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THE EFFECT OF STANDARD HOSPITAL CARE ON *CHEMOTHERAPY INDUCED NAUSEA AND VOMITING* (CINV), *CHEMOTHERAPY INDUCED PERIPHERAL NEUROPATHY* (CIPN) AND ANXIETY IN BREAST CANCER PATIENTS WITH CHEMOTHERAPY IN JEMBER, INDONESIA

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ABSTRACT
Breast cancer has a large number of new cases and deaths in the world and Indonesia. Chemotherapy is one of the treatments chosen to treat breast cancer patients. Physical side effects can include Chemotherapy-induced Induced Nausea and Vomiting (CINV), Chemotherapy-induced Induced Peripheral Neuropathy (CIPN) and anxiety. Standard hospital care is care in which nursing actions are in accordance with the Standard Operating Procedure (SOP) that the hospital has established for each existing service. The research method used was quasi-experimental (quasi-experiment), which was carried out with an unequal control group design. The pre-test was carried out during chemotherapy when the researcher met the respondent, and the post-test was carried out during the respondent's following chemotherapy schedule. The population in this study were breast cancer patients undergoing chemotherapy at the chemotherapy clinic at RSD, Dr. Soebandi Jember and Rumkit Kindergarten. III Baladhika Husada Jember . The sampling method used was simple random sampling with a minimum sample size of 60 people. The results of the Paired Samples Test can be concluded that standard treatment in hospitals does not affect the level of Chemotherapy Induced Nausea and Vomiting (CINV) but does influence the incidence rate of chemotherapy-induced peripheral neuropathy (CIPN) and the level of anxiety in breast cancer patients with chemotherapy.

INTRODUCTION

Breast cancer has a total of 2.2 million new cases in the world, with 684,996 deaths, according to data. *Global Cancer Observatory* (Globocan) in 2020. Meanwhile, in Indonesia, the number of new cases of breast cancer was 68,858 cases, with more than 22,000 deaths (Source, 2020). It can be seen that the percentage of deaths due to breast cancer globally is 7%, and in Indonesia, it is 10% of the total new cases. This is due to delays in the diagnosis and treatment of breast cancer as well as delays in patients coming to the hospital for treatment ((Hafiza, 2020); (Hutajulu et al., 2022); (Solikhah et al., 2020)).

Chemotherapy is a treatment method for breast cancer (Nedeljković et al., 2019). Chemotherapy is treatment using cytostatic agents as anti-cancer drugs (Ezzati et al., 2021). This cytostatic agent functions to kill cancer cells and inhibit their growth (Park et al., 2020). There are three types of chemotherapy, namely adjuvant, neoadjuvant and concurrent

chemotherapy (Esteva et al., 2019). Chemotherapy can be an independent therapy for treating breast cancer and can also be combined with surgery, radiotherapy, and immunotherapy (Kong et al., 2022). In Indonesia, chemotherapy is the leading choice for treating breast cancer combined with surgery (Gondhowiardjo et al., 2022), so many referral hospitals provide chemotherapy services for breast cancer patients.

When implementing chemotherapy, patients may experience many side effects These side effects can appear pre-, intra and post-chemotherapy, even several days after (Prieto-Callejero et al., 2020). There are also side effects that are experienced for an extended period after chemotherapy treatment (Joly et al., 2019). These side effects can include physical or psychological complaints (Lewandowska et al., 2020). Physical complaints in the form of *Chemotherapy Nausea and Vomiting* (CINV) and *Chemotherapy-induced peripheral Neuropathy* (CIPN) (Iddrisu et al., 2020). The most common psychological complaint is anxiety during treatment (Michel et al., 2023)

Physical symptoms of side effects in breast cancer patients are *Chemotherapy-induced Induced Nausea Vomiting* (CINV) (Gautam et al., 2023). CINV experienced by patients can have different severity ranges (Ertürk & Taşcı, 2021; Childs, 2019). The severity of CINV is influenced by the chemotherapy regimen given, age, gender, and previous medical history (Mousa et al., 2020). CINV can occur immediately after administration of a cytostatic regimen, or it can also occur later (Huang et al., 2021).

Other physical symptoms can be neuropathy, which occurs due to side effects of chemotherapy or so-called *Chemotherapy Peripheral Neuropathy* (CIPN) (Burgess et al., 2021). Cytostatic regimens for breast cancer patients can include Vinca-alkaloids, cisplatin and taxanes, which will have a risk of peripheral neuropathy (Laforgia et al., 2021). Complaints can include tingling in the feet and hands, burning sensations in the feet and hands, ringing in the ears, and pain in the extremities (Zhongren Ma et al., 2021). Complaints can occur during chemotherapy treatment and can also appear after chemotherapy treatment is completed (Maihöfner et al., 2021). These neuropathy complaints can be temporary or permanent (Kanzawa-Lee et al., 2020).

The psychological complaint that most often occurs in breast cancer patients undergoing chemotherapy is anxiety (Hashemi et al., 2020). Anxiety can occur during pre-, intra and post-chemotherapy. The level of anxiety that occurs is influenced by age, gender, education and knowledge, as well as the patient's ability to adapt . In new patients, anxiety is caused by the patient's lack of knowledge regarding the disease, treatment and side effects of chemotherapy, while in patients with repeat chemotherapy, it is caused by trauma due to complaints that arose during previous chemotherapy.

Standard hospital care is care in which nursing actions are in accordance with the Standard Operating Procedure (SOP) that the hospital has established for each existing service. The SOP for breast cancer services at RSD Dr. Soebandi Jember is a one-day care service where breast cancer patients with chemotherapy receive one day's service for chemotherapy and go straight home that day. Meanwhile, at Level III Baladika Husada Jember Hospital, patients must be admitted to the hospital 1 (one) day before the chemotherapy procedure, followed by the chemotherapy process on day 2 (two) and go home on day 2 (two). In the 2 (two) hospitals, there was no follow-up care after the patient returned from chemotherapy. Therefore, the authors wanted to know the effect of standard hospital care

on Chemotherapy Induced Nausea and Vomiting (CINV), Chemotherapy Induced Peripheral Neuropathy (CIPN) and Anxiety in Breast Cancer Patients with Chemotherapy in Jember.

METHOD

The research method used in this research is quasi-experimental (quasi-experiment), which was carried out with a nonequivalent control group design. The pre-test was carried out during chemotherapy when the researcher met the respondent, and the post-test was carried out during the respondent's following chemotherapy schedule. The population in this study were breast cancer patients undergoing chemotherapy at the chemotherapy clinic at RSD, Dr. Soebandi Jember and the chemotherapy room at Rumkit Tk. III Baladhika Husada Jember .

The sampling method used was *simple random sampling,* where samples from the population are taken randomly without paying attention to the strata in the population, and each member of the population has the same opportunity to be sampled. In this study, the researcher wanted a sample confidence value of 95% or an error rate of 5% with a minimum sample size. According to *Lemeshow,* it was found that the minimum sample in this study was 120 people. Measurement of Chemotherapy Nausea and Vomiting (CINV) using the Multinational Association Of Supportive Care in Cancer (MASCC) Antiemesis Tool (MAT) questionnaire, *Chemotherapy Induced Peripheral Neuropathy* (CIPN) using *the Functional Assessment of Cancer Therapy/Gynecologic Oncology Group—Neurotoxicity* questionnaire or FACT/GOG-NTX-13 (*Version* 4) and anxiety measurement using *the Hamilton Anxiety Rating Scale* (HAM-A) Questionnaire.

RESULTS AND DISCUSSION

The results obtained from this research data are:

Table 1. Characteristics of respondents

		Frequency	Percentage
Gender	Woman	120	100%
Domicile	Jember	81	67 %
	Outside Jember	39	33 %
Chemotherapy	Adjuvant	58	48 %
	Neoadjuvant	62	52%

From the respondent characteristics data above, based on gender, the majority of respondents with breast cancer are female. The domicile of the majority of respondents is in Jember Regency, with one-third coming from outside Jember. Respondents received adjuvant chemotherapy as much as 48% of the total sample, and the remaining 52% received neoadjuvant chemotherapy.

Table 2. Characteristics of CIN V, CIPN and Anxiety in Respondents

		Pre-test		*Post-test*	
		Frequency	**Percentage**	**Frequency**	**Percentage**
CINV (MAT)	Nausea < 24 hours	60	100%	60	100%
	Nausea > 24 hours	57	95 %	57	97 %
	Vomiting < 24 hours	3	5 %	3	5 %

		Pre-test		*Post-test*	
		Frequency	**Percentage**	**Frequency**	**Percentage**
	Vomiting > 24 hours	9	15 %	9	15 %
CIPN (FACTGOG)	71-80	20	33 %	17	28 %
	81-90	31	52 %	32	54 %
	91-100	8	13 %	9	15 %
	> 100	1	2 %	2	3 %
Anxiety (HAM-A)	There is not any	0	0 %	0	0 %
	Light (ringan)	0	0 %	1	2 %
	Moderate (sedang)	50	83 %	48	80 %
	Severe (berat)	10	17 %	11	18 %

From Table 2, CINV measurements can be seen that the most nausea occurs less than 24 hours after chemotherapy in the pre-test and post-test, while the most vomiting occurs more than 24 hours after chemotherapy in the pre-test and post-test. In the CIPN measurement, it can be seen that the highest CIPN score is in the range of 81-90 in the pre-test and post-test, while in the anxiety measurement, the highest score is in the moderate anxiety level, 83% in the pre-test and 80% in the post-test.

Table 3. *Paired Samples Test* on MAT, FACTGOG and HAM-A

					95% Confidence Interval of the Difference				
		Mean	**Std. Deviation**	**Std. Error Mean**	**Lower**	**Upper**	**t**	**df**	**Sig.(2-tailed)**
MAT	Pre - Post	.00000	1.17891	.15220	-.30454	.30454	,000	59	**1,000**
FACTGOG	Pre-post	-.50000	1.18608	.15312	-.80640	-.19360	-3,265	59	**,002**
PEST	Pre - Post	.45000	.79030	.10203	.24584	.65416	4,411	59	**,000**

From Table 3 above, the significance value (2-tailed) from the *Paired Samples Test* on the MAT is 1.00 or greater than 0.05, which means there is no significant difference between the HAM-A score at the pre-test stage and the post-test stage. In FACTGOG, the significance value is 0.00 or less than 0.05, which means there is a significant difference between the FACTGOG value at the pre-test stage and the post-test stage. The significance value for HAM-A is 0.00 or less than 0.05, which means there is a significant difference between the HAM-A score at the pre-test stage and the post-test stage. From these results, it can be concluded that standard treatment in hospitals does not affect the level of *Chemotherapy Nausea and Vomiting* (CINV) but does influence the incidence rate of *chemotherapy-induced peripheral neuropathy* (CIPN) and the level of anxiety in breast cancer patients with chemotherapy.

From the data above, it can be seen that women have a high risk of developing breast cancer. This is in accordance with research conducted by Chen (2021), which said that women are at high risk of developing breast cancer due to the use of hormonal contraception. However, it does not rule out the possibility that breast cancer can also be experienced by men (Elmika & Adi, 2020). Women also have higher levels of the hormone estrogen than men (Maria, 2017), thereby increasing the risk of breast cancer. Ningrum (2021) and Hero (2021) stated that the use of hormonal birth control in women to prevent pregnancy is a risk factor for breast cancer. Therefore, women have a higher risk of developing breast cancer than men.

The majority of respondents live in Jember. This is because the distance between the house and health facilities will significantly influence how the patient will undergo treatment (Ramadhan, 2019; Kartikasari, 2022). Access and distance to health services also influence the disease treatment process (Astuti, 2021). Respondents' financing influences the cancer treatment process because the treatment process takes a long time, and the costs involved are not small, so the use of health insurance can help patients ease the economic burden caused by their illness (Amalia, 2021). The distance a health facility travels from home influences the treatment process that the patient will choose during their illness.

The type of chemotherapy that the majority of respondents are undergoing is adjuvant chemotherapy. Wongkar (2022) and Herawati (2021) stated that the majority of breast cancer patients in Indonesia were diagnosed with breast cancer at an advanced stage. One of the causes is the lack of public knowledge about early detection of breast cancer (Marfianti, 2021; Hastuty, 2023) and the relatively low level of public education, thereby delaying examination and treatment (Rizka & Akramah, 2023). Women who have good socio-economic status have wider opportunities to access health facilities than women who have low social and economic status (Nadira, 2023; Astuti, 2021). The level of education and socio-economic status influence the diagnosis and thus influence the use of the therapeutic regimen that will be given to the patient.

From the CINV measurement results, it was found that the majority of patients experienced nausea in less than 24 hours after administration of chemotherapy drugs, and the majority experienced vomiting within 24 hours after administration of chemotherapy drugs. Kim (2022) stated that the majority of chemotherapy patients experience nausea and vomiting. Naito (2020) also stated that post-chemotherapy nausea and vomiting, or CINV, can occur immediately after chemotherapy or occur after several days after chemotherapy. This is because the majority of chemotherapy regimens given to patients have moderate emetogenic properties such as anthracycline and cyclophosphamide (Sun, 2021; Dupuis, 2020). Therefore, it is necessary to observe the symptoms of post-chemotherapy nausea and vomiting experienced by patients to facilitate evaluation in the management of CINV.

From the CIPN measurement results, it was found that the majority of breast cancer patients undergoing chemotherapy experienced CIPN symptoms ranging from mild to severe. CIPN also has different levels of variation between patients (Michel, 2023; Mazilu, 2019). The incidence of CIPN in breast cancer patients undergoing chemotherapy is influenced by the chemotherapy regimen received by the patient (Cavaletti, 2019). Chemotherapy regimens contain platinum, such as *oxaliplatin* and *cisplatin*, *taxanes, vinca alkaloids* and *bortezomib* will trigger CIPN experienced by the patient (Maihöfner, 2021). The type of chemotherapy regimen received by the patient influences the CIPN symptoms experienced by the patient.

From the anxiety results, it was found that the majority of patients had a moderate level of anxiety. The anxiety experienced by patients is influenced by many factors (Subekti, 2020). Breast cancer patients undergoing chemotherapy experience anxiety at various levels, whether mild, moderate or severe (LewandowskaWilliams, 2021) and can also influence the physiological complaints felt by the patient. Recurrent anxiety that occurs in breast cancer patients undergoing chemotherapy is closely related to trauma due to previous post-

chemotherapy complaints (Chen, 2019). Uncontrolled anxiety will affect the physiological complaints experienced by the patient.

The results of tests on the effect of providing standard treatment in hospitals on the incidence of *Chemotherapy Induced Nausea and Vomiting* (CINV), *chemotherapy-induced peripheral neuropathy* (CIPN) and anxiety in breast cancer patients with chemotherapy showed that standard treatment in hospitals did not affect the level of *Chemotherapy Induced Nausea and Vomiting.* (CINV) , this is because, in standard care, there is no intense supervision of patients after returning home after chemotherapy, so patients cannot carry out proper prevention and management of CINV at home. This standard treatment influences the incidence rate of *chemotherapy-induced peripheral neuropathy* (CIPN) and the level of anxiety in breast cancer patients with chemotherapy. This is because, in standard care, there is also education about how to reduce the risk of CIPN and anxiety so that patient and family knowledge increases, and they can apply what they have learned in the hospital when the patient experiences the same complaint at home after chemotherapy treatment.

CONCLUSION

Breast cancer is the most common cancer in the world and Indonesia. Chemotherapy, which is often used to treat breast cancer patients, has side effects in the form of physical and psychological symptoms for the patient. The results of the *Paired Samples Test* can be concluded that standard treatment in hospitals does not affect the level of *Chemotherapy Induced Nausea and Vomiting* (CINV) but does influence the incidence rate of *chemotherapy-induced peripheral neuropathy* (CIPN) and the level of anxiety in breast cancer patients with chemotherapy.

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