FREQUENCY OF CHEMOTHERAPY, ENERGY INTAKE, CACHEXIA CONDITION AND NUTRITIONAL STATUS OF BREAST CANCER PATIENTS

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Abstract
Breast cancer is a group of abnormal cells in the breast that continues to grow multiply. One treatment for cancer is chemotherapy. Cancer patients undergoing chemotherapy have several side effects, which is cachexia, anorexia, weight loss which causes the patient's nutritional status to drop dramatically. The study aims to describe the frequency of chemotherapy, energy intake, and nutritional status of breast cancer patients. It was observational research. The sample was 20 respondents using consecutive sampling technique. Energy intake is obtained through the food recall method. The frequency of chemotherapy and cachexia were obtained from medical records and interviews, nutritional status obtained from actual body weight measurements using digital scales and height measurement using microtia. The results show that the average age of respondents was 46.8 ± 9.63 years, the mean frequency of chemotherapy was 6.2 ± 5.74 times. The majority of respondents did not experience cachexia as many as 14 respondents (70%). The average energy intake was 627.7 ± 236.5 calories. The average nutritional status was 20.9 ± 3.11 kg / m2. The majority of respondents' deficit energy intake but the majority of nutritional status is normal, the average frequency of chemotherapy >5 times but the majority do not experience cachexia..

Keywords: Chemotherapy, Energy Intake, Cachexia Condition, Nutritional Status, Breast Cancer Patients

INTRODUCTION

Cancer is the growth of cells /tissues that are not controlled, continue to grow, and cannot die. Cancer cells can enter the surrounding tissue and spread [1]. Breast cancer is a malignant tumour that attacks breast tissue. Breast cancer causes breast cells and tissue to change into abnormal shapes and multiply uncontrollably. Based on GLOBOCAN data (IARC) in 2012 it was found that breast cancer was cancer with the highest percentage of new cases (after being controlled by age), which was 43.3%, and the percentage of deaths (after being controlled by age) due to breast cancer was 12.9% [2].

Cancer prevalence is highest at ≥75 years (5%) [1]. The prevalence of cancer at all ages in Indonesia in 2013 was 1.4% or estimated to be around 347,792 people. Central Java Province is a province with the most estimated cancer patients, which is around 68,638 people; the data were processed based on 2013 Riskesdas data [2]. Based on the results of an initial survey at Tugurejo District Hospital Semarang, cancer ranked 14th in 2015 as many as 2,058 breast cancer patients (1.26%) [3].

About 30 - 87% of cancer patients experience malnutrition before therapy and nutritional status will affect the results of chemotherapy therapy [4]. Malnutrition cancer patients cannot tolerate therapies, including chemotherapy and tend to experience side effects that affect the quality of life and survival [5]. Chemotherapy has the effect of inhibiting nutrients intake so that it will experience a decrease in nutritional status or experience cachexia, nausea, and vomiting [6]. Based on the background, this study aimed was to describe the frequency of chemotherapy, food intake, cachexia conditions, and nutritional status in breast cancer patients.

METHOD

This research used observational research. The sample was 20 respondents. The sampling technique used was purposive sampling. The data of energy intake obtained through interviews used the food recall form. The data on the frequency of chemotherapy obtained from medical record notes. Nutritional status data collected by measuring body weight used digital scales and measuring height used microtia, then calculated used the Body Mass Index formula. The data on the condition of cachexia obtained by interview.

RESULT AND DISCUSSION

The respondents of this study were people with breast cancer undergoing chemotherapy who performed outpatient treatment in Dahlia 1 Room Poly Chemotherapy Hospital Tugurejo Semarang. All of the respondents were women. The characteristics of respondents were bellowed:

Age
The sample age of breast cancer patients undergoing outpatient chemotherapy at Tugurejo District Public Hospital Semarang could be seen in Table 1.

Table 1 Distribution of Respondents Characteristics by Age

Age	n	%
25-39	5	25.0
40-54	10	50.0
>55	5	25.0
Total	20	100.0

Based on table 1 shows that most (50%) of the sample age ranged from 40-54 years, with the lowest age of the sample 28 years and the highest age of 62 years. The result is consistent with the studies stated that the risk of breast cancer increases with age. Every ten years, the risk of cancer has doubled. The peak incidence of breast cancer occurred at the age of 40 years or more [7].

In patients with breast cancer according to Rasjidi [8] stated that other risk factors for breast cancer were patients who gave birth to their first child >30 years and Nullipara (had never given birth); it is in accordance with this research which shows that respondents give birth to their first child >30 years and Nullipara the risk of breast cancer showed an increase as a woman's age increases during her first pregnancy.

Nutritional Status
The nutritional status of respondents can be seen in Table 2.

Table 2 Distribution of Respondents Based on Nutrition Status

Classification of IMT	N	Percentage (%)
Weight	2	10.0
Underweight	2	10.0
Normal	11	55.0
Overweight	5	25.0
Total	20	100.0

Based on Table 2, it shows that most (55%) sample has normal nutritional status with a BMI classification between 18.5-22.9 kg/m^2. It is because the initial weight of the patient when first undergoing chemotherapy had nutritional status in the overweight category, therefore the nutritional status in table 2 still shows the average nutritional status of patients with normal. This result is also supported that respondents experienced weight loss. Most respondents in the weight group are 5.5-10 kilograms (40%). Based on the researched at RSUD dr. Moewardi Surakarta found that BMI overweight had a higher risk of high grade in breast cancer grading [9].

The Description of the Chemotherapy Frequency of Breast Cancer Patients

Classification description of the frequency in chemotherapy respondents can be seen in Table 3.

Table 3 Description of Respondents based on Chemotherapy Frequency

Chemotherapy Frequency	n	Percentage (%)
2	4	20.0
3	2	10.0
4	4	20.0
5	1	5.0
6	5	25.0
8	2	10.0
17	1	5.0
26	1	5.0
Total	20	100.0

Based on table 3 shows that the chemotherapy frequency of people with breast cancer in Tugurejo Regional Hospital Semarang the highest classification is 26 times the frequency of chemotherapy and the lowest classification is 2 times the frequency of chemotherapy. Breast cancer patients on average undergo chemotherapy as much as 6 times the frequency of chemotherapy (25%). The frequency of chemotherapy is dependent on the stage of cancer and the condition of the patient's body.

Chemotherapy therapy was not only done once but repeatedly (series). Patients undergo chemotherapy every 2 series, 3 series, or 4 series where each series there was a process of chemotherapy treatment interspersed with a recovery period then continued with a period of treatment again and so on. The evaluation was done after 2-3 cycles of chemotherapy. In general, chemotherapy could be given successively for 4-6 cycles with a grace period between one cycle to the next cycle of 21-28 days (3-4 weeks) it depends on the type of drug used [10].

Cachexia Condition

The condition of the respondent's cachexia can be seen in Table 4.

Table 4 Description of Respondents Based on Cachexia Conditions

General Condition	N	Percentage (%)
Cachexia	6	30.0
Non-Cachexia	14	70.0
Total	20	100.0

Based on table 4 shows that the condition of breast cancer patients undergoing chemotherapy at the Tugurejo District Hospital Semarang experienced cachexia by 30%. It shows that this research is similar with Trujillo's theory which stated that Cachexia often occurs in patients with cancer 24% at an early stage and> 80% in an advanced stage [11].

Cachexia is weight loss, muscle mass and extreme weakness associated with serious illnesses such as cancer, in patients who have cachexia usually have anorexia, nausea, vomiting and chronic depression that caused psychological distress [11]. According to the National Cancer Committee the diagnosis of cachexia established when there is a decrease in weight ≥ 5% in ≤12 months or a BMI <20 kg/m2 accompanied by 3 of 5 criteria: (1) a decrease in muscle strength, (2) fatigue, (3) anorexia, (4) low body fat mass, and (5) biochemical abnormalities, in the form of increased inflammatory markers (C Reactive Protein (CRP)> 5 mg / L or IL-6> 4pg/dL), anemia (Hb<12 g/dL), decrease in serum albumin (<3.2 g/dL) [12].

The Energy Intake

Description of the respondent's energy intake can be seen in Table 5.

Table 5 Descriptions of Respondents Based on Energy Intake

Energy Intake %	n	Percentage (%)
< 70	19	95.0
70-79	1	5.0
Total	20	100.0

Based on table 5, the percentage of energy intake is calculated according to the calculation of the needs of individual respondents, showing the results that energy intake <70% (deficit) of 95% and intake of 70-79% (less) by 5%. The result showed that the average of respondent's energy intake experienced a decrease in the deficit category of 627.7 calories, the respondents of minimum energy intake were 262 calories and the maximum energy intake of 1258 calories. It was because the average sample had anorexia.

The management of nutritional needed in cancer patients need to be considered to meet patient needed and minimize decrease intake. In patients with breast cancer with cachexia syndrome requires multidimensional management that involves providing optimal nutritional needs, pharmacology, and physical activity. Providing optimal nutritional needed in cachexia patients need to be done individually according to the condition of the patient. The energy need in cancer patients could also be done with the rule of thumb formula: ambulatory patients: 30-35 kcal/kg body weight/day, bedridden patients: 20-25 kcal/kg body weight/day, obese patients: used ideal body weight. The fulfilment of energy can be increased according to the needed and tolerance of patients [12].

The result of this study is in line with Trijayanti and Probosari [13] that a decreased in appetite will result in food intake and weight loss. Nutrition problems that often occurred were lack of protein and calorie intake, this was what made cancer patients more susceptible to infection and slow healing process, so the needed for proper nutritional therapy in cancer patients.

CONCLUSION

The averages frequency of chemotherapy undertaken is 6 times (25%). Most of the respondents' energy intake are 19 samples (95%) included in the deficit intake category. Most of the respondents in 14 samples (70%) do not increase cachexia. The average nutritional status of respondents is normal (55%).

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