



## Effects of the Wrist Band Acupressure Technique on the Severity of Nausea among Patients Receiving Highly Versus Moderately Emetogenic Chemotherapy

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### ABSTRACT

**Background:** Chemotherapy is an important therapeutic option for patients with cancers, but it is also associated with a number of adverse effects that can affect practically every body system. The most frequent side effects of chemotherapy are gastrointestinal in nature, such as nausea and vomiting. The pericardium 6 (P6) is one of the most important points used in acupressure techniques for treating nausea and vomiting.

**Objectives:** This study aims to examine the effects of wrist band acupressure technique on the severity of nausea among patients receiving highly or moderately emetogenic chemotherapy.

**Methodology:** A quasi-experimental design was conducted at the Imam Al-Hussein Center for Oncology and Hematology and the oncology wards of the Imam Al-Hassan Al-Mujtaba teaching hospital, which is located in Kerbala Holy City. Forty-seven patients with cancer undergoing chemotherapy were divided into two groups: 22 patients were assigned in the intervention group and 25 in the control group. Patients in the intervention group were followed to perform acupressure techniques, while in the control group only received routine conventional care.

**Results:** Before applying the interventional approach, the intervention group's overall mean score for nausea was  $52.3 \pm 10.9$ ; it was  $39.8 \pm 14.5$  after implementing the intervention. There is a statistically significant difference in the severity of nausea between the two groups after implementing the interventional protocol at a p-value of 0.000. Moreover, there are no significant differences between the severity of nausea after using wrist band acupressure and the type of chemotherapy (p-value 0.6).

**Conclusion:** Using wrist band acupressure as a noninvasive technique can be effective in reducing the severity of nausea among patients receiving highly or moderately emetogenic chemotherapy.

**Keywords:** acupressure technique, nausea, emetogenic chemotherapy.

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## INTRODUCTION

Chemotherapy is a method of using chemicals to either inhibit or stop the growth of malignant cells. Traditional chemotherapy primarily kills cancer cells that are rapidly multiplying and dividing by preventing mitosis and DNA synthesis (Yan et al., 2020). Depending on the type of agent and the particular patient features, chemotherapeutic drugs can have a wide range of side effects (Akhlaghi et al., 2020). These side effects include pain, exhaustion, nausea, vomiting, mouth sores, an increased risk of infection, anemia, increased peristalsis, alopecia, and depression (Almohammadi et al., 2019).

Chemotherapy-Induced Nausea and Vomiting (CINV) is a common and distressing side effect associated with specific chemotherapy agents and regimens that negatively affects patients' quality of life and can lead to a less than ideal response to cancer therapy (Aapro et al., 2022). According to the occurrence time, CINV can be classified into two groups based on when they manifest: the acute form manifests within 24 hours of chemotherapy, and the delayed type manifests between 24 and 120 hours later. Another type is anticipatory emesis, which develops in patients as a conditioned response prior to therapy when they previously experienced this adverse event during a chemotherapy cycle (Hussain et al., 2021).

According to the probability of inducing CINV, the chemotherapy can be classified into four categories: minimally emetogenic chemotherapy (10%), low emetogenic chemotherapy (10–30%),

moderately emetogenic chemotherapy (30–90%), and highly emetogenic chemotherapy (>90%) (Gupta et al., 2021). Antiemetic drugs can be taken as a preventative approach to reduce nausea and emesis brought on by chemotherapy (Hussain et al., 2021). Although corticosteroids, neurokinin 1 (NK-1) receptor antagonists, and 5-hydroxytryptamine 3 (5-HT<sub>3</sub>) receptor antagonists have been successful in treating nausea and vomiting in particular, they have not yet been fully managed (Ertürk and Tas, 2021).

As a type of supportive care, "Complementary and Alternative Medicine" (CAM), which refers to non-drug therapy, is growing in popularity (Calcagni et al., 2019). Acupressure is one of the complementary therapies that can reduce CINV in cancer patients by manipulating the impact at points Pericardium 6 (P6) and Stomach 36 (ST36). This benefits by strengthening digestive tract cells against the effects of chemotherapy, which can reduce nausea and vomiting by stimulating the vomiting center and increasing energy in the spleen and stomach meridians. (Sulistyarini et al., 2023). The P6 point is situated between the tendons of the flexor carpi radialis and the palmaris longus on the front of the forearm, three finger widths above the first wrist crease. Two methods of applying pressure include wearing an elastic wristband with an embedded stud or pressing the acupoint with the fingers (Battat, 2022). Nausea related to chemotherapy is still a troubling problem in spite of all these methods of management; therefore, the researcher in this study

aims to examine the effectiveness of the acupressure technique on point 6 by wearing an elastic wrist band on the severity of nausea among patients undergoing highly or moderately emetogenic chemotherapy.

### AIMS OF THE STUDY

This study aims to examine the effects of wrist band acupressure technique on the severity of nausea among patients receiving highly or moderately emetogenic chemotherapy.

### METHODOLOGY

**Research Design:** The current study used a quasi-experimental design. It was carried out to examine the effects of point 6 acupressure on patients receiving severely or moderately emetogenic chemotherapy. This study was initiated from September 28th, 2022, to June 26th, 2023.

**Participants:** The selected sample size was 47 patients with cancer receiving chemotherapy who were divided into two groups. There were 25 patients in the control group and 22 in the intervention group. The sample was chosen using a purposeful nonrandom sampling method in which the researchers rely on their own judgment when choosing members of the population to participate in this study.

**Ethical consideration:** This study was approved by the University of Kerbala/Nursing College's Scientific Research Ethical Committee. Each participant provided informed consent to participate in this study. Furthermore, each participant has the opportunity to withdraw from the study at any time.

**Materials & measures:** An instrument was developed to assess the effects of the point 6 acupressure technique upon the severity of nausea among patients undergoing highly or moderately emetogenic chemotherapy, which consists of two sections: The first section is concerned with the patient's socio-demographic and clinical data, which include (age, gender, social status, level of education, occupation, cancer location or system, tumor stage, emetogenicity of chemotherapy, pre-existing chronic diseases). The Morrow Assessment of Nausea and Emesis (MANE) scale was utilized in the second section; this instrument part was developed by Morrow (1992), and then Isidoro et al. (2022) revised and validated it in Brazilian Portuguese.

The researcher used the developed scale in 2022 because this copy was easy to understand for patients. The MANE scale, which was originally developed in the United States, is a screening tool that consists of sixteen items that assess the frequency, severity, and duration of pre- and post-chemotherapy-related nausea and vomiting.

**Procedure:** This interventional protocol was developed by the researcher after reviewing scientific literature and previous studies on nausea management, as well as the researcher's experience in caring for patients. This interventional regimen is intended to reduce the severity of nausea by using acupressure techniques on the pericardium's six points. The patients wear an elastic wrist band and press the stud of the band for 2-3 minutes every two

hours, starting during chemotherapy sessions and continuing for five days.

**Statistical analysis:** The study data were investigated and analyzed using the IBM program Statistical Package of Social Sciences Version 26, using both a descriptive statistical procedure (e.g., frequency, percentage, and mean of score) and a paired sample T-test and an independent sample T-test to compare the mean of the pre-test and post-test scores of nausea. A p-value of  $<0.05$  was determined to be statistically significant.

## RESULTS

According to Table (1), the mean age of the patients enrolled in this study was  $42.13 \pm 11.21$  years for the intervention group and  $45.4 \pm 10.8$  years for the control group. Patients in the intervention and control groups were 51–60 years old and made up 31.8% and 36% of the intervention and control groups, respectively. More than half (59.1%) and more than (52%), respectively, of the intervention and control groups were female, and the majority of the patients in the intervention and control groups were married, accounting for 90.9 percent and 80%, respectively, of the intervention and control groups. In terms of education level, more than one third (36.4%) of patients in the intervention group had a high school education, whereas less than one-half (44%) in the control group had a middle school education.

Table (2) shows that in the intervention and control groups, respectively, more than one-third (40.9%) and roughly one-quarter (24%) of the patients had gastrointestinal cancer. In terms of tumor

stage, one-half of the intervention group (50%) had stage IV tumors, while approximately one-half of the control group (48%) had stage II tumors. In the intervention and control groups, more than half (54.5%) and more than two-thirds (64%) had highly emetogenic medications, respectively. Furthermore, more than two-thirds (72.7%) and about one-half (52%), respectively, of the intervention and control groups didn't have chronic illnesses.

Table (3) indicate that the mean of nausea in the control group was ( $52.19 \pm 8.26$ ) and after five days the mean was ( $54.18 \pm 7.117$ ) and there is a statistically significant difference in the severity of nausea between the first and second measurement at p-value =0.029. while total mean score of the intervention group was ( $52.33 \pm 10.95$ ) before implementing the intervention and ( $39.87 \pm 14.50$ ) after implementing the intervention.

Also, table (4) exposed that the mean of nausea in the control group was 52.19, and in the interventional group was 52.33; there were no statistically significant differences between these two groups prior to implementing the intervention, with a p-value of 0.96. After intervention, the total mean score was 54.18 and 39.87 for the control and intervention groups, respectively. There was a statistically significant difference in the severity of nausea between the two groups after implementing the intervention protocol, at a p-value of 0.000.

The result in table (5) shows that there are no statistically significant differences between the

severity of nausea after using wrist band acupressure and the type of chemotherapy at a p-value of 0.68.

## DISCUSSION

In this quasi-experimental study, acupressure wrist bands have been used in the intervention group while they are not used for the control group. Our findings indicate that the mean ages in the intervention and control groups were  $MS \pm SD$  ( $42.13 \pm 11.21$ ), and ( $45.44 \pm 10.81$ ), most of the patients were within the age group (51–60) years old and accounted for 31.8% and 36% for the intervention and control groups, respectively, as shown in table (1). Aybar et al., (2020) conducted a randomized clinical trial study to investigate the influence of breathing exercises on functional status, nausea, and vomiting among patients with breast cancer receiving chemotherapy.

This study revealed that the mean age of the participants in the intervention group was  $43.03 \pm 7.07$  and  $51.43 \pm 9.46$  in the control group. According to our findings, more than one-half (59.1%) and 52% of the intervention and control groups were females, and the majority of the patients who participated in the intervention and control groups were married and accounted for 90.9 percent and 80% of the intervention and control groups, respectively. This finding is consistent with the findings of a study conducted by Bhatia et al., (2020), reported that 50% and 55% of patients in the intervention and control groups were female, respectively. Gündogdu and Koçaşlı, (2021) conducted a study for patients with

cancer undergoing radiotherapy and found that 70%, 90%, and 60% of patients in the control and intervention groups were married, respectively.

Regarding the educational levels, approximately one third (36.4%) of patients in the intervention group had a high school education, and about 44% in the control group had a middle school education. The result of this study also revealed that more than one third (40.9%) and 40% of the intervention and control groups were housewives, respectively. According to Pearce et al., (2017), more than half (52%) of patients in the experimental group and approximately two-thirds (64%) of patients in the control group were housewives.

Regarding the clinical data as shown in Table (2), the result indicates that more than one-third (40.9%) and approximately one-quarter (24%), respectively, of the participants had gastrointestinal cancer in the intervention and control groups. Concerning the tumor stage, one-half (50%) of patients in the intervention group had stage IV tumors, while in the control group, approximately one-half (48%) of patients had stage II tumors. Tsuji et al., (2017) conducted a multicenter, observational, prospective study examined the data of 190 patients with colorectal cancer, this study reported that approximately one-half (47.4%) of participants had stage IV tumors.

In terms of emetogenicity, more than half (54.5%) and more than two-thirds (64%) of participants in the intervention and control groups received highly emetogenic chemotherapy,

respectively. This finding is consistent with the result of the study that was done by Dupuis et al., (2020), who stated that 86.4% of participants in the study received highly emetogenic chemotherapy. Concerning chronic disease, more than two-thirds (72.7%) and more than one-half (52%), respectively, of the intervention and control groups did not have a chronic disease. This result is consistent with the result of the study conducted by Matias et al., (2019), who reported that 47.2% of participants in this study suffered from severe fatigue but had no comorbidities.

The results in table (3) show that the mean score of nausea in the control group was  $52.19 \pm 8.26$  and after five days was  $54.18 \pm 7.117$  with a statistically significant difference in the severity of nausea between the first and second measurements at  $p\text{-value} = 0.029$ , while the total mean score of the intervention group was  $52.33 \pm 10.95$  before implementing the interventional protocol and  $39.87 \pm 14.50$  after implementing the intervention. As a result, failing to apply the intervention protocol considerably increases the degree of nausea; conversely, performing the intervention reduces the severity of nausea in patients receiving chemotherapy. According to Sembiring et al., (2020), the average vomiting to nausea in the control group before antiemetics was 8.00 (SD = 2.02), the minimum vomiting to nausea was 5, and the maximum vomiting to nausea value was 11, whereas in the intervention group before acupressure and antiemetics, the average vomiting to nausea was 5.03 (SD = 1.99),

the minimum vomiting to nausea value was 5, and the maximum vomiting to nausea value was 11. The average vomiting to nausea in the intervention group after antiemetics administration was 7.77 (SD = 1.78), the minimum vomiting to nausea was 5, and the maximum value of vomiting to nausea was 11, whereas in the intervention group after administration of acupressure and antiemetics it was 5.03 (SD = 1.99), the minimum vomiting to nausea value was 2, and the maximum vomiting to nausea was 9.

As shown in table (4), there was no statistically significant difference between groups prior to implementing the intervention at a  $p\text{-value}$  of 0.96; the overall mean score of nausea in the control group was 52.19 and 52.33 in the study group. While there is a statistically significant difference in the severity of nausea between the two groups after implementing the intervention protocol at a  $p\text{-value}$  of 0.000, the total mean score after five days was 54.18 for the control group and 39.87 for the study group. This result is consistent with the findings of a study conducted by El-Deen and Younis, (2019) to investigate the effect of acupressure on nausea and vomiting among in patients with lung cancer receiving chemotherapy, which found no statistically significant difference between the two groups prior implementing the interventional protocol, While there were statistically significant differences between both groups during the 1st and 2nd post-intervention readings, the study group had lower total mean scores of nausea.

Table (5) shows that there are no statistically significant differences between the severity of nausea after using wrist band acupressure and the type of chemotherapy at a p-value of 0.68. (Peoples et al., 2019) conducted a study to examine the positive effects of acupressure bands combined with relaxation music/instructions on patients most at risk for chemotherapy-induced nausea. The study reveals that in patients with breast cancer undergoing highly emetogenic chemotherapy, an effort to maximize the impact of acupressure technique using the wrist band in controlling CIN through influencing acupoint was not successful. Although, acupressure bands with relaxation music had different effects CIN based on type of chemotherapy regimen or level of anxiety and significantly decreasing CIN for those who treated with anthracycline and/or had high anxiety.

## CONCLUSION

In conclusion, application of acupressure technique by using elastic wrist band for 2-3 minutes every two hours for five days was effective in reducing the severity of nausea in adult patients with cancers receiving highly or moderately emetogenic chemotherapy.

## RECOMMENDATION:

Based on the findings of the present study, the following recommendation were made:

1. Acupressure is indicated as a nursing practice for patients with cancer receiving chemotherapy.

2. Further studies may be required to assess the long-term effects of acupressure on nausea in patients with cancer.

## REFERENCES:

1. Aapro, M., Jordan, K., Scotté, F., Celio, L., Karthaus, M., & Roeland, E. (2022). Netupitant-palonosetron (NEPA) for Preventing Chemotherapy-induced Nausea and Vomiting: From Clinical Trials to Daily Practice. *Current Cancer Drug Targets*, 22(10), 806-824. <https://doi:10.2174/1568009622666220513094352>.
2. Akhlaghi, E., Lehto, R. H., Torabikhah, M., Sharif Nia, H., Taheri, A., Zaboli, E., & Yaghoobzadeh, A. (2020). Chemotherapy use and quality of life in cancer patients at the end of life: an integrative review. *Health and Quality of Life Outcomes*, 18, 1-9. <https://doi.org/10.1186/s12955-020-01580-0>.
3. Almohammadi, A., Alqarni, A., Alraddadi, R., & Alzahrani, F. (2020). Assessment of patients' knowledge in managing side effects of chemotherapy: case of King Abdul-Aziz University Hospital. *Journal of Cancer Education*, 35, 334-338. <https://doi.org/10.1007/s13187-019-1469-2>.
4. Aybar, D. O., Kılıc, S. P., & Çinkır, H. Y. (2020). The effect of breathing exercise on nausea, vomiting and functional status in breast cancer patients undergoing chemotherapy. *Complementary Therapies in Clinical Practice*, 40, 101213. <https://doi.org/10.1016/j.ctcp.2020.101213>.
5. Battat, M. (2022). Use of acupressure to reduce nausea and vomiting in cancer patients receiving

- chemotherapy (literature study) . Jour of Clin Cas Rep, *Med Imag and Heal Sci* 1(3). <https://dx.doi.org/10.55920/JCRMHS.2022.01.001028>
6. Bhatia, M., Verma, M., & Kumar, R. (2020). Effectiveness of progressive muscle relaxation therapy on physical symptoms among cancer patients receiving chemotherapy admitted in Cancer Unit of Institute of Liver and Biliary Sciences, Delhi. *Int J Sci & Healthcare Res*, 5(4), 221-232.
  7. Calcagni N, Gana K, Quintard B (2019) A systematic review of complementary and alternative medicine in oncology: Psychological and physical effects of manipulative and body-based practices. *PLoS ONE* 14(10): e0223564. <https://doi.org/10.1371/journal.pone.0223564>.
  8. Dupuis, L. L., Tomlinson, G. A., Pong, A., Sung, L., & Bickham, K. (2020). Factors associated with chemotherapy-induced vomiting control in pediatric patients receiving moderately or highly emetogenic chemotherapy: a pooled analysis. *Journal of Clinical Oncology*, 38(22), 2499-2509. <http://ascopubs.org/doi/full/10.1200/JCO.20.00134>.
  9. El-Deen, D. S., & Younis, H. M. (2019). Effect of Acupressure on Chemotherapy Induced Nausea and Vomiting among Patients with Lung Cancer. *International Journal of Nouvel Research in Helathcare and Nursing*. ISSN, 2394-7330.
  10. Ertürk, N. E., & Taşçı, S. (2021). The effects of peppermint oil on nausea, vomiting and retching in cancer patients undergoing chemotherapy: An open label quasi-randomized controlled pilot study. *Complementary Therapies in Medicine*, 56, 102587. <https://doi.org/10.1016/j.ctim.2020.102587>.
  11. Gündođdu, F., & Koçaşlı, S. (2021). Using Pranayama and Deep Breathing Exercises to Reduce Cancer-Related Fatigue and Insomnia During Radiotherapy: A Randomized Controlled Study. <https://doi.org/10.21203/rs.3.rs-160848/v1>.
  12. Gupta, K., Walton, R., & Kataria, S. P. (2021). Chemotherapy-induced nausea and vomiting: pathogenesis, recommendations, and new trends. *Cancer treatment and research communications*, 26, 100278. <https://doi.org/10.1016/j.ctarc.2020.100278>.
  13. Hussain, S. S., Rahman, F. A., & Iqbal, S. (2021). Olanzapine in Chemotherapy Induced Nausea and Vomiting. *National Journal of Health Sciences*, 6(1), 26-31. <https://doi.org/10.21089/njhs.61.0026>.
  14. Isidoro, G. M., Ferreira, A. C. G., das Chagas Paiva, E. M., do Amaral, J. D. H. F., de Abreu Meireles, E. C., & Garcia, A. C. M. (2022). Escala para Avaliação de Náuseas e Vômitos Relacionados à Quimioterapia: Tradução e Adaptação Transcultural. *Revista Brasileira de Cancerologia*, 68(1). <https://doi.org/10.32635/2176-9745.RBC.2022v68n1.1423>.
  15. Matias, M., Baciarello, G., Neji, M., Di Meglio, A., Michiels, S., Partridge, A. H., ... & Vaz-Luis, I. (2019). Fatigue and physical activity in cancer survivors: A cross-sectional population-based study. *Cancer medicine*, 8(5), 2535-2544. <https://doi.org/10.1002/cam4.2060>.
  16. Pearce A, Haas M, Viney R, Pearson S-A, Haywood P, Brown C, et al. (2017). Incidence and severity of

- self-reported chemotherapy side effects in routine care: A prospective cohort study. *PLoS ONE* 12(10): e0184360. <https://doi.org/10.1371/journal.pone.0184360>.
17. Sembiring, A., Tanjung, D., & Tarigan, R. (2020). Effectiveness of Acupressure to Reduce Vomiting Nausea in Patients Receiving Chemotherapy. *History*, 1(34), 2-9. <https://doi:10.9790/1959-0901112632>.
18. Sulistyarini, W. D., Wardani, D. A., Siska, E. M., Sulastri, S., Sanger, A. Y., & Lainsamputty, F. (2023). The Effectiveness of Acupressure on Nausea and Vomiting among Patients with Cancer Receiving Chemotherapy in East Kalimantan. *Nutrix Journal*, 7(1), 59-68. <https://doi.org/10.37771/nj.v7i1.93>.
19. Tsuji, Y., Baba, H., Takeda, K., Kobayashi, M., Oki, E., Gotoh, M., ... & Aiba, K. (2017). Chemotherapy-induced nausea and vomiting (CINV) in 190 colorectal cancer patients: a prospective registration study by the CINV study group of Japan. *Expert Opinion on Pharmacotherapy*, 18(8), 753-758. <https://doi.org/10.1080/14656566.2017.131774>.
20. Yan, L., Shen, J., Wang, J., Yang, X., Dong, S., & Lu, S. (2020). Nanoparticle-based drug delivery system: a patient-friendly chemotherapy for oncology. *Dose-Response*, 18(3), 1559325820936161. <https://sagepub.com/journals-permissions>.
21. Peoples, AR, Kulakova, E., Heckler, CE, Shayne, M., O'Connor, TL, Kirshner, JJ, ... & Roscoe, JA (2019). Positive effects of acupressure bands combined with relaxation music/instructions on patients most at risk for chemotherapy-induced nausea. *Supportive Care in Cancer*, 27, 4597-4605. <https://doi.org/10.1007/s00520-019-04736-x>.

## TABLES:

Table (1): Distribution of patients in two groups according to their socio-demographic characteristics

Characteristics	Intervention		Control		P-value C.S.	
	F	%	f	%		
Age groups	20-30	4	18.2	4	16	0.78
	31-40	5	22.7	4	16	NS
	41-50	6	27.3	8	32	
	51-60	7	31.8	9	36	
	MS ± SD	MS ± SD 42.13±11.21		MS ± SD 45.4 ± 10.8		
Gender	Total	22	100	25	100	
	Male	9	40.9	12	48	0.65
	Female	13	59.1	13	52	NS
Marital status	Total	23	100	25	100	
	Single	2	9.1	3	12	0.39
	Married	20	90.9	20	80	NS
	Widow/Widower	0	0	2	8	
Educational level	Total	22	100	25	100	
	Elementary school	6	27.3	4	16	0.61
	Middle school	2	9.1	11	44	NS
	High school	8	36.4	6	24	

	Diploma	2	9.1	2	8	
	Bachelor's degree and above	4	18.2	2	8	
	<b>Total</b>	<b>22</b>	<b>100</b>	<b>25</b>	<b>100</b>	
Occupation	Worker	2	9.1	6	24	
	Farmer	2	9.1	1	4	
	Governmental employee	7	31.8	7	28	0.49
	Retired	0	0	1	4	NS
	Housewife	9	40.9	10	40	
	does not work	2	9.1	0	0	
	<b>Total</b>	<b>22</b>	<b>100</b>	<b>25</b>	<b>100</b>	

f= frequencies; %=Percentages; MS = Mean of score; SD = Standard Deviation; C.S.=Comparison Significant; NS=Non- significant (P-value> 0.05).

**Table (2):** Distribution of patients in two groups according to their clinical data

Variables	Intervention		Control		P-value C.S.	
	f	%	f	%		
Cancers Location / System	Breast	3	13.6	4	16	0.71
	Lung	4	18.2	4	16	NS
	Gastrointestinal	9	40.9	6	24	
	Hematologic/Blood	0	0	2	8	
	Genitourinary	2	9.1	4	16	
	Gynecologic	3	13.6	2	8	
	Others	1	4.5	3	12	
Tumor's Stage	Stage I	3	13.6	0	0	0.42
	Stage II	3	13.6	12	48	NS
	Stage III	5	22.7	6	24	
	Stage IV	11	50	7	28	
Emetogenicity of chemotherapy	Highly	12	54.5	16	64	0.36
	Moderate	10	45.5	9	36	NS
Pre-existing Chronic Disease	Hypertension	3	13.6	4	16	0.34
	Diabetes Mellitus	1	4.5	5	20	NS
	HTN & DM	2	9.1	3	12	
	Non	16	72.7	13	52	

f= frequencies; %=Percentages; C.S.=Comparison Significant; NS=Non- significant (P-value> 0.05).

**Table (3):** Comparison the severity of nausea in two groups pre and post the application of interventional protocol

Periods	Control group			Intervention group		
	MS	SD	p-value	MS	SD	p-value
Pre test	52.19	8.26	0.029	52.33	10.95	0.000
Post test	54.18	7.117	S	39.87	14.50	S

MS=Mean of score; SD= Standard deviation; S=Significant (p-value≤0.05).

**Table (4):** Comparison of the severity of nausea in two groups before and after the interventional protocol

Groups	Pre test			Post test		
	Mean	p-value	Sig.	Mean	p-value	Sig.
Control group	52.19	0.960	NS	54.18	0.000	HS.
Intervention group	52.33			39.87		

MS=Mean of score; SD= Standard deviation; S=Significant (p-value $\leq$ 0.05).

**Table (5):** The difference in the severity of nausea after using wrist band acupressure according to type of chemotherapy

Type of chemotherapy	Classes	M.S.	S.D.	F	p-value	Sig
		Moderately Emetogenic Chemotherapy	37.6	9.8	0.16	0.68
Highly Emetogenic Chemotherapy		41.7	17.7			

MS (Mean of score), SD (Standard deviation); F(F-statistics); P-value (Probability value); NS = Non-Significant (p-value > 0.05).