Evaluation of Antiemetic Drugs Use in Chemotherapy Breast Cancer Patients at Dr. Pirngadi Medan Hospital

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ABSTRACT

Breast cancer is excessive cell proliferation that attacks the breast tissue. Breast cancer is a problem that requires serious attention, especially for women. Breast cancer is currently the first cause of death in women in the world. Nausea and vomiting caused by chemotherapy is one of the side effects that most often affects the quality of life of cancer patients undergoing chemotherapy. These side effects can be prevented by administering antiemetic drug therapy. Accuracy in the administration of antiemetic drugs will increase the safety and effectiveness of drug use. This study aims to evaluation of antiemetic treatment therapy based on the accuracy of drug selection, dosage and the resulting therapeutic effect. This study used a purposive sampling method by collecting data retrospectively, namely monitoring the use of antiemetics in breast cancer chemotherapy patients in the inpatient room of RSUD Dr. Pirngadi Medan. The results of this study obtained 20 patients who entered the inclusion criteria, seen as many as 100% of patients received antiemetics with appropriate doses, and as many as 100% of patients received the appropriate drugs.

Keywords: *Antiemetic, Breast Cancer, Chemotrapy, Proliferation, Nausea.*

1. INTRODUCTION

Breast cancer is a malignant tumor that begins in breast cells and can occur in almost women. not only women but men can also suffer from breast cancer (WHO, 2016). Breast cancer is the leading cause of death from cancer after lung cancer. In women, breast cancer still ranks first in new cases and deaths, which is 43.3% of new cases and 12.9% of deaths [1]

Global Burden Cancer data, in the United States in 2015 there were 231,840 new cases of breast cancer and an estimated 40,290 women who died and in 2016 the number of new cases increased to 246,660 cases and as many as 40,450 women who died from breast cancer. Breast cancer in Asia ranks first. The estimated percentage of breast cancer in 2012 in Asia was 650,983 cases (21.2%). The estimated mortality from breast cancer is 231,013 (12.8%) [2]

In Indonesia, especially at Dharmais Cancer Hospital in Jakarta, breast cancer cases also continue to increase, from 221 cases in 2003 to 657 cases in 2008 [3]. This condition is exacerbated because as many as 60-70% of patients who come to the hospital are already in an advanced stage. Breast cancer, generally occurs in postmenopausal women, but is currently mostly found at a young age, such as less than 25 years [4]. Breast cancer in women will affect their existence and well-being, both physically, emotionally, psychologically, socially, and spiritually. The impact will be more severe if it occurs at the reproductive age because it is related to sexuality and the position of women as wives and mothers [5].

One of the cancer treatments is chemotherapy. In practice, chemotherapy uses cytostatic drugs. Cytostatics are a group of drugs (cytotoxic) used to inhibit the growth of cancer cells. Cytotoxic drugs are drugs that kill or damage cancer cells. Cancer therapy by chemotherapy can cause various side effects, such as nausea and vomiting, skin irritation (redness, acne, itching, etc.), diarrhea, constipation, hair loss, nail changes, anemia, infection, bleeding, fatigue, thrush, sore throat, fluid retention ,etc. These side effects can occur depending on the physical condition of each individual receiving therapy. Side effects associated

with chemotherapy treatment such as nausea and vomiting have a detrimental effect on the quality of life of cancer patients and can interfere with diet, daily activities and patient reluctance to continue chemotherapy. Based on data from [6] adverse drug reactions in breast cancer patients after chemotherapy, patients state nausea and vomiting on the list of chemotherapy side effects that are most often felt after alopecia and somatitis. Drugs used for chemotherapy (cytotoxic) have been known to induce nausea and vomiting in patients. Based on a survey in America, of all patients receiving chemotherapy, 70% to 80% of them experience side effects of nausea and vomiting. The high incidence of nausea and vomiting as a side effect of chemotherapy is one of the reasons why cancer patients find it difficult to receive chemotherapy as a therapy option. [7]

In a study conducted by Love et al., it was found that the percentage of patients who experienced side effects from the chemotherapy they underwent were nausea 87%, fatigue 86%, vomiting 54%, sleep disturbances 46%, weight gain 45%, thrush 44%, tingling 42%, eye disorders 38%, diarrhea 37%, constipation 19%, skin redness 18% and weight loss 13% [8]. Nausea and vomiting due to chemotherapy (CINV) is a side effect that often occurs and gives many difficulties to cancer patients. Cancer patients undergoing chemotherapy usually experience nausea and vomiting and are the most common side effects of chemotherapy. The effects of chemotherapy can reduce adherence to treatment and ultimately affect the patient's quality of life. [9].

Giving antiemetics is very important for patients to prevent vomiting at the beginning and after chemotherapy so as to prevent patients from feeling traumatized following chemotherapy again, in anticipation of vomiting in subsequent chemotherapy and improving the patient's quality of life. Based on previous research[7] 92.4% of patients still experience nausea and vomiting after being given antiemetics. Antiemetic chemotherapy premedication to prevent acute emesis is an important thing to give to chemotherapy patients. Based on the description above, so that researchers are interested in researching the evaluation of the use of antiemetics in breast cancer chemotherapy patients in the inpatient ward of RSUD Dr. Pirngadi Medan.

2. METHODS

2.1 Research Design

This research is a non-experimental research by collecting data retrospectively. This research was conducted in RSUD Dr. Pirngadi Medan in December 2018. The population in this study were all medical records of inpatient breast cancer chemotherapy patients at RSUD Dr. Pirngadi Medan City for the December 2018 period, as many as 20 samples.

2.2 Sample inclusion criteria

Inclusion criteria are criteria where the research subject can represent the research sample and has met the requirements as a sample. The inclusion criteria for the sample in this study are: all patients diagnosed with breast cancer. Patients undergoing chemotherapy for breast cancer who were hospitalized at Dr. Hospital. Pirngadi Medan City in December 2018, patients receiving antiemetic therapy and patients with complete medical records

2.3 Data collection technique

The method of data collection is by using primary data. Primary data is data obtained by researchers from sources that directly monitor the use of antiemetics in breast cancer chemotherapy patients and medical records of breast cancer chemotherapy patients. This data was obtained by collecting all medical record sheets containing the stages of management of chemotherapy patients with a diagnosis of breast cancer from December 2018 using worksheets

3. FIGURE AND TABLE

Table 1 to determine the characteristics of patients hospitalized with cancer chemotherapy based on Hospital Dr. Pirngadi Medan City Period December 2018. Table 2 shown Characteristics of Inpatient Breast Cancer Chemotherapy Patients by Age . in the table we can saw the most age group is 50-59 . Table 3 most patients suffering from breast cancer are housewives . ideal body weight ranks first in patients suffering from breast cancer as shown in table 4 . Most hospitalized patients suffer from stage 1 and 2 cancer shown in table 5. Table 6 shown The highest number of patients who underwent chemotherapy were cycles 4,2 and 5 . most chemotherapy drugs are cisplatin can be seen in table 7 . all use of anti-emetic drugs according to the doses shown in table 8. Table 9 shown Use of Antiemetics in Breast Cancer Chemotherapy Patients

Table 1 Characteristics of Breast Cancer Chemotherapy Patients by Gender

Gender	Amount (n)	Percent (%)
Male	-	-
Female	20	100,0
Total	20	100,0

Table 2 Characteristics of Inpatient Breast Cancer Chemotherapy Patients by Age

Age group	Amount (n)	Percent (%)
40-49	7	35,0
50-59	10	50,0
60-69	1	5,0
70-79	2	10,0
Total	20	100,0

Table 3 Characteristics of Inpatient Breast Cancer Chemotherapy Patients by Occupation.

Occupation	Amount (n)	Percent (%)
Wife house	15	75,0
Government employees	2	10,0
Entrepreneur	3	15,0
Total	20	100,0

Table 4 Characteristics of Inpatient Breast Cancer Chemotherapy Patients Based on Body Mass Index (BMI)

Body Mass Index (BMI)	Amount (n)	Percent (%)
Overweight	5	25,0
Obesity	3	15,0
Normal	11	55,0
Thin	1	5,0
Total	20	100,0

Table 5 Characteristics of Inpatient Breast Cancer Chemotherapy Patients Based on Cancer Stage

Cancer stage	Amount (n)	Percentage (%)
I	8	40,0
II	8	40,0
III	4	20,0
Total	20	100,0

Table 6 Characteristics of Inpatient Breast Cancer Chemotherapy Patients Based on Chemotherapy Cycle (Weekly).

Chemotherapy cycle (*Weekly*)	Amount (n)	Percentage (%)
I	2	10,0
II	4	20,0
III	3	15,0
IV	5	25,0
V	4	20,0
VII	1	5,0
IX	1	5,0
Total	20	100,0

Table 7 Types of Chemotherapy Drugs for Breast Cancer Patients

Chemotherapy drugs	Amont (n)	Percentage (%)
Brexel	6	30,0
Carboplatin	2	10,0
Cisplatin	10	50,0
Curacyl	8	40,0
Doxorubicin	8	40,0
Endoxan	5	25,0
Paclitaxel	9	45,0

Table 8 Use of Antiemetics in Breast Cancer Chemotherapy Patients

No.	Weight/Height (kg/cm)	Types of antiemetic drugs	Dose (mg)	Dose range (mg) (NCCN 2017)	Suitable/Not suitable
1.	60/154	Dexamethasone Ondansetron Ranitidine	12 8 125	8 -24 8 -24 50-150	Suitable
2.	43/150	Dexamethasone Ondansetron	8 8	8-24 8-24	Suitable
3.	41/143	Dexamethasone Ondansetron	8 8	8-24 8-24	Suitable
4.	41/144	Dexamethasone Ondansetron Ranitidine	12 8 125	8 -24 8 -24 50-150	Suitable
5.	72/165	Ondansetron Dexamethasone Ranitidine	12 8 125	8 -24 8 -24 50-150	Suitable
6.	39/158	Dexamethasone Ondansetron Ranitidin	12 8 125	8 -24 8 -24 50-150	Suitable
7.	46/152	Dexamethasone Ondansetron Ranitidine	12 8 125	8 -24 8 -24 50-150	Suitable
8.	59/152	Dexamethasone Ondansetron	8 8	8 -24 8 -24 50-150	Suitable
9.	72/165	Ondansetron Dexamethasone Ranitidine	12 8 125	8 -24 8 -24 50-150	Suitable
10.	50/148	Dexamethasone Ondansetron	8 8	8-24 8-24	Suitable
11.	54/162	Dexamethasone Ondansetron	8 8	8-24 8-24	Suitable
12.	81/155	Dexamethasone	12	8 -24	

		Ondansetron Ranitidine	8 125	8 -24 50-150	Suitable
13.	60/148	Ondansetron Dexamethasone	8 8	8-24 8-24	Suitable
14.	47/151	Dexamethasone Ondansetron Ranitidine	12 8 125	8 -24 8 -24 50-150	Suitable
15.	47/157	Dexamethasone Ondansetron Ranitidine	12 8 125	8 -24 8 -24 50-150	Suitable
16.	54/155	Dexamethasone Ondansetron Ranitidine	12 8 125	8 -24 8 -24 50-150	Suitable
17.	65/147	Dexamethasone Ondansetron	8 8	8-24 8-24	Suitable
18.	45/145	Dexamethasone Ondansetron	8 8	8-24 8-24	Suitable
19.	60/156	Dexamethasone Ondansetron	8 8	8-24 8-24	Suitable
20.	80/155	Dexamethasone Ondansetron	8 8	8-24 8-24	Suitable

Table 9. Use of Antiemetics in Breast Cancer Chemotherapy Patients

Category	Type of antiemetic	Number of cases	Suitable	Non suitable	Percentage (%)
Single	-	-	-	-	-
Combination	Ondansetron + Dexamethasone	10	✓		50,0
	Ondansetron + Dexamethasone + Ranitidine	10	✓		50,0
Total		20			100,0

4. RESULTS AND DISCUSSION

Based on table 1, it can be seen that the patients suffering from breast cancer were all women as many as 20 patients (100.0%). The incidence of breast cancer in women compared to men is 100:1. In general, 1 in 9 American women will suffer from breast cancer in their lifetime [8]. Women with breast changes experience three breast changes. The first changes in the breasts in early birth until menopause at puberty, the development of lactiferous ducts and sinuses is influenced by estrogen and progesterone produced by the ovaries, the second change corresponds to the menstrual cycle around the 8th day of menstruation, breasts enlarge and a few days before menstruation the next maximum enlargement occurs a few days before menstruation, the breasts feel sore and tense so that when doing breast palpation it is difficult to do and the last changes occur during pregnancy and lactation during pregnancy there is a proliferation of the epithelial ducts of the lobes and the ducts of the alveoli so that the breasts enlarge, the alveolar cells will produce Milk is flowed into the acinus, then excreted through the ducts into the nipples triggered by oxytocin. Based on the description above, women will more easily experience breast cancer [10], [11]

Based on table 2 the number of 20 inpatient breast cancer chemotherapy patients who received at Dr. Hospital. Pirngadi Medan City for the December 2018 period, the most in the 52 and 54 years age groups, namely 3 patients (15.0%), followed by the 46, 48, 50, 57 and 71 years age groups with a total of 2 patients (10.0 %), and the lowest was in the age group of 41, 43, 44 and 62 years, namely 1 patient (5.0%). From the results of this study, it was stated that the age group that suffered the most breast cancer chemotherapy was in the age group 52 and 54 years, as many as 3 patients (15.0%). According to the National Cancer Institute's Surveillance, Epidemiology and End Result Program, the incidence of breast cancer increases with age, but after menopause the incidence becomes slower, the incidence peaks at age under 50 years and decreases at age over 60. year. One in 8 breast cancer patients is less than 45 years old and about 2/3 of breast cancer patients are over 55 years old [10], [11].

Table 3 of 20 patients suffering from breast cancer chemotherapy at RSUD Dr. Pirngadi, Medan in the December 2018 period, based on the most work in IRT jobs, which were 15 patients (75.0%), followed by the self-employed job range with 3 patients (15.0%) and the lowest was in civil servant jobs, which was 2 patients (10.0%). It can be seen that most household workers have breast cancer because one of the less physical activities can be associated with changes in body mass index. As explained above, that most patients with high body mass index (BMI) tend to have a worse condition associated with the risk of breast cancer [12], [13]

Table 4 of 20 patients suffering from breast cancer chemotherapy at RSUD Dr. Pirngadi Medan City for the December 2018 period, based on the body mass index (BMI) at the most ideal body weight, which was 11 patients (55.0%), followed by the fat weight range with 5 patients (25.0%), weight Obesity is 3 patients (15.0) and the lowest is underweight, which is 1 patient (5.0%). BMI does not describe body fatness, and cannot describe body composition between muscle mass and fat mass, although there is now significant evidence that a high BMI is associated with an increased risk of breast cancer in postmenopausal women. [14].

Based on table 5 of 20 patients suffering from breast cancer chemotherapy at Dr. Hospital. Pirngadi Medan City for the December 2018 period based on the stage of cancer that can be seen, stages I and II are the most common stages among the other stages, namely 8 patients each (40.0) and the lowest stage is stage III, which is 4 patients. (20.0%). It can be seen that it is said, stage I is a tumor with a diameter of less than 2 cm and there has been no spread outside the breast, stage II is a tumor with a diameter greater than 5 cm and has not spread to lymph nodes in the armpit or a tumor with a diameter of 2 cm. 5 cm but has spread to the lymph nodes in the armpit, stage III is a tumor with a diameter of less than 5 cm or more and has spread to the axillary lymph nodes and the tumor has spread outside the breast area, namely to the lymph and bone areas chest and stage IV, i.e. the tumor has spread beyond the breast area and chest wall, for example to the liver, bones or lungs [15], [16]. It can be seen that the patients who come to the RSUD Dr. Pirngadi Medan City mostly stage I and II this is probably because patients are aware of the signs and symptoms of breast cancer as early as possible so that it is detected more quickly. Cancer staging is defined as a clinical decision related to the size of the tumor, the degree of local invasion that has occurred, and the degree of spread to other organs in the body [17], [18].

Table 6 of 20 patients suffering from breast cancer chemotherapy at RSUD Dr. Pirngadi, Medan City for the December 2018 period, based on chemotherapy cycles (weekly) the most in cycle IV, namely 5 patients

(25.0%), then followed by cycles II and V with a total of 4 patients (20.0%), cycle III with 3 patients (15.0%), cycle I with a total of 2 patients (10.0%) and the lowest was in cycles VII and IX as many as 1 patient (5.0%). This can show the stage IV diagnosed because breast cancer has been recognized and examined by the patient after experiencing that stage and the cycles of chemotherapy that the breast cancer patient undergoes treatment according to the diagnosis of breast cancer, in various chemotherapy cycles. Chemotherapy drugs are given for 3 weeks and are paused with a 1 week break to allow normal tissue to grow back. All patients undergoing treatment are grouped based on the chemotherapy cycle they are undergoing [19].

Based on table 7 of 20 patients suffering from breast cancer chemotherapy at RSUD Dr. Pirngadi, Medan City for the December 2018 period, based on the use of chemotherapy drugs, the most cisplatin drugs were 10 patients (50.0%), followed by the paclitaxel drug range with 9 patients (45.0%), doxorubicin and curacyl drugs as many as 8 patients (40.0%), brexel drugs as many as 6 patients (30.0%), endoxan drugs as many as 5 patients (25.0%) and the lowest was carboplatin drugs as many as 2 patients (10.0%). It can be seen that the drug Cisplatin is widely used for the treatment of breast cancer because Cisplatin is able to modify the cell cycle in the human body because cisplatin acts on human DNA. Cisplatin contains platinum and can be used alone or in combination with other drugs, to slow or stop the growth of cancer cells [20].

Based on table 8 of the 20 patients suffering from breast cancer chemotherapy at Dr. Pirngadi, Medan City for the December 2018 period, based on the use of antiemetics, 100% of patients received antiemetics at the appropriate dose. In this study, it can be seen that many patients received combination antiemetics rather than single antiemetics. Serotonin antagonists can be given as a single agent in moderate vomiting levels, serotonin antagonists and corticosteroids (Ondansetron + dexamethasone) can be given for high vomiting levels. In the acute type of vomiting, chemotherapy regimens that usually pose a moderate to high risk of vomiting are recommended to use combination antiemetics. Antiemetic combination serotonin antagonist + corticosteroid + aprepitant (Ondansetron + dexamethasone + ranitidine) for high risk of vomiting, as well as serotonin antagonists and corticosteroids for moderate risk. For chemotherapy regimens with low vomiting risk, single antiemetics such as corticosteroids or serotonin antagonists can be used or no antiemetics are needed if the risk of vomiting is very low. Antiemetics that have a better ability to prevent nausea and vomiting due to induction of chemotherapy drugs are combination antiemetics[19], [21].

Based on table 9 of the 20 patients suffering from breast cancer chemotherapy at Dr. Pirngadi, Medan City for the December 2018 period, based on the use of antiemetics, 100% of patients received antiemetics with appropriate doses and drugs. Called the right drug, namely the accuracy of drug selection after the diagnosis is correctly established, thus, the selected drug must have an effect that is in accordance with the established disease diagnosis. The selected antiemetic should be based on the level of risk of vomiting so that therapy is targeted. Dosage accuracy is the accuracy of the amount of drug given to the patient. The drug accuracy and dosage accuracy of this study were determined based on the reference standard: the NCCN (National Comprehensive Cancer Network) Guidelines Version 2.2017 standard. Antiemesis This can be seen from the use of antiemetics as nausea/vomiting drugs that are not related to radiation, for drug regimens, the selection of antiemetic therapy is based on the drug with the highest risk of vomiting. All patients who received antiemetic drugs before, during and after chemotherapy had received doses that were in accordance with the NCCN (National Comprehensive cancer network) Guidelines Version 2.2017 standards. antiemetic). According to these data, the patient received almost 100% dose conformity and 100% drug suitability.

5. CONCLUSION

Characteristics of patients with a diagnosis of breast cancer chemotherapy based on gender criteria most occur in women as much as 100.0%, based on age criteria most occur at the age of 52 and 54 years as much as 15.0%, based on staging criteria most occur at the second stage. I and II are 40.0%, based on the criteria for the cycle the most occurs in the fourth cycle, namely as much as 25.0%, based on the job criteria the most occurs in IRT jobs as much as 75.0% and based on the criteria for body mass index (BMI) most occur in ideal body weight as much as 55.0%. The most widely used chemotherapy drug for breast cancer is Cisplatin, which is 50.0%. The use of antiemetic drugs in breast cancer chemotherapy patients based on the criteria for the right dose is 100% correct and the drug gets 100% correct results.

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