CHARACTERISTICS AND RISK FACTORS OF BREAST CANCER AT THE CENTRAL GENERAL HOSPITAL PROF. DR. I G.N.G. NGOERAH IN 2022

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ABSTRACT

Introduction: Breast cancer is a significant cause of mortality among women worldwide, characterized by various risk factors influencing its incidence. **Methods:** A retrospective descriptive study at the Central General Hospital Prof. Dr. I G.N.G. Ngoerah in 2022 utilized secondary data from medical records, examining 319 out of 551 complete samples. The study analyzed age, clinical stage, histopathological type, biopsy grade, subtype, lesion location, menopausal status, age at menarche and menopause, family history of cancer, parity, breastfeeding history, hormonal therapy history, and BMI. **Results:** Results revealed that 77.4% of patients were aged ≥45 years, with 38.2% at stage IIIB, 86.2% having invasive ductal carcinoma, 56.4% with grade III tumors, and 36.4% being luminal B subtype. Additionally, 41.4% were menopausal, with an average menarche age of 13 years, and 42% experiencing menopause between 45-50 years. Only 4.4% had a family history of cancer, 73% were multiparous, 91.5% had a history of breastfeeding, 23.8% had hormonal therapy history, and 37.3% had a normal BMI. **Conclusion:** The study concluded that breast cancer patients, particularly women over 45 who have entered menopause and have a history of multiparous childbirth and breastfeeding, exhibit specific risk factors. Furthermore, less than 5% had a family history of cancer, and no more than 24% had undergone hormonal treatments, indicating that breast cancer is influenced by multiple factors with varying impacts on individuals.

Keywords: Characteristics., Risk Factors., Breast Cancer

INTRODUCTION

Breast cancer is a type of cancer that ranks first as a type of cancer with a high mortality rate among women.[1] It's a condition that develops in the glandular tissue of the breast, more specifically in the ductal or lobular epithelial cells.[2] Breast cancer occurs due to the presence of abnormal growth in the gland ducts, gland cells, and supporting tissues of the breast. Such abnormal growths are destructive, infiltrative, and easily metastasize.[3] According to Global Burden of Cancer (GLOBOCAN) data in 2018, the percentage of breast cancer occurrence in Indonesia increased in the range of 16.7%. With the data from GLOBOCAN, WHO predicted that there will be an increase of breast cancer in Indonesia, almost 7 times multiplied in 2023.[4,5,6]

According to a statistical analysis in 2012, there were roughly 1.7 million women were diagnosed with breast cancer, making up 25% of all cancer cases in women and 12% of all new cancer cases globally.[7] Breast cancer typically starts developing between the ages of 40 and 49, just before the age of 50 and beyond. In Asian nations, the average age at which breast cancer occurs in women is 40 years old, whereas in the United States and Europe, the average age at which it occurs is 60 years old.[8] The number of new cases of breast cancer in white and black women is nearly equal. However, compared to white women, black women have a higher incidence of breast cancer before the age of

45, and between the ages of 60 and 84, white women have a significantly higher incidence of breast cancer than black women.[9] Family history is an important known risk factor for breast cancer. Women with a family history of breast cancer account for about 15% of all diagnoses of breast cancer.[10]

The right treatment for cancer can be determined by the picture of the condition according to the stage obtained. Cancer grading by American Joint Committee on Cancer (AJCC) can be divided into 3 indicators TNM, there are T = primary tumor (Tis until T4), N = regional nodule (N0 until N3), M = metastatic (M0 or M1). This clinical anatomical stage results in the overall anatomical stage (0 to IV).[11,12] Based on immunohistochemistry (IHC) markers breast cancer is divided into 4 types: luminal A, luminal B, HER2 (+), basal-like breast cancer/Triple-negative (TNBC).[13,14] Histopathologically, breast cancer can be non-invasive and invasive. In contrast, lobular carcinoma in situ (LCIS) and ductal carcinoma in situ (DCIS) are included in the non-invasive group. On the other hand, invasive lobular carcinoma, invasive ductal carcinoma, and other forms of carcinoma are included in the invasive group.[15,16,17]

Based on the 2018 Journal on the description of the stage and type of breast cancer histopathology at Sanglah Hospital in the period 2015 to 2016, it was found that there were 575 patients diagnosed with breast cancer with 273 of them diagnosed with

stage IIIA, IIIB, and IIIC, and invasive ductal carcinoma was the most common type of histopathology.[18]

This study aims to provide an overview of the distribution of stages and histopathological types of breast cancer in patients treated at Prof. Dr. I G.N.G. Ngoerah Central General Hospital, Denpasar, during the period of January 2022 to December 2022. Through this retrospective descriptive study, it is expected to identify the prevalence of breast cancer stages, the most common histopathological variations, and the demographic characteristics of affected patients. The results of this study are anticipated to offer deeper insights into the clinical profile of breast cancer in the hospital setting and assist in planning more effective management strategies and interventions.

MATERIALS AND METHODS

This study is a retrospective descriptive study. The samples used in this study were breast cancer patients recorded by the medical record installation section of Central General Hospital Prof. Dr. I G.N.G. Ngoerah Denpasar in the period January 2022-December 2022. Using the total sampling technique, samples were collected.

The variables being examined include age at menarche, age at menopause, family history, parity, breastfeeding history, hormone therapy history, and nutritional status as indicated by BMI. Breast cancer patient data will be filtered with inclusion criteria of breast cancer patients recorded by the medical record installation section of Central General Hospital Prof. Dr. I G.N.G. Ngoerah Denpasar during the period of January 2022 – December 2022, and exclusion criteria of incomplete medical records and male gender.

The data collected will be analyzed into research results. All data that has been collected will be grouped according to its variables, namely categorical and numerical variables. Categorical variables are presented in the form of graphs or tables by covering the category (n) and the percentage of each category (%). Numerical variables are presented in the form of tables to determine the measure of centering (mean, median, mode).

RESULTS

Breast cancer patients at the Central General Hospital Prof. Dr. I G.N.G Ngoerah Denpasar in 2022 have an affordable population of 551 patients. However, 232 patients have an incomplete medical record, then the total sample population at Central General Hospital Prof. Dr. I.G.N.G Ngoerah in 2022 was 319 patients.

Distribution of Breast Cancer by Characteristics

This study used 319 samples, which obtained the characteristics of breast cancer patients in the form of age, clinical stage, histopathological type of biopsy, biopsy grade, subtype of breast cancer, and menopausal status of patients displayed in the form of a frequency table. The following are the results of the frequency distribution of breast cancer distribution based on the characteristics listed in Table 1.

Table 1.   Distribution of breast cancer by characteristics

Characteristics		Frequency	Percentage (%)
Age	<45 years	72	22.6
	≥ 45 years	247	77.4
Clinical Stage	Stage I	3	0.9
	Stage IIA	26	8.2
	Stage IIB	44	13.8
	Stage IIIA	40	12.5
	Stage IIIB	122	38.2
	Stage IIIC	3	0.9
	Stage IV	81	25.4
Type of Histopatology	Invasive ductal carcinoma	275	86.2
	invasive lobular carcinoma	26	8.2
	Another type of carcinoma	18	5.6
Biopsy Grade	Grade I	11	3.4
	Grade II	128	40.1
	Grade III	180	56.4
Subtype	Luminal A	62	19.4
	Luminal B	116	36.4
	HER2 positive	77	24.1
	TNBC	64	20.1
Lesion Location	Unilateral	315	98.7
	Bilateral	4	1.3
Menopausal Status	Premenopausal	92	28.8
	Menopause	132	41.4
	Postmenopausal	95	29.8

Based on Table 1 obtained information that of 319 patients used for research, the results obtained at the age of 72 patients have age <45 years with a percentage of 22.6%, and 247 patients have an age of 45 years with a percentage of 77.4%.In the clinical stage, 3 patients had stage I with a percentage of 0.9%, 26 patients had stage IIA with a percentage of 8.2%, 44 patients had stage IIB with a percentage of 13.8%, 40 patients had stage IIIA with a percentage of 12.5%, 122 patients had stage IIIB with a percentage of 38.2%, 3 patients had stage IIIC with a percentage of 0.9%, and 81 patients had stage IV with a percentage of 25.4%.

In histopathological type, 275 patients had histopathological type of invasive ductal carcinoma criteria with percentage 86.2%, 26 patients had histopathological type of invasive lobular carcinoma criteria with percentage of 8.2%, and 18 patients had histopathological type of other carcinoma criteria with percentage of 5.6%.In grade biopsy, 11 patients had grade I with a percentage of 3.4%, 128 patients had grade II with a percentage of 40.1%, and 179 patients had grade III with a percentage of 56.4%.

In the subtype, 62 patients had luminal criterion subtype A with a percentage of 19.4%, 116 patients had luminal criterion subtype B with a percentage of 36.4%, 77 patients had her2positive criterion subtype with a percentage of 24.1%, and 64 patients had TNBC criterion subtype with a percentage of 20.1%.At the location of the lesion, 315 patients had local unilateral criterion lesions with a percentage of 98.7% and 4 patients had local bilateral criterion lesions with a percentage of 1.3%.In menopausal status, 92 patients had premenopausal status with a percentage of 28.8%, 132 patients had menopausal status with a percentage of 41.4%, and 95 patients had postmenopausal status with a percentage of 29.8%.

Distribution of Breast Cancer by Risk Factors

In 319 samples, risk factors were found in the form of menarche age, menopause age, cancer history, parity, breastfeeding history, hormonal therapy history, and nutritional status in BMI. The following are the results of the frequency distribution of breast cancer distribution based on the risk factors listed in Table 2.

Table 2.   Distribution of breast cancer by risk factors

	Risk Factors	Frequency	Percentage (%)
Age of Menopausal	Not yet menopausal	92	28.8
	<45 years	28	8.8
	45-50 years	134	42.0
	>50 years	65	20.4
Family History of Cancer	Existing	14	4.4
	None	305	95.6
Parity	Nulliparous	27	8.5
	Primiparous	59	18.5
	Multiparous	233	73.0
History of Breastfeeding	Yes	292	91.5
	No	27	8.5
History of Hormonal Therapy	Ever	76	23.8
	Never	243	76.2
	Risk Factors	**Frequency**	**Percentage (%)**
Nutritional Status	Underweight	14	4.4
	Normal	119	37.3
	Overweight	87	27.3
	Grade I Obesity	77	24.1
	Grade II Obesity	22	6.9
	Risk Factors	**Outcome**	
Age of Menarche	Min	11	
	Maks	18	
	Median	13	
	Modus	12	
	Mean	13.116	

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Based on the results of the distribution in Table 2, information is obtained that the number of observations (n) is 319. In the variable age of menarche obtained the minimum value or the smallest value of 11, this means that the age of the youngest menarche obtained in breast cancer patients is 11 years. The maximum value or the highest value of 18, this means that the age of the oldest menarche obtained in breast cancer patients is 18 years. Get the median value or the middle value of 13. the value of the mode or value that often appears at 12, This indicates that 12 is the average menarche age for breast cancer patients. In addition, the mean or average age of menarche patients was 13.116.

At menopausal age, 92 patients have not experienced menopause with a percentage of 28.8%, 28 patients have menopause age <45 years with a percentage of 8.8%, 134 patients have menopause age 45-50 years with a percentage of 42%, and 65 patients have menopause age >50 years with a percentage of 20.4%

DISCUSSION

According to the study's findings, it was discovered that 77.4% (247 patients) were 45 years old. This is consistent with earlier studies. by Diahpradnya Oka Partini et al., (2018) which states that in the period 2014-2016, more than 85% of breast cancer patients in Prof. Dr. I G.N.G Ngoerah is dominated by the old age group (≥40 years).[19] In addition, based on the study also found the most common types of biopsy histopathology were invasive ductal carcinoma with a percentage of 86.2% (275 patients), and stage IIIB with a percentage of 38.2% (122 patients). This is consistent with earlier studies. by Satya Wangsa et al., (2018) which states that in the period 2015-2016, out of a total of 575 breast cancer patients at Prof. Dr. I G.N.G Ngoerah, most diagnosed invasive ductal carcinoma by 84% (483 patients) with stage IIIB by 30.95% (178 patients).[18] In the study it was found that the luminal B subtype became the most dominant subtype, namely 36.4% (116). These results are similar to research by Pradnyaswari et al., (2023) which states that breast cancer patients at Prof. Dr. I G.N.In the period from January 2017 to June 2018, out of a total of 49 total breast cancer sample patients, most of the samples were diagnosed with luminal B subtype of 55.1% (27 patients).[20] In the study it was also found that most patients had grade III which was 56.4%, this is not much different from the study in the period 2017-2018 by Pradnyawati et al., (2021) which states that out of 198 patients, grade II is the highest group at 47% (92 patients) and in second place, which is not too far apart, namely the group with grade III at 46.5% (92 patients).[21]

CONCLUSIONS AND SUGGESTIONS

It is possible to conclude from this study that the characteristics of breast cancer patients in the Central General Hospital Prof. Dr. I G.N.G Ngoerah in 2022 have risk factors that each individual has that can increase the likelihood of breast cancer, especially in women over 45 years old who have entered the menopause phase with a history of multiparous childbirth and a history of breastfeeding. In addition, it was found that risk factors for Family Cancer History and risk factors for external hormonal exposure such as contraceptive use, which are often referred to as one of the main contributors to cancer, were only fewer than 5% of patients with a family history of cancer and no more than 24% of patients who had previously had hormonal treatment, according to the study's findings. This indicates that breast cancer is a multifactorial disease that can be influenced by many factors and the effect is different on each individual.

In addition, the researchers suggested that similar studies can be conducted periodically in the following years so that there are local data that can be used as a reference in overview and assess the characteristics and Risk Factors of breast cancer patients in the General Hospital Center Prof. Dr. I G.N.G Ngoerah every year.

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