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Characteristics of Breast Cancer at General Hospital Haji Surabaya

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ABSTRACT: Breast cancer is a malignancy in breast tissue that can originate from the ductal epithelium or lobulus. To describe the characteristics of Breast Cancer patients at the Haji Surabaya General Hospital in 2020-2022. This research design is retrospective descriptive using medical record data from the Anatomy Pathology Laboratory Unit. The population of this study were all patients diagnosed with breast cancer based on the results of histopathological examination at the Anatomical Pathology Laboratory at Haji Hospital, Surabaya. Results: The highest age of breast cancer patients was 50 years and over, namely 52 patients (48.6%). All breast cancer patients were female, 107 patients (100%). The largest tumor size for breast cancer patients was T2, 39 patients (36.4%), while the smallest tumor size for breast cancer patients was T1, 11 patients (10.3%). The most common histopathological type of breast cancer patients was invasive ductal carcinoma, with 103 patients (96%). The most common type of nodule in breast cancer patients was N0 (no nodule), with 54 patients (50.5%). The highest histopathological grade of breast cancer patients was Grade III, 69 patients (64.5%), while the least histopathological grade of breast cancer was Grade I, 8 patients (7.5%). Conclusion: The characteristics of most breast cancer patients are in the age range of 50 years and over, and all of them are female. The largest tumor size was type T2, while the most common histopathological type was invasive ductal carcinoma. The most common nodule type is N0, and the most histopathological grade is III.

KEYWORDS: Patient characteristics, Breast cancer, Tumour, malignant

I. INTRODUCTION

Cancer is a disease characterized by uncontrolled growth and spread of abnormal cells, which can result in death if not treated. [1] Breast cancer is a cancer that has a fairly high mortality rate and is the type of malignancy that most often attacks women. The prevalence rate tends to increase from year to year, especially in developing countries, where it often has fatal consequences due to late diagnosis, which also means delayed treatment so that it is often found in a late stage. [1] Cancer is the main cause of death in the world, accounting for nearly ten million deaths in 2020.[2] Breast cancer is a malignancy that originates from glandular cells, glandular ducts, and breast supporting tissue, but does not include breast skin.[3]

Globocan data for 2020, the number of new cases of breast cancer reached 68,858 cases (16.6%) out of a total of 396,914 new cases of cancer in Indonesia. Meanwhile, the number of deaths reached more than 22 thousand cases. The prevalence of breast cancer cases in women reaches 50 per 100,000 cases per year, with a death rate of 21.6 in 2015. [4] Breast cancer is the highest type of cancer in women in Indonesia. Breast cancer in Indonesia is more often recognized at an advanced stage, where as many as 70% cause high death rates at an advanced stage (Ministry of Health of the Republic of Indonesia, 2019). [5] In 2020, in terms of new cases of cancer, breast cancer is the type of cancer with the highest incidence rate, namely 2.26 million cases, followed by lung cancer (2.21 million cases), colorectal (1.93 million cases), prostate (1.41 million cases), skin (nonmelanoma) (1.20 million cases) and stomach (1.09 million cases). The breast cancer death rate reached 685,000 deaths in 2020 in the world.[2]Breast cancer occurs when there is excessive growth or uncontrolled development of breast tissue cells. [6] Breast cancer occurs due to increased cell proliferation activity in the breast as well as disorders that reduce or eliminate the regulation of cell death (apoptosis)—loss of control over cell proliferation and apoptosis results in cells proliferating continuously without any death limit. Loss of the function of apoptosis causes the inability to detect cell damage due to damage to DNA so that abnormal cells proliferate continuously without being controlled.[7] Several methods can be used to diagnose breast cancer.

But until now, the gold standard in diagnosing breast cancer is histopathological examination, where this examination can determine the type of breast cancer, whether malignant or benign.[8] Based on WHO criteria, namely the Nottingham grading system (also called the Elston-Ellis modification of the Scarff-Bloom grading system -Richardson), there is a grading scale by looking at three different cell images, namely grade I (score 3-5) with good differentiation, grade II (score 6-7) with moderate differentiation and grade III (score 8-9) for cancer with poor differentiation.[9]Histopathological examination of breast tissue is needed as a definitive diagnosis in determining the type of breast cancer and histological grade, which influences the prognosis in breast cancer sufferers and can provide an idea of the treatment that can be carried out. [10] This study aims to describe the characteristics of Breast Cancer patients at the Haji General Hospital Surabaya 2020-2022.

II. METHODS

The design of this research is retrospective descriptive using medical record data from the Anatomical Pathology Laboratory Unit of breast cancer patients at Haji Hospital Surabaya for the period 2020-2022. All data collected in medical records are arranged into tables based on age, gender, tumor size, histopathological type, nodule type, and histopathological grade.This type of research is an observational study with a cross-sectional design. The population of this study were all patients diagnosed with breast cancer based on the results of histopathological examination at the Anatomical Pathology Laboratory at Haji Hospital, Surabaya. The research sample was the total sample of cases of breast cancer patients who underwent anatomical pathology examination in 2020 – 2022 at RSU Haji Surabaya and who met the inclusion and exclusion criteria.Inclusion criteria included patients with a Ca Mammary diagnosis who underwent an examination in the anatomical pathology laboratory. Exclusion criteria included patients diagnosed with Ca Mammary who did not undergo anatomical pathology examinations and had incomplete medical records. The sampling technique was by looking at secondary data from recording breast cancer examination results in the anatomical pathology laboratory at Haji Hospital Surabaya. The general characteristic data in the assessment data collection sheet is arranged in table form; the data is tabulated and processed statistically.This research has received information on ethical feasibility from the Health Research Ethics Committee of the Haji Hospital, East Java Province, with a number. 445/04/KOM.ETIK/2024.

III. RESULTS

This research was carried out at the Anatomical Pathology Laboratory at the Haji General Hospital in Surabaya in the 2020-2022 period and found 107 samples diagnosed with breast cancer. Based on Table 1 above, the results show that the highest age of breast cancer patients is 50 years and over, namely 52 patients (48.6%), while the lowest age of breast cancer sufferers is 20-30 years, three patients (2.8%).Based on Table 2 above, it was found that all breast cancer patients were 107 patients (100%) female, while there were no males. Based on Table 3 above, the results show that the largest tumor size for breast cancer patients was T2, 39 patients (36.4%) and T3, 32 patients (30%), while the smallest tumor size for breast cancer patients was T1, 11 patients (10, 3%). Based on Table 4 above, the results obtained show that the most common histopathological type of breast cancer patients is Invasive Ductal Carcinoma, with 103 patients (96%). Based on Table 5 above, the results show that the most common type of nodule in breast cancer patients is N0 (no nodule) in 54 patients (50.5%), while the least type of nodule is N3 in 10 patients (9.3%). Based on Table 6 above, the highest histopathological grade of breast cancer patients is Grade III in 69 patients (64.5%), while the least histopathological grade of breast cancer is Grade I in eight patients (7.5%).

IV. DISCUSSION

Female breast cancer is the most commonly diagnosed cancer in the world. [11] Breast cancer is rarely found at <30 years of age; after that, the risk increases steadily throughout life, but after menopause, the incidence begins to decrease because menopause is also a protective factor against breast cancer. The theory above is by the results of this study that the age of breast cancer patients aged 40-50 years was 36 patients (33.6%), and those aged >50 years were 52 patients (48.6%). Previous research conducted by Tanriono in 2013 at the Manado pathology laboratory found that the most common breast cancer patients were aged 40-49 years, with 39 cases (23.9%).[12] This is because the incidence of breast cancer generally increases with age. This study found that the incidence of breast cancer aged 31-40 years was 16 patients (15%) and aged 21-30 years was 3 patients (2.8%). This shows that there is a tendency to increase the incidence of breast cancer at a young age. It is known that young breast cancer tends to be aggressive. [13] In particular, over one-third of breast cancers diagnosed in women younger than 50 years have the molecular subtypes triple-negative and HER2 positive. In young women, these molecular subtypes were associated with more aggressive tumor biology and showed marked poorer patient prognosis than the other subtypes.

Gender has an important role in the risk of breast cancer, where women have the hormones estrogen and progesterone. One of the risk factors for breast cancer is an increase in the hormone estrogen.[14] The results of the study showed that all breast cancer sufferers histopathologically were women (100%).Previous studies have explained that the length of time can influence the distribution of tumor stages. Tumors diagnosed through screening programs are often slower growing, less aggressive, and show better tumor biology (Falck et al. 2016).[15] A less favorable stage distribution in elderly patients is associated with fewer obstetrician consultations for examination. Or lack of awareness of breast cancer.[16] This can lead to delays in diagnosis of advanced disease. Based on the distribution of tumor size, 39 patients (36.4%) received T2 at the time of treatment, 32 patients (30%) received T3, and 25 patients (23.3%) received T4. This shows that the patient already knows there is a lump or abnormality in her breast but is delaying seeking treatment because she is unaware that the size of the tumor is related to the stage of the tumor, which determines the prognosis of breast cancer. Many factors influence delays in treatment, all of which are caused by a lack of knowledge about breast cancer.

Invasive ductal carcinoma type breast cancer has complex risk factors; this type of cancer is closely related to exposure to the hormone estrogen and is also due to BRCA1 and BRCA2 gene mutations. [17] Meanwhile, Invasive Lobular Carcinoma breast cancer has risk factors in the form of abnormalities in the estrogen receptor and progesterone but no mutation of the HER2 gene. BRCA1 and BRCA2 function as tumor suppressors, so losing these two gene functions will cause abnormal cell growth. [15] HER2 has the function of helping breast growth, division, and self-repair of breast cells. The occurrence of HER2 gene abnormalities will cause breast cells to grow and divide uncontrollably. [18]

Invasive lobular carcinoma (ILC) is the second most common histological type of breast cancer. The prevalence ranges from 5% to 20% due to differences in histopathological definition. [19,20] ILCs are made of small cells with round, irregular oval nuclei and sometimes intracytoplasmic vacuoles. Cells tend to be noncohesive due to cadherin E protein adherence loss—very few mitoses. Cells attack stroma in one row. ILC cells are concentric. Another unspecified invasive breast carcinoma known as "invasive ductal carcinoma" (IDC) comprises variably sized malignant cells that show an invasive trabecular pattern, glandular or solid, and sometimes with individual cord-like patterns. The large cells have regular/pleomorphic nuclei with prominent nucleoli and rich eosinophilic cytoplasm. (right on target). All these features correspond to the classic ILC pattern. Although there are some differences between lobular and ductal invasive tumors on mammography, the histology of breast cancer becomes quite difficult based on image presentation alone. Several studies suggest substantial differences between IDC and ILC in diagnostic image presentation, multifocality, tumor size, and patient age at the time of primary surgery. [21.22] Based on research conducted by Plitcha et al. Tumor grade significantly differed between younger and older patients, where women aged ≤45 years more often had grade III on histopathology.The relationship between tumor size and nodule type: this study shows that an increase in tumor size is not always related to the type of axillary nodule. Even though it is known that the type of nodule is associated with the risk of breast cancer metastasis. Nodule types 3 and 4 can be confirmed to have metastases to other organs even though there are no clinical symptoms or imaging images.

It can be concluded from this study that there are still many sufferers who arrive at advanced stages, namely stages 3 and 4. This can certainly affect the prognosis of breast cancer sufferers. 70% are detected at an advanced stage. If we can detect it early, maybe we can control the death. The high rate of breast cancer in Indonesia is a priority for treatment by the government. However, this does not mean that treatment of other types of cancer is neglected. Indonesia's National Breast Cancer Management Strategy includes 3 pillars: health promotion, early detection, and case management. In detail, these three pillars target 80% of women aged 30-50 years to have breast cancer detected early, 40% of cases diagnosed at stages 1 and 2 and 90 days to receive treatment. In this study, only 10.3% were diagnosed when the tumor was T1, far from the expected 80%. This study found that 46.7% were diagnosed when the tumor was T1 and T2. For this reason, commitment from all parties, including the government, is needed to play an active role in education about early detection and therapy of breast cancer.

V. CONCLUSION

Characteristics of breast cancer patients based on the results of histopathological examination at the Anatomical Pathology Laboratory at Haji Hospital Surabaya in this study were based on age, gender, tumor size, histopathological type, nodule type, and histopathological grade of breast cancer. Most are in the age range of 50 years and over, and all are female. The largest tumor size was type T2, while the most common histopathological type was invasive ductal carcinoma. The most common nodules were N0, and grade III was the most histopathological grade.

CONFLICT OF INTEREST

There is no conflict of interest to declare.

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Table 1. Distribution of Respondents by Age

Age	n	Percentage (%)
20-30	3	2,8 %
31-40	16	15 %
41-50	36	33,6 %
>50	52	48,6 %
Total	107	100%

Table 2. Distribution of Respondents by Sex

Sex	n	Percentage (%)
Male	0	0
Female	107	100 %
Total	107	100 %

Table 3. Distribution of Respondents based on Tumor Size

Besar Tumor	n	Percentage (%)
T1	11	10,3 %
T2	39	36,4 %
T3	32	30 %
T4	25	23,3 %
Total	107	100%

Table 4. Distribution of Respondents Based on Histopathology Type

Types of Histopathology	n	Percentage (%)
Invasive Ductal Carcinoma	103	96 %
Invasive Lobular Carcinoma	3	2,8%
Other histopathology	1	1,2%
Total	107	100%

Table 5. Distribution of Respondents Based on Nodule Type

Nodule	n	Percentage (%)
N0	54	50,5 %
N1	20	18,7 %
N2	23	21,5 %
N3	10	9,3 %
Total	107	100%

Table 6. Distribution of Respondents Based on Histopathological Degree

Histopathological Degree	n	Percentage (%)
Derajat I	8	7,5 %
Derajat II	30	28 %
Derajat III	69	64,5 %
Total	107	100