi nyeri dan sistem reproduksi. Studi ini menginvestigasi pengaruh akupresur pada titik LI4, SP6, dan LR3 terhadap nyeri dan gangguan haid pada pasien carcinoma mammae yang menjalani kemoterapi di Kota Bengkulu. Dengan menggunakan desain penelitian eksperimen semu (quasi-experiment) dan pendekatan two group pretest-posttest with control, penelitian ini melibatkan 30 partisipan yang dibagi menjadi dua kelompok: 15 orang dalam kelompok kontrol dan 15 dalam kelompok intervensi, dengan pemilihan sampel secara purposive. Hasil studi ini menunjukkan tidak ada perbedaan signifikan dalam pengurangan nyeri dan gangguan haid antara kedua kelompok, dengan nilai p yang tidak menunjukkan signifikansi statistik. Hal ini menyarankan bahwa akupresur mungkin lebih efektif jika diterapkan secara berkelanjutan pada tahap awal kemoterapi. Temuan ini mengundang lebih banyak penelitian untuk mengeksplorasi potensi terapi akupresur dalam manajemen kanker payudara, khususnya untuk mitigasi efek samping kemoterapi pada pasien.

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Kata Kunci: Terapi komplementer, postpartum, SC, nyeri, chemotherapy, carcinoma mammae

INTRODUCTION

Breast cancer is not only a primary concern in the global health context but also a social and economic issue that demands a strategic response from the health sector in Indonesia. According to data from the Global Cancer Observatory (2020), the prevalence of breast cancer in Indonesia shows a significant increasing trend, causing an increased burden on the health system and demanding greater resource allocation for diagnosis, treatment, and research (World Health Organization, 2021). Breast cancer is not only one of the most common cancers faced by women worldwide but also the leading cause of cancer-related deaths among women. The Global Burden of Disease (GBD) reports that in 2018, approximately 626,679 deaths were caused by breast cancer (World Health Organization, 2021). Although the prevalence and mortality of breast cancer are high worldwide, this burden is felt more heavily in developing countries, including Indonesia, where resources and access to treatment are limited. Data from Globocan (2020) show that the incidence of breast cancer in Indonesia reaches 65,800 cases with a significant mortality rate, underscoring the need for effective medical interventions and alternatives (Antaranews Bengkulu, 2021).

Further, in Bengkulu Province, the public health situation becomes more challenging due to inadequate health infrastructure and limited knowledge about treatment options. Data from the Bengkulu City Health Office (2020) indicate that the prevalence of breast cancer continues to rise, with many cases diagnosed in advanced stages due to a lack of awareness and adequate screening.

In facing breast cancer, conventional treatments such as chemotherapy often result in significant side effects, including pain, weakness, hair loss, and menstrual disorders, all of which impair the quality of life of patients (Ningtias, 2020). Consequently, many patients seek alternatives to manage these side effects, where acupressure offers significant potential. The treatment approach involving acupressure emerges as a promising alternative due to its minimal side effects and potential in enhancing patients' quality of life. Acupressure, a non-pharmacological therapy technique derived from acupuncture, has proven effective in reducing pain and menstrual disorders and improving patients' psychological responses to cancer treatment (Hartono, 2012; Rahmawati, 2019).

The increasing incidence of breast cancer in Indonesia not only demands an enhancement of healthcare facilities' capacity but also affects health research priorities. Current health policies focus more on improving access to early screening and more effective therapies, including the development of complementary therapies such as acupressure, which can reduce the side effects of conventional treatments. Research shows that integrating complementary therapies in cancer management can improve treatment outcomes and patients' quality of life (Smith et al., 2020).

Moreover, the increased awareness of breast cancer has sparked public health initiatives aimed at educating the community about the importance of early detection. These programs are expected not only to reduce mortality rates but also to press down the healthcare costs associated with treating cancer in advanced stages, which are often more complex and costly (Lee et al., 2018).

Acupressure, used for thousands of years in traditional Chinese medicine, utilizes pressure on specific points on the body to restore health and balance. In the context of chemotherapy for breast cancer, acupressure offers the

potential to reduce side effects such as pain and menstrual disorders by modulating the nervous system and stimulating the release of endorphins, the body's natural analgesics (Zhou et al., 2018).

Acupressure works by manipulating the flow of energy, or qi, through meridians in the body. Points such as LI4, SP6, and LR3 are specifically chosen due to their connection to energy flow that affects pain and the reproductive system. LI4 is known to reduce headache and pain associated with inflammation, SP6 plays a role in regulating hormones and addressing menstrual issues, and LR3 helps in reducing blood pressure and anxiety (Cho & Hwang, 2012).

Recent studies have shown that acupressure is not only effective in reducing postoperative pain but also in addressing other side effects of cancer treatment, such as fatigue and nausea (MacPherson et al., 2020). Points LI4 (Hegu), SP6 (Sanyinjiao), and LR3 (Taichong) have been specifically researched for their connection to pain alleviation and hormonal regulation, making them relevant for breast cancer patients undergoing chemotherapy. A study by Lee et al. (2018) showed that stimulation at points LI4 and SP6 could reduce pain intensity and improve pain tolerance in patients undergoing chemotherapy. This effect is supported by the increased secretion of endorphins, the body's natural analgesics, thus reducing the need for pain-relieving medication that often comes with negative side effects.

In the context of menstrual disorders, often complained of by breast cancer patients after undergoing chemotherapy, acupressure at the SP6 point has proven effective in reducing menstrual discomfort and helping regulate the menstrual cycle. This is crucial as maintaining quality of life is a key aspect of long-term cancer management (Smith et al., 2020).

The use of acupressure as a complementary therapy in the management of breast cancer in Bengkulu is inspired by the success of this therapy in international and local studies, and by the need for interventions that can be implemented with relatively limited resources. A study by Ridlayanti et al. (2021) showed that acupressure at the SP6 point not only effectively reduced the incidence of menometrorrhagia but was also practical and easy to implement, providing a model for similar implementation in Bengkulu.

METHODS

This study employed a quantitative research method with a quasi-experimental design involving a two-group pretest-posttest with control approach. This design was chosen for its ability to measure changes resulting from the intervention, despite not utilizing full randomization, which is often challenging to implement in clinical settings (Smith et al., 2020). It allows researchers to compare outcomes before and after acupressure application across two groups: an intervention group that received acupressure at points LI4, SP6, and LR3, and a control group that did not receive acupressure. This approach also supports the study's objective to assess the effectiveness of acupressure in reducing pain and menstrual disorders in patients undergoing chemotherapy, while controlling for external variables that might affect the outcomes.

The sample in this study comprised 30 participants, divided into two groups: 15 in the case group, who were carcinoma mammae patients undergoing chemotherapy and did not receive acupressure therapy, and 15 in the

control group, who received acupressure therapy at points LI4, SP6, LR3 six times. The sample was selected using purposive sampling techniques, with inclusion criteria including: a diagnosis of carcinoma mammae, currently undergoing chemotherapy, aged between 35-55 years, and free from blood coagulation disorders or skin diseases that might affect acupressure. Exclusion criteria included patients currently using strong analgesics or having other medical conditions affecting pain perception. To ensure sample homogeneity, we collected demographic and clinical data, including cancer stage and treatment history, analyzed using descriptive statistics before the study to ensure no significant differences between the groups regarding relevant variables (Kemenkes RI, 2020).

Primary and secondary data were utilized in this study. Primary data were obtained through direct measurement of pain intensity and menstrual disorders using the Visual Analog Scale (VAS) for Pain, while secondary data were collected from relevant patient medical records. Pain intensity was measured using the validated and reliable Visual Analog Scale (VAS) for pain in cancer patients (Grant, 2006). Measurements were taken before and after each acupressure session. Acupressure was applied at points LI4, SP6, and LR3, with pressure duration of one minute per point, repeated three times per session. The intervention frequency was one session per day for six consecutive days. The pressure was applied with moderate intensity, adjusted based on patient tolerance to avoid discomfort or pain. The acupressure dosage was applied at least six times per day, with each session encompassing 30 rounds at each meridian point on both sides, according to the protocol established in previous research (Hartono, 2012).

Univariate analysis was used to describe the distribution of variables, and bivariate analysis using the Wilcoxon test was conducted to assess the difference in acupressure effects between the control and intervention groups. The Wilcoxon test was chosen because the data on pain and menstrual disorders were not normally distributed, as is often the case with small clinical data sizes. This non-parametric test is suitable for comparing the medians of two related groups that do not meet the normal distribution assumption required for t-tests (Field, 2013). Additionally, this analytical technique is effective in handling outliers that could affect results in a small sample.

This research received ethical approval from the Ethics Committee of Universitas Bengkulu. All participants signed an informed consent form after receiving a comprehensive explanation of the study's purpose and procedures, as well as potential risks and benefits. The confidentiality of participant data was ensured, with data being coded and accessed only by the research team.

RESULTS

Univariate and bivariate analyses were conducted to assess the impact of acupressure on pain and menstrual disorders. The Visual Analog Scale (VAS) was utilized to measure pain intensity, categorizing it into mild, moderate, and severe. A similar scale was used to evaluate menstrual disorders, including amenorrhea and oligomenorrhea. Data were analyzed before and after the acupressure intervention to assess changes in pain and menstrual disorder conditions.

Table 1: Distribution of Pain Scale Frequency in Case and Control Groups Pre-Acupressure

Variable	Case Group				Control Group			
	Mild	Moderate	Severe	Total	Mild	Moderate	Severe	Total
Pain Scale Number	1	12	2	15	0	15	0	15
Percentage (%)	6,7	80	13,3	100	0	100	0	100

Table 1 indicates that the majority of the case group experienced moderate pain before the acupressure

intervention, while the control group entirely experienced moderate pain.

Table 2: Distribution of Pain Scale Frequency in Case and Control Groups Post-Acupressure

Variable	Case Group				Control Group			
	Ringan	Sedang	Berat	Total	Ringan	Sedang	Berat	Total
Pain Scale Number	13	2	0	15	0	15	0	15
Percentage (%)	86,7	13,3	0	100	0	100	0	100

According to Table 2, the majority of the case group experienced mild pain after the acupressure intervention,

whereas the control group continued to experience moderate pain.

Table 3: Distribution of Menstrual Disorder Frequency in Case and Control Groups Pre-Acupressure

Variable	Case Group - Menstrual Disorder		Total	Control Group - Menstrual Disorder		Total
	Amenorrhea	Oligomenorrhea		Amenore	Oligomenore	
Percentage (%)	40	60	100	33,3	66,7	100

Table 3 shows that the majority of the case group experienced oligomenorrhea (60%) and a significant proportion (40%) experienced amenorrhea before the

acupressure. Conversely, in the control group, a majority (66.7%) experienced oligomenorrhea and a smaller fraction (33.3%) experienced amenorrhea.

Table 4: Distribution of Menstrual Disorder Frequency in Case and Control Groups Post-Acupressure

Variable	Case Group - Menstrual Disorder		Total	Control Group - Menstrual Disorder		Total
	Hipermonore	Dismenore		Amenore	Oligomenore	
	6	9	15	5	10	15
Percentage (%)	40	60	100	33,3	66,7	100

According to Table 4, the majority of the case group experienced dysmenorrhea (60%) and a significant proportion (40%) experienced hypermenorrhea after the acupressure. In the control group, a majority (66.7%) experienced oligomenorrhea and a smaller fraction (33.3%) experienced amenorrhea.

Statistical analysis using the Wilcoxon test was conducted to evaluate differences between pretest and

posttest scores in the intervention and control groups. The obtained p-values for pain and menstrual disorders were greater than 0.05, indicating no statistically significant difference between the two groups. This interpretation confirms that acupressure, in this research setting, did not have a significant effect on reducing pain or improving menstrual disorders in patients undergoing chemotherapy (table 5).

Table 5: Effect of Acupressure on Points LI4, SP6, LR3 on Pain and Menstrual Disorders in Patients with Carcinoma Mammae Undergoing Chemotherapy

Variable	Group	N	Mean Rank	P Value	95% CI
Pain	Case	15	8,00	1,00	1,91-5,09
	Control	15	8,00	1,00	
Menstrual Disorders	Case	15	8,00	1,00	3,88-5,23
	Control	15	8,00	1,00	

DISCUSSION

The findings of this study indicate that there was no significant difference in the reduction of pain and menstrual disorders between the two groups, with p-values not showing statistical significance. These findings contrast with some studies that suggest acupressure can be effective in reducing pain and improving related conditions in patients undergoing chemotherapy. According to Smith et al. (2017), acupressure at points LI4, SP6, and LR3 successfully reduced pain intensity in patients with chronic conditions, suggesting that this technique could be effective if performed with the correct frequency and duration. Meanwhile, a study by Lee et al. (2018) found that acupressure had an impact on reducing pain and fatigue in cancer patients, which differs from our results. This discrepancy could be due to variations in acupressure protocols, sample characteristics, or intervention durations.

In the context of menstrual disorders, Zhou et al. (2019) found that acupressure at the SP6 point significantly reduced menstrual complaints in young women. This finding differs from ours, which may be due to differences in patient demographics, such as age and hormonal conditions, which we did not stringently control in this study.

Our study did not find a significant difference in the reduction of pain and menstrual disorders between the acupressure and control groups. The duration of the acupressure intervention conducted may not have been sufficient to produce significant therapeutic effects. Research by Chen et al. (2017) indicated that significant effects from acupressure on pain and other related symptoms typically require more frequent sessions and longer durations. In this study, acupressure was administered for only six days, which may have been too short to assess the full benefits of the therapy.

This study utilized points LI4, SP6, and LR3, which have been proven effective in several studies. However, the selection of these points may not have been optimal for all patients. Variability in individual responses to specific acupressure points might also influence outcomes, as

described by Liu et al. (2019), who found that responses to acupressure could be highly individual. Patient characteristics such as cancer stage, previous treatment history, and psychological conditions might also affect the effectiveness of acupressure. According to Wang et al. (2020), patients with higher stress levels or those who have undergone chemotherapy for a longer duration might be less responsive to complementary therapies like acupressure.

Therefore, results that are inconsistent with the literature may indicate a need for further evaluation of methodologies, such as adjustments in the frequency and duration of acupressure sessions, and more in-depth consideration of patient demographic and clinical factors. These results suggest the importance of conducting further research with a more robust design, including longer intervention durations and possibly more specific point selection based on patient conditions. Future studies should also consider using larger sample groups and diversifying patient characteristics to gain a broader understanding of acupressure's effectiveness.

Patients in this study might have received different types of chemotherapy, which have diverse side effect profiles. Some chemotherapy regimens may be more likely to cause pain and menstrual disorders than others, which could affect their response to acupressure. Research by Gupta et al. (2018) showed that the type and dosage of chemotherapy agents significantly affect pain manifestations in patients.

Demographic factors such as age, duration of illness, and hormonal status may also influence the response to acupressure. For example, younger women may experience different hormonal changes from older women, which can affect the severity of their menstrual disorders, as described by Wilson et al. (2019) in their study on the influence of age on menstrual pain manifestations.

Patient adherence to the acupressure protocol and their acceptance of this method could also be factors influencing its effectiveness. If patients do not consistently follow the acupressure schedule or feel uncomfortable with the technique, the treatment's effectiveness could be diminished. Research by Chen et al. (2020) found that

acceptance of complementary therapies directly impacts clinical outcomes.

These results suggest that acupressure, in the format applied in this study, may not be effective for all patients. However, acupressure could still be considered a viable complementary therapy, especially due to its minimal side effects and ease of application. Clinicians may need to consider individual patient factors, such as personal preferences, specific clinical conditions, and previous experiences with complementary therapies, when recommending acupressure. Given the variability in individual responses to acupressure, its use as a complementary therapy should ideally be personalized. Adjustments might involve modifying acupressure points, application techniques, and session durations, based on patient feedback and observed effectiveness.

Future research could include more detailed design approaches, such as extending therapy duration and increasing the frequency of acupressure sessions. This could provide further insights into the long-term effects of acupressure in managing chemotherapy side effects. Further research is needed to explore the effects of various acupressure points and combinations of different points, as well as considering variables such as type of chemotherapy, cancer stage, and other demographic characteristics. This would help identify whether there are specific configurations that are more effective than others. Conducting similar studies across multiple centers or with a larger and more heterogeneous sample could help confirm these results and generalize the findings to a broader population

CONCLUSION

This study evaluated the effectiveness of acupressure at points LI4, SP6, and LR3 in reducing pain and menstrual disorders in patients with carcinoma mammae undergoing chemotherapy. Although the results did not show a significant difference in the reduction of pain and menstrual disorders between the intervention and control groups, the findings suggest that acupressure, under the conditions applied in this research, did not significantly reduce pain or menstrual disorders. This underscores the importance of re-evaluating the acupressure protocols used, including the duration and frequency of application, as well as considering individual patient factors in the response to therapy.

Although no significant effects were detected, acupressure still holds potential as a complementary therapy due to its safety and comfort. Health practitioners may need to consider acupressure as part of a holistic approach to managing chemotherapy side effects, with adjustments based on patient response and preferences.

Further research is needed to explore the effects of acupressure using a larger sample and with longer intervention durations. Future studies should also consider variables such as the type of chemotherapy, severity of the disease, and patients' psychological profiles to better understand which populations are most likely to benefit from acupressure.

Future research needs to integrate a more detailed evaluation of acupressure techniques and may include a larger control group and longitudinal designs to measure the long-term effects of acupressure. Additionally, further studies should assess the impact of psychosocial and physical variables as a whole to enhance understanding of how best to integrate acupressure in the management of breast cancer.

Although no significant effects were found in this study, acupressure remains a potential complementary therapy in the management of chemotherapy side effects. This research contributes to the existing literature by highlighting the importance of paying attention to intervention design and individual characteristics in acupressure therapy.

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