International Journal of Healthcare Sciences ISSN 2348-5728 (Online)
Vol. 7, Issue 1, pp: (304-309), Month: April 2019 - September 2019, Available at: www.researchpublish.com

BODY MASS INDEX AND FAT COMPOSITION AMONG BREAST CANCER (*CARCINOMA MAMMAE*) PATIENTS AT SANGLAH HOSPITAL IN BETWEEN 2014-2016

Ayu Hapsari[1], Gde Ngurah Indraguna Pinatih[2]

[1]Medical Student of Udayana University

[2]Research Division of Medical Faculty of Udayana University

Abstract: **Cancer, a high-risk cause of death disease becomes more popular these days. The American Cancer Society (ACS) stated that one of the leading types of new cancer cases is breast cancer. It starts from transformed cells that are getting bigger and wilder which finally spread out through the tissues and organs of the body. Based on the medical record from Sanglah Hospital, Denpasar, there were 68 breast cancer patients hospitalized during 2015. This surely brings a great concern. Every woman is vulnerable to breast cancer and the global death rate of it is up to 88%. So, the aim of this research is to find out the characteristics of breast cancer patients who entered in Sanglah Hospital in between 2014-2016 and see the description of their nutritional status as determined by their body mass index and fat composition value. This research is an observational research with *cross sectional study*. To know the body mass index and fat composition value of the breast cancer patients at Sanglah Hospital during 2014-2016, the data of from the Medical Record Department of Sanglah Hospital are collected. The result of the data gaining is analyzed using SPSS program and presented in a descriptive form. Based on the collected data, from 75 breast cancer patients who entered and have been hospitalized in Sanglah Hospital during 2014-2016, 81.4% of them are at the age of 41-60, 40% come from Denpasar, 76% are with light and moderate workloads, and 74.7% are suffering from breast cancer stage III and IV. While the distribution of the patients' nutritional status shows that: 10.7% is underweight, 38.7% is normal, and 50.7% is overweight or obese.**

Keywords: **nutrition status, body mass index, fat composition, obese.**

1. INTRODUCTION

Cancer, a high-risk cause of death disease, becomes more popular these days. This disease affects the entire population of the whole world at the age of 25 to 65. It starts from transformed cells that are getting bigger and wilder, which finally spread out through the tissues and organs of the body. Aside from this genetic problem, cancer is also caused by a weak immune system, environmental factors such as a bad habit of lifestyle, and nutrition intake for the energy of the body.

The American Cancer Society (ACS) predicts that the lifetime risk for developing cancer in the United States is slightly less than one in two for the men and a little more than one in three for the women. One of the leading types of new cancer cases annually diagnosed for the women in the United States is breast cancer[1]. This type of cancer becomes most commonly happened to the women all over the world and getting worse at the age above 50 years old. Every woman is vulnerable to breast cancer risk. Approximately 79% of new cases and 88% of global breast cancer deaths in 2013 occur among women aged 50 years and older[2].

Breast cancer patients become a greater concern in Indonesia. A journal stated in 2013 that 100 over 100,000 women in Indonesia were suffering of breast cancer, and 70% of them were entering the hospital when they were already at the late stage[2]. Based on the medical record of Sanglah Hospital in Denpasar, there are 68 breast cancer patients that have been hospitalized during 2015.

One of the main reasons that increased the risk of breast cancer to happen is because of the nutrition status in its relation to overweight or obesity. This condition is primarily affected by the body mass index and fat composition value of the patient[1]. Thus, it is interesting to know what the condition of the breast cancer patients is when they first entered the hospital. By knowing this, a good solution to prevent the patients from breast cancer risk might be found. For this reason, the focus of this research is to observe the body mass index and fat composition value among breast cancer patients when they entered into Sanglah Hospital in between 2014-2016.

2. METHOD

The elective study is using descriptive way with *cross sectional* method. This method is aimed to gain the body mass index and fat composition value among breast cancer (*carcinoma mammae)* patients who entered at Sanglah Hospital in between 2014-2016.

The target population is all breast cancer patients at hospitals in Denpasar, Bali. The reached population is all breast cancer patients in Sanglah Hospital, Bali. Research sample in this study is the breast cancer patients who meet the inclusion criterion from age 25-65 who entered and were hospitalized at Sanglah Hospital in between 2014-2016 and whose medical record data are complete.

Before conducting the research, application will be submitted for a license to the Medical Record Department of Sanglah Hospital to allow the breast cancer patients from the hospital to be used as the research study.

The data for supporting this elective study will be taken by looking at the information of the breast cancer patients' characteristics, body mass index, and fat composition value from the medical record given by Sanglah Hospital when they entered the hospital. However, this kind of technique may lead to a weakness. The weaknesses can be in the scaling of the instrument to measure the weight and height of each patient and the details of the measurement of the patients' weight and height by the examiner. So, this weakness can affect the result of the data such as the accuracy of the value.

Data analysis is conducted by reviewing all the medical record data of the breast cancer patients who are as the sample of the research at Sanglah Hospital using SPSS programme. All information about the characteristics, body mass index, and fat composition value of the patients will be categorized based on the Asian criteria. 528/UN.14.2/Litbang/2016.

3. RESULT

Based on the research that has been done, the researcher gets 75 samples with the following characteristics that have been categorized by its age group, living place, occupation, and diagnosis staging.

Table 1: Research Subject's Characteristics

Characteristics	F (%)
Age group	
≤30	2 (2.7)
31-40	6 (8)
41-50	35 (46.7)
51-60	26 (34.7)
> 60	6 (8)
Total	75 (100)
Living Place	
Badung	3 (4)
Bangli	2 (2.7)
Buleleng	9 (12)
Denpasar	30 (40)
Gianyar	3 (4)
Jembrana	1 (1.3)
Karangasem	5 (6.7)
Klungkung	3 (4)
Kuta	1 (1.3)
Outside Bali	9 (12)
Tabanan	9 (12)
Total	75 (100)
Occupation	
No workloads	2 (2.6)
Light workloads	33 (44)
Moderate workloads	24 (32)
Heavy workloads	7 (9.3)
Undefined	9 (12)
Total	75 (100)
Staging	
Stage I	19 (25.3)
Stage III	31 (41.4)
Stage IV	25 (33.3)
Total	75 (100)

Table 2: Research Subject's Body Mass Index Distribution

BMI Group	Amount	Percentage (%)
Underweight (<18.5)	8	10.7
Normal (18.5 – 22.9)	29	38.7
Overweight (>23)	38	50.7
TOTAL	**75**	**100.0**

When the patients are categorized into groups based on Asia criteria, namely: underweight, normal, and overweight, then the amount of those who are in normal group and overweight group have enough gap for 12.0% difference. This may give a bad response since there are still patients with abnormal nutrition status. The amount of the normal body mass index of 75 breast cancer patients as the subject is 29 people (38.7%). Then, 38 patients (50.7%) are found with overweight body mass index. The rest, 8 patients (10.7%) are underweight or undernourished. So, a little more than a half of the patients (50.7%) are actually overweight.

Table 3: Research Subject's Fat Percentage Distribution

Fat Percentage	Amount	Percentage (%)
20% - 25%	8	10.7
25% - 30%	16	21.2
30% - 35%	23	30.7
35% - 40%	23	30.7
40% - 45%	5	6.7
TOTAL	**75**	**100.0**

If Table 3 is read in the view of Table 2 above, then there is a clear indication that the patients whose fat percentage is 20%-25% (8 patients or 10.7%) are all underweight in their nutritional status. While the patients whose fat percentage is 25%-33% (29 patients or 38.7%) are normal in their nutritional status. And the patients whose fat percentage is about 33%-45% (38 patients or 50.7%) are overweight in their nutritional status. Thus, in this study the patients who are overweight are found to be also over-fat.

Table 4: Research Subject's Referral Region

Region	Amount	Percentage (%)
Badung	3	4.0
Bangli	2	2.7
Buleleng	9	12.0
Denpasar	30	14.7
Gianyar	3	4.0
Jembrana	1	1.3
Karangasem	5	6.7
Klungkung	3	4.0
Kuta	1	1.3
Tabanan	9	12.0
Outside Bali	9	12.0
TOTAL	**75**	**100.0**

It is clear that most of the patients who came to Sanglah Hospital are those who have been referred from the hospitals in their districts or clinics nearby their houses. Out of 56 patients who are referral, 11 patients (14.7%) are from Denpasar. Then, 9 patients (12.0%) were referred from Tabanan, while 9 patients (12.0%) came from outside of Bali. Those who came from Buleleng are 9 patients (12.0%) also, and 5 patients (6.7%) were referred from Karangasem. The rest 13 patients (17.3%) came from another district with an amount of less than 5 patients (<6.7%) in each district. Meanwhile, 19 patients (25.3%) out of 75 are primary, because those who live in Denpasar came at the first time to Sanglah Hospital and not referred by any other hospitals or clinics. From the data, it could be said that every patient who comes from outside of Denpasar is a referral patient.

Table 5: Research Subject's Nutritional Status based on Occupation

Occupation	F (%)
	Underweight
No workloads	0 (0.0)
Light workloads	3 (4.0)
Moderate workloads	5 (6.7)
Heavy workloads	0 (0.0)
Undefined	0 (0.0)
Total	8 (10.7)
	Normal
No workloads	1 (1.3)
Light workloads	16 (21.3)
Moderate workloads	7 (9.3)
Heavy workloads	4 (5.3)
Undefined	1 (1.3)
Total	29 (38.7)
	Overweight
No workloads	1 (1.3)
Light workloads	14 (18.7)
Moderate workloads	12 (16.0)
Heavy workloads	3 (4.0)
Undefined	8 (10.7)
Total	38 (50.7)
TOTAL	**75 (100.0)**

All respondents were still in their workforce and completed their job content questionnaire. The result shows that women who work with higher workloads appeared to have a modestly decreased risk of having breast cancer in comparison with women who were with lighter workloads[3]. Out of 75 medical records, there are 9 patients (12.0%) who do not mention their occupations. This condition may give a big impact to the analyzing process. From 8 patients who are underweight, 5 patients (6.7%) work with moderate loads. Then, from 29 patients that are in normal nutritional status, 16 patients (21.3%) work with light loads. From 38 patients who are overweight, 14 patients (18.7%) work with light loads also.

Table 6: Research Subject's Nutritional Status based on Cancer Staging

Staging	F (%)
	Underweight
Stage I	4 (5.3)
Stage III	2 (2.7)
Stage IV	2 (2.7)
Total	8 (10.7)
	Normal
Stage I	6 (8.0)
Stage III	13 (17.3)
Stage IV	10 (13.3)
Total	29 (38.7)
	Overweight
Stage I	9 (12.0)
Stage III	16 (21.3)
Stage IV	13 (17.3)
Total	38 (50.7)
TOTAL	**75 (100.0)**

From the table above, it shows that there is just a slight gap from the nutritional status of breast cancer stage III and stage IV. From 8 patients who are underweight, they are distributed equally in stage III and stage IV. Each stage has 2 patients (2.7%) who are underweight, while stage I has 4 patients (5.3%). From 29 patients who are in normal nutritional status, 13 patients (17.3%) are suffering from local advance breast cancer or *carcinoma mammae* stage III. Then, from 38 patients who are overweight, 16 patients (21.3%) are suffering from stage III, and 13 patients (17.3%) are suffering from stage IV.

4. DISCUSSION

Based on the result of the research, it is obvious from the table that the distribution of the breast cancer patients based on their age categorization or grouping is slightly not well distributed. The age group with the largest amount of patients is the age group from 41-50 years old in which its value is 35 people (46.7%). The second largest group is the patients from 51-60 years old where its value is 26 people (34.7%). Aside from these two age groups, the distribution is decreasing steeply. This result indicates that the largest age group of the women who are suffering as the breast cancer patients are those whose age is within the range of 41-60 years old (61 patients or 81.4%). Meanwhile, out of 75 breast cancer patients who have been hospitalized at Sanglah Hospital are living in Denpasar, that is, 30 people (40.0%). While the patients who live in Tabanan are 9 people (12.0%), the same number as the patients who live in Buleleng district, as it is also with the number of patients who came from outside of Bali, such as Kupang, Mataram, and Lombok. This result may gives conclusion that the availability of the service facilities may influence the choice of patients in each district. The first rank mentions that 33 people (44.0%) of breast cancer patients are working with light loads, such as government employees and private employees. An observation need to be made here. Although the number of patients who have no workloads do not show the common trends as the other categories, but the number of patients who have moderate workloads (32%) are lower than the number of patients who have light workloads (44%). In fact, the number of patients who have heavy workloads (9.3%) is extremely less than the number of patients who have moderate workloads (32%), even more with the patients who have light workloads (44%). So, in general it is still acceptable to say that the lighter the workloads of a woman tend to increase the tendency of suffering from breast cancer. There are only 19 people (25.3%) who are diagnosed as early *carcinoma mammae* or stage I patients. While, the rest of them (56 people or 74.7%) are the patients who are suffering from local advance *carcinoma mammae* stage III and from metastasis *carcinoma mammae* or stage IV. From the previous research, it has been mentioned that among 185 patients who have been interviewed, most of them were patient delay in entering the hospital. The patient delay was related to the size of the clinical tumor which is >4 cm, and with an advance staging of breast cancer such as local advanced and metastasis type. The phases of delay can be caused by (1) patient delay, (2) general practitioners delay, and (3) hospital delay[4]. Prior studies have estimated that one third of women experiencing in delayed presentation of knowing the risk of breast cancer for at least 3 months, and approximately 25% delayed in 6 months or longer. Delays in seeking the medical care after being aware of the terrible risk of having breast cancer may lead to the advanced stage and has been associated to the lower level of survival rate. Out of 438 patients who were studied in the past, 16% of them reported prolonged patient delay of greater than 3 months and most of them are delayed caused by the misconception of the breast cancer symptoms and lower economic status also highly affect the delayed presentation of knowing the breast cancer risk[5].

5. CONCLUSION

The followings are the conclusions related to the characteristics of the breast cancer patients. Most of the respondents as the sample who entered and have been hospitalized in Sanglah

Hospital during 2014-2016 are women at the age between 41-60 years old, are coming from Denpasar, are working with light workloads such as government and public employees, and moderate workloads such as enterpreneurs and housewives. Their nutritional status are in over- fat condition, and have been diagnosed as having carcinoma mammae stage III and stage IV.

In addition, some of them are primary patients, while the rest are referred from the other district or clinics. Those patients are delayed of knowing the risk of their cancer risk by suffering from stage IV or metastases type of breast cancer. Those patients also having overweight nutritional status with light workloads. The higher the workloads or the more activities the patients have, the smaller the possibility of having breast cancer risk.

REFERENCES

[1] Mahan, L.K. and Escott-Stump, S. *Krause's Food & Nutrition Therapy 12th ed*. St. Louis, Missouri: Saunders Elsevier. 2008. p. 962-966.

[2] DeSantis, M. *et al. Breast Cancer Statistics, 2013*. Atlanta: American Cancer Society. 2013. p. 52-53.

[3] Daling, J. R. *et al. Relation of Body Mass Index to Tumor Markers and Survival among Young Women with Invasive Ductal Breast Carcinoma*. Washington: American Cancer Society. 2001. p. 720-721.

[4] Burgess, CC. *et al*. *Who and What Influences Delayed Presentation in Breast Cancer* UK: British Journal of Cancer. 1998. p. 1343.

[5] Rauscher, G. H. *et al. Misconceptions about Breast Lumps and Delayed Medical Presentation in Urban Breast Cancer Patients.* Chicago: American Association for Cancer Research. 2010. p. 640, 643

[6] Rolfes, S.R., Pinna, K., and Whitney. *Understanding Normal and Clinical Nutrition* 7^{th}*ed*.USA: Thomson Wadsworth. 2006. p. 879-880.

[7] Newman, S. C. *et al. The Effect of Body Mass Index and Oestrogen Receptor Level on Survival of Breast Cancer Patients*. Canada: International Epidemiological Association. 1997. p. 484, 486.

[8] Schernhammer, E. S. *et al. Job Stress and Breast Cancer Risk*. USA: Johns Hopkins Bloomberg School of Public Health. 2004. p. 1079, 1083.

[9] Vatten, L. J., and Kvinnsland, S. *Prospective Study of Height, Body Mass Index and Risk of Breast Cancer*. Oslo: Department of Oncology, University Hospital. 1992. p. 195-197.

[10] Wu, Y. *et al. Physical Activity and Risk of Breast Cancer; a Meta-Analysis of Prospective Studies.* New York: Springer Science. 2012. p. 869.