

Age and Luminal Type Play Important Role as Therapeutic Policies in the Management of Breast Cancer at Prof. Dr. Margono Soekarjo Regional Hospital Purwokerto

Muhammad Yamsun¹, Ira Imaniah², Salma Shafiyatul Maulana³, Rizqi Hendra Setiawan⁴

¹Department of Surgical Oncology, Department of Surgery, Faculty of Medicine, Jenderal Soedirman University, Prof. Dr. Margono Soekarjo General Hospital, Purwokerto, Indonesia

^{2,3,4}Department of Surgery, Faculty of Medicine, Jenderal Soedirman University, Purwokerto

ABSTRACT

Introduction: Breast cancer (carcinoma mammae) is a malignancy originating from breast tissue, either from its ductal or lobular epithelium.

Objective: This study aim to find out the characteristics of Breast Cancer at Margono Soekarjo Hospital in Purwokerto to determine the breast cancer therapy policies.

Methods: This study utilized a descriptive retrospective design with the research subjects being patients with carcinoma mammae who underwent anatomical pathology and immunohistochemistry examinations at Prof. Dr. Margono Soekarjo Regional General Hospital from 2020 to 2023.

Result: The characteristics age of patients with Carcinoma Mammae are divided into 76 patients (30,9%) between 50-59 years old, followed by the 40-49 age group with 68 patients (27,6%). A total of 178 (72.4%) patients are ductal type, followed by 35 patients (14,2%) are lobular type. A total of 92 patients (37,4%) are grade 2 of Ca Mammae, followed by 83 patients (33,7%) are grade 3. A total of 95 patients (38,6%) are Luminal B sub type, followed by 69 patients (28%) are *Her2 Enriched*.

Conclusion: The majority of breast cancer patient are aged 50 – 59 years with Invasive Ductal Carcinoma type, grade 2 and Luminal B Subtype.

KEYWORDS: Age ; Luminal Type ; Management ; Breast Cancer ; Ca Mammae

ARTICLE DETAILS

Published On:
21 May 2024

Available on:
<https://ijmscr.org/>

INTRODUCTION

Breast cancer (carcinoma mammae) is a malignancy originating from breast tissue, either from its ductal or lobular epithelium. Carcinoma mammae occurs due to dysregulated cell conditions, losing their normal control and mechanisms, resulting in abnormal, rapid, and uncontrolled growth (Rizka, 2022). In Indonesia, the incidence of breast cancer is 40 per 100,000 women. Nationally, the prevalence of breast cancer among Indonesian women is 50 per 100,000 population (Rizka, 2022).

Globally, in 2020, there were 19.3 million new cancer cases diagnosed, with breast cancer in women being the most frequently diagnosed cancer (11,7% of total cases). Several factors known to be involved in the development of breast

cancer include genetic factors, environmental factors, physical activity, diet, obesity, and hormonal factors. Genetic factors referred to here are mutations in the BRCA1, BRCA2, and TP53 genes. Obesity is known to increase the risk of breast cancer, while the role of diet still shows inconsistent results. Various methods are currently used as therapies for breast cancer cases, ranging from lumpectomy, radiotherapy, chemotherapy, to hormone therapy such as hormone replacement therapy (Cahyati, 2018).

Based on these risk factors for breast cancer, it is important to recognize the clinical manifestations of breast cancer. When it began to develop to the advance stages, signs and symptoms such as changes in breast shape and size, nipple retraction, and abnormal discharge from the nipple may

Age and Luminal Type Play Important Role as Therapeutic Policies in the Management of Breast Cancer at Prof. Dr. Margono Soekarjo Regional Hospital Purwokerto

appear. Early symptoms to be suspected include palpable, hard lumps, irregular shape, and asymmetric breast size compared to the contralateral breast. If a lump is found in the breast, diagnosis confirmation should be made through history taking, physical examination, laboratory tests, radiological examination, pathological examination through biopsy, and histopathology (Gelgel, 2020).

Based on data regarding breast cancer cases and contributing factors triggering breast cancer, researchers are interested in conducting research on the characteristics of Breast Cancer at Margono Soekarjo Hospital in Purwokerto.

MATERIAL AND METHOD

This study utilized a descriptive retrospective design with the research subjects being patients with carcinoma mammae who underwent anatomical pathology and immunohistochemistry examinations at Prof. Dr. Margono Soekarjo Regional General Hospital from 2020 to 2023. The inclusion criteria were patients with carcinoma mammae from 2020 to 2023 who underwent anatomical pathology (AP) and immunohistochemistry (ER, PR, Her2, Ki67) examinations. Exclusion criteria included incomplete medical record data. The research data utilized secondary data, namely medical record data. The sampling technique use a consecutive sampling with a sample size of 256 patients.

RESULT

The research was conducted in September 2023 at Prof. Dr. Margono Soekarjo Regional General Hospital. The research results were analyzed using univariate analysis.

Table 1. The Age Of Patients With Ca Mammae.

Age	Frequency (n)	Percentage (%)
≤ 30	2	0,8
30 – 39	29	11,8
40 – 49	68	27,6
50 – 59	76	30,9
60 – 69	52	21,1
≥ 70	19	7,7
Total	246	100

Table 2. The Types of Anatomical Pathology Of Ca Mammae.

PA type	Frequency (n)	Percentage (%)
Ductal	178	72,4
Lobular	35	14,2
Other	33	13,4
Total	246	100

Table 3. Grade of Ca Mammae

Grade	Frequency (n)	Percentage (%)
1	10	4,1
2	92	37,4

3	83	33,7
Other	61	24,8
Total	246	100

Table 4. Subtype of Ca Mammae

Subtype	Frequency (n)	Percentage (%)
<i>Her2 Enriched</i>	69	28
Luminal A	58	23,6
Luminal B	95	38,6
<i>Triple Negative</i>	24	9,8
Total	246	100

DISCUSSION

The characteristics of the age of patients with Carcinoma Mammae at Prof. Dr. Margono Soekarjo Regional General Hospital mostly fall within the 50-59 age group, with 76 patients (30.9%), followed by the 40-49 age group with 68 patients (27,6%). This research result is consistent with a study conducted by Rara & Kurniasari (2021) in East Kalimantan, where a significant relationship was found between age variables and the incidence of breast cancer (p-value=0.003). This indicates that respondents aged midlife and above (decade 50 and above) are at 4,297 times higher risk compared to women of younger age. Women aged mid-50s to 59 years have the highest risk of breast cancer. The age at which women are affected by breast cancer is usually five years before entering menopause. The increase in breast cancer cases in the >50 age group is due to decreased organ function and decreased immune system strength. Additionally, the increased risk of breast cancer in those over 50 is attributed to fat and breast tissue accumulation of toxins in breast fat tissue (Syamsuryanita, 2020). Several studies also state that the majority of breast cancer in women is diagnosed after menopause (Ketut, *et al.*, 2022).

Women with a family history of breast cancer are at risk of developing breast cancer. Family history of breast cancer is associated with genetic changes, namely mutations in the proto-oncogene (HER2) and tumor suppressor genes (BRCA1 and BRCA2) in breast epithelial cells (Hero, 2021). One of the crucial steps to take in patients suspected of having breast cancer is histopathological examination. This study found that Invasive Ductal Carcinoma is the most common type of breast cancer at Prof. Dr. Margono Soekarjo Regional General Hospital. These results align with the research conducted by Suarfi et al. (2019) at Dr. M. Djamil Padang General Hospital, where the majority of cases were characterized by invasive ductal carcinoma histopathology (72,4%). Invasive ductal carcinoma has complex risk factors; this type of cancer is closely associated with exposure to estrogen hormones and also due to mutations in the BRCA1 and BRCA2 genes. Meanwhile, Invasive Lobular Carcinoma of the breast has risk factors such as abnormalities in estrogen and progesterone receptors but no mutations in the HER2 gene. The BRCA1 and BRCA2 genes act as tumor

Age and Luminal Type Play Important Role as Therapeutic Policies in the Management of Breast Cancer at Prof. Dr. Margono Soekarjo Regional Hospital Purwokerto

suppressors; thus, the loss of their functions can result in abnormal cell growth (Suarfi et al., 2019).

After determining the histopathological type, it is necessary to determine the grade or degree of cancer cells. Grading is done by examining cancer cells under a microscope and comparing them with normal cells. The grade in breast cancer needs to be determined for patient management and prognosis. Grade 1, also known as well-differentiated cells, have few differences from normal cells, slow development, and minimal cell division. Grade 2, or moderately differentiated, have cells that are unlike normal cells and exhibit slightly faster growth than normal cells. Grade 3 is the highest grade, also known as poorly differentiated cells. Grade 3 cells are very different from normal cells, grow rapidly and disorganized, irregular, and have many new cell divisions (Pramana & Steven, 2020). Based on the results of this study, the most common grade of breast cancer is grade 2, with 92 patients (37.4%). This is consistent with the research by Suarfi et al. (2019) at Dr. M. Djamil Padang General Hospital, which found a majority of grade 2 results at 68.1%. High grades in cancer patients are associated with tumor biology that tends to be aggressive and invasive.

One additional examination to diagnose breast cancer is an immunohistochemical examination. Immunohistochemical examination is a method of examining intracellular proteins using monoclonal and polyclonal antibodies to detect antigens found on the tissue surface. IHC examination of breast cancer is carried out to determine therapy and prognosis which is determined by hormone receptor markers (ER and PR), HER-2/Neu expression, and markers of cell apoptosis and proliferation (Ki-67 and p53) (Diahpradnya et al., 2018). Luminal B type is the most common subtype in breast cancer cases at RSUD Prof. Dr. Margono Soekarjo. These results are in line with research conducted by Nur (2019) at Siloam Semanggi Hospital in 2018 where the highest number of results was the Luminal B subtype with HER2 negative at 32.2%.

CONCLUSION

The majority of breast cancer patient are aged 50 – 59 years with Invasive Ductal Carcinoma type, grade 2 and Luminal B Subtype. Therefore, this will undoubtedly affect the management and priorities for treating breast cancer.

REFERENCES

- I. Cahyati P.N. 2018. Imunoterapi Pada Kanker Payudara. *WICAKSANA: Jurnal Lingkungan dan Pembangunan*. Vol 2(1): 52-55.
- II. Diahpradnya, P. O. P., Wayan, I. N., Anda, P. T. A. 2018. Karakteristik kanker payudara usia muda di Subbagian Bedah Onkologi Rumah Sakit Umum Pusat Sanglah tahun 2014- 2016. *Intisari Sains Medis*. Vol. 9(1):76-79.
- III. Gelgel J.P.P., Christian I.S. 2020. Karakteristik kanker Payudara Wanita Di Rumah Sakit Umum Pusat Sanglah Denpasar Tahun 2014-2015. *Jurnal Medika Udayana*. Vol 9(3): 52-53.
- IV. Hero, S. K. 2021. Faktor Risiko Kanker Payudara. *Jurnal Medika Utama*. Vol. 3(1): 1533 – 1538.
- V. Kementerian Kesehatan Republik Indonesia. 2018. *Panduan Praktik Klinis Kanker Payudara*. Jakarta: Kemenkes RI
- VI. Ketut, S., Sari L.M.K. 2022. Kanker Payudara: Diagnostik, Faktor Resiko, dan Stadium. *Ganesha Medicina Journal*. Vol 2(1): 43.
- VII. Naqia, M. 2023. Karakteristik Klinikopatologi Kanker Payudara di Sentra Diagnostik Patologi Anatomi Fakultas Kedokteran Universitas Andalas Tahun 2018-2021. *Skripsi*. Padang: Universitas Andalas.
- VIII. Nur, R. C. H. 2019. Profil Imunohistokimia Pada Penderita Kanker Payudara di Rumah Sakit Siloam Semanggi Tahun 2018. *Skripsi*. Jakarta: Universitas Kristen Indonesia.
- IX. Pramana, J. P. G., Steven, I. N. W. C. 2020. Karakteristik Kanker Payudara Wanita di Rumah Sakit Umum Pusat Sanglah Denpasar Tahun 2014-2015. *Jurnal Medika Udayana*. Vol. 9(3):52- 57.
- X. Purwanti, S., Nursari A. S., Cristinawati B.R.H. 2021. Faktor Risiko Kejadian Kanker Payudara Wanita. *Jurnal Bidan Cerdas*. Vol. 3(4): 168 - 175.
- XI. Rahmi, N., Fauziah A. 2022. Pendidikan Kesehatan tentang Pentingnya Pemeriksaan Payudara Sendiri pada Remaja Putri di MAN 5 Kabupaten Aceh Besar. *Jurnal Pengabdian Masyarakat (Kesehatan)*. Vol. 4(2): 95 – 100.
- XII. Rara, E. S., Kurniasari, L. 2021. Hubungan Antara Usia, Pendidikan, dan Pekerjaan dengan Kejadian Kanker Payudara pada Wanita di Kalimantan Timur. *Borneo Student Research*. Vol. 2(3): 1937 - 1943.
- XIII. Rizka A., Akbar M.K., Putri N.A. 2022. Carcinoma Mammae Sinistra T4N2M1 Metastasis Pleura. *Averrous: Jurnal Kedokteran dan Kesehatan Malikussaleh*. Vol8(1): 23-31.
- XIV. Suarfi, A. S., Anggaraini, D., Nurwiyei. 2019. Gambaran Histopatologi Tumor Ganas Payudara Di Laboratorium Patologi Anatomi Rsup M. Djamil Padang Tahun 2017. *Health and Medical Journal*. Vol. 1(1):7-14.
- XV. Syamsuryanita. 2020. Factors Affecting Menopausal Women with Breast Cancer Incidence in RSUD Syekh Yusuf Gowa. *FKKMYK KANKER*. Vol. 15, 270–276.
- XVI. Watkins, E. J. 2019. Overview of breast cancer. *J Am Acad Physician Assistant* Vol.32(10):13-17
- XVII. Winasis A., Djuwita R. 2023. Media Publikasi Promosi Kesehatan Indonesia. *MPPKI*. Vol 6(8):1501-1508.