Hormonal Therapy Treatment Pattern For Breast Cancer Patients At Dr. Moewardi Hospital, Surakarta

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ABSTRACT

Breast cancer is a cancer with a high prevalence and mortality rate in women. One of the main therapies for hormone receptor-positive patients isAdjuvant Endocrine Therapy (AET) in the form of tamoxifen, either alone or in combination. The study aims to determine patient characteristics and patterns of hormonal therapy use.breast cancer patients at Dr. Moewardi Regional Hospital, Surakarta. The study used a randomized controlled study design.cross sectional with technique purposive samplingThe study subjects were 64 breast cancer patients undergoing tamoxifen therapy for at least one month. Data were obtained from medical records and questionnaires, then tested using Chi-Square see the relationship between variables. The results of the study showed that the majority of patients were aged <50 years (60.9%) and were in advanced stages (III–IV) at 57.8%. The most common type of therapy was a combination of chemotherapy and hormones (51.6%), while single hormonal therapy was used in 48.4% of patients. The most frequently used chemotherapy regimen was a combination of Cyclophosphamide & Epirubicin, while the most common hormonal therapy was Tamoxifen + Zoladex. Bivariate analysis showed a significant relationship between age and type of therapy and stage and type of therapy (p<0.05).

KEYWORDS

breast cancer; hormonal therapy; treatment pattern

INTRODUCTION

Cancer is the leading cause of death worldwide, with an estimated 10 million deaths in 2020. Breast cancer is the most common type of cancer and the leading cause of death in women, with an estimated 685,000 deaths. The number of breast cancer cases

worldwide reached 2.26 million, exceeding lung cancer (2.21 million), colon and rectal cancer (1.93 million), and prostate cancer (1.41 million). Based on Globocan data in 2020, the number of new breast cancer cases reached 68,858, or approximately 16.6% of the total 396,914 cancer cases (Sperry, 2020) (Bray et al., 2018) (*American Cancer Society*, 2019). If cancer is detected early and treated promptly with appropriate methods, the chances of recovery are quite high (Bray et al., 2018) (World Health Organization, 2022) (Orrantia-Borunda et al., 2022). Breast cancer treatment includes surgery, chemotherapy (primary, adjuvant, and neoadjuvant), hormone therapy, targeted therapy, and radiotherapy. Adjuvant chemotherapy is given after surgery or radiotherapy to destroy any remaining cancer cells that could potentially spread (*American Cancer Society*, 2019) (World Health Organization, 2022) (N'Da et al., 2010).

Adjuvant endocrine therapy (*Adjuvant Endocrine Therapy*) is recommended for patients with positive estrogen (ER) and/or progesterone (PR) receptor results. However, this therapy often causes adverse reactions. The WHO defines an adverse drug reaction as "a noxious and unintended response to the use of a drug at usual doses for the prevention, diagnosis, treatment, or modification of physiological function." The resulting impacts can include worsening conditions, increased mortality, and increased medical costs. Research (Fallowfield et al., 1990) states that patients undergoing adjuvant endocrine therapy often experience symptoms such as decreased libido (31%), weight gain (25%), and facial flushing (24%). Therefore, this study aims to examine patient characteristics and the type of hormonal therapy in breast cancer patients.

Dr. Moewardi Regional Hospital, Surakarta, was chosen because it is the primary referral hospital in Central Java with comprehensive oncology facilities and serves as a center for breast cancer care. This hospital handles a high number of breast cancer cases annually, making its clinical data representative of treatment patterns in Indonesia, particularly in Central Java (Ministry of Health, 2022). Furthermore, delayed breast cancer diagnosis is a major problem in Indonesia, with most patients presenting at an advanced stage. Studies at several teaching hospitals in Java indicate that more than 60% of patients present at stages III–IV (Dyanti & Suariyani, 2016). This situation presents challenges in therapy selection, particularly in balancing the benefits and risks of chemotherapy, hormonal therapy, or a combination of the two. Research at Dr. Moewardi Regional Hospital is crucial to evaluate the suitability of treatment patterns with international clinical guidelines such as NCCN and ASCO, and to provide a realistic picture of the side effects of hormonal therapy in local patients (Burstein et al., 2024) (NCCN, 2024) (ASCO, 2022).

RESEARCH METHOD

This study uses a design*cross sectional*with a quantitative analysis approach. Samples were obtained through the technique*purposive sampling*The research subjects were breast cancer patients undergoing*Adjuvant Endocrine Therapy*(AET) at Dr. Moewardi Regional General Hospital, Surakarta. Research data were collected from patient medical records and through distributed questionnaires. The study has received ethical approval under Number 1.287/VI/HREC/2025 from the Health Research Ethics Commission (KEPK) of Dr. Moewardi Regional General Hospital. Data were collected from July to September 2025.

The subjects of this study were breast cancer patients who were treated at Dr. Moewardi Surakarta Regional Hospital and received treatment.*Adjuvant Endocrine Therapy*(AET) for at least 1 month. Patients who met the inclusion criteria for this study were adult patients with breast cancer undergoing hormonal therapy. All patients who met these criteria were considered as samples in this study. Data were obtained from 64

respondents with breast cancer who received hormonal therapy.*Adjuvant Endocrine Therapy* (AET).

Univariate analysis was conducted to describe the frequency distribution of respondents based on age, stage of disease, and type of breast cancer therapy given (chemotherapy or radiotherapy).*Adjuvant Endocrine Therapy*/AET). Next, bivariate analysis uses the test*Chi-Square*. Test selection*Chi-Square*Based on categorical data types and to assess the relationship between variables, the relationship is considered statistically significant if the p-value is <0.05.

RESULT AND DISCUSSION

The number of respondents in this study was 64 adults who received therapy.*Adjuvant Endocrine Therapy*/AET at Dr. Moewardi Regional Hospital, Surakarta. The characteristics of the respondents can be seen in Table 1.

Table 1. Sociodemographic characteristics and treatment of breast cancer patients at Dr. Moewardi Surakarta Regional Hospital (N = 64)

Variables		Frequency (n)	Percentage (%)
Sociodemographics			
Age	≥50 years	25	39.1
	< 50 years	39	60.9
Stadium	Early stage (I-II)	27	42.2
	Advanced stage (III-IV)	37	57.8
Types of therapy	Chemotherapy + hormone	33	51.6
	Hormone	31	48.4

Table 2. Data on Chemotherapy Use in Breast Cancer Patients at Dr. Moewardi Regional Hospital, Surakarta

No	Chemotherapy Regimen	Number (n)	Percentage (%)
1	Cyclophospamid & Epirubicin	7	21.2
2	Placitaxel & Epirubicin	6	18.1
3	Docetaxel & Epirubicin	6	18.1
4	Docetaxel & Carboplatin	4	12.1
5	Docetaxel	2	6.1
6	Docetaxel & Herzemab	1	3
7	Doxorubicin & Placitaxel	1	3
8	Docetaxel, Transtuzumab, & Cyclophospamid	1	3
9	Placitaxel & Cisplatin	1	3
10	Epirubicin & Cisplatin	1	3
11	Docetaxel & Cyclophospamid	1	3
12	Epirubicin	1	3
13	Transtuzumab & Placitaxel	1	3

According to Table 1, age characteristics are dominated by patients under 50 years old, with 39 respondents, or 60.9%. This is related to research (Aprilianty et al., 2024) which shows that breast cancer is rarely diagnosed in women <30 years old, and most women with breast cancer are 40 years old or older. Physiologically, women older than 40 years are advised to maintain their health by adopting a healthy lifestyle to prevent breast cancer because their immune system becomes weaker and decreases, increasing the risk of being diagnosed with breast cancer. A study (Sutrisno et al., 2024) found a relationship between age and the frequency of breast cancer. In terms of breast cancer stage, respondents were dominated by early stages (III-IV) with 37 respondents (57.8%). The stage distribution shows that the majority of patients were in advanced stages (III-IV) at 57.8%. This condition shows that most patients only receive therapy after the disease has reached

a more advanced stage. In Indonesia, more than 80% of breast cancer patients present to healthcare facilities at an advanced stage due to delays in initial screening. Research by Shidqi et al., 2022, shows that most patients seek medical treatment late, resulting in a poor prognosis even when optimal therapy is provided.

Treatment of breast cancer patients at Dr. Moewardi Regional Hospital with tamoxifen adjuvant endocrine therapy (AET) consists of two main approaches: a combination of chemotherapy + hormonal therapy (51.6%) and hormonal therapy alone (48.4%). The regimens used are quite varied. The most common combination is Cyclophosphamide + Epirubicin (21.2%), followed by Paclitaxel + Epirubicin (18.1%) and Docetaxel + Epirubicin (18.1%). These regimens comply with international standards (AC, FAC, or taxane-based regimens) used to suppress cancer cell growth (Burstein et al., 2024) (NCCN, 2024). In patients receiving tamoxifen and chemotherapy, chemotherapy is given first, followed by tamoxifen sequentially.

All patients in this study were taking tamoxifen, either alone or in combination with other agents. The most common regimens were Tamoxifen + Zoladex (42.2%) and Tamoxifen alone (26.6%). Combination regimens wereZoladex (goserelin)and tamoxifen is the standard treatment for premenopausal women with hormone receptor-positive early-stage breast cancer, aimed at suppressing ovarian function and reducing estrogen levels to control cancer growth. Research (Gradishar et al., 2024) has shown that this combination can prolong survival and is an effective alternative to chemotherapy. Another study found that one year of endocrine therapy with goserelin and tamoxifen did not cause drug-related cardiotoxicity in patients with invasive breast cancer (Manfrini et al., 2025).

Table 3. Data on the Use of Hormonal Therapy in Breast Cancer Patients at Dr. Moewardi Regional Hospital, Surakarta

No	Hormonal Therapy	Number (n)	Percentage (%)
1	Tamofen & Zoladex	27	42.2
2	Tamofen	17	26.6
3	Tamofen, Nateran & Zoladex	7	10.9
4	Tamofen & Neteran	5	7.8
5	Tamofen & Arimidex	4	6.3
6	Tamofen, Nateran & Aromasin	1	1.6
7	Tamofen, Nateran & Arimidex	1	1.6
8	Tamofen & Capecitabine	1	1.6
9	Tamofen & Letrozole	1	1.6

In postmenopausal patients, tamoxifen is also combined with an aromatase inhibitor (letrozole, exemestane, arimidex) to reduce peripheral estrogen production. Aromatase inhibitors work by blocking the aromatase enzyme, which converts androgens to estrogen, a process that becomes the primary source of estrogen after menopause (Burstein et al., 2024). The combination of tamoxifen and an aromatase inhibitor (letrozole, exemestane, arimidex) offers a more complete blockade of estrogen signaling than tamoxifen alone, because tamoxifen acts as a selective estrogen receptor modulator (SERM) (Manfrini et al., 2025).

Based on Table 4, the drug used to reduce bone metastases in breast cancer patients was Zoledronic Acid, which was used in 11 patients. This drug contains a bisphosphonate, which aims to improve the patient's condition by preventing further bone damage. This is consistent with international guidelines recommending bisphosphonates as the first-line treatment for preventing bone complications (ASCO, 2022).

Table 4. Data on the Use of Therapy to Reduce Bone Metastases in Breast Cancer Patients at Dr. Moewardi Regional Hospital, Surakarta

Drug Name	Amount	Percentage
Asam Zoledronic	11	100%

Based on patient characteristics and their relationship to the type of therapy used, Table 5 shows that of all factors, both age and advanced stage, there was a significant relationship between the type of therapy used and age and stage, each with a P value <0.005. This is consistent with the NCCN guidelines (2024) and a study by (Regan et al., 2008) which states that premenopausal patients (<50 years) with hormone receptor-positive breast cancer generally respond well to endocrine therapy such as tamoxifen or a combination with ovarian suppression (goserelin). This therapy is relatively better tolerated than long-term chemotherapy. There is a significant relationship between cancer stage and the type of therapy (p = 0.013), this is in line with the literature stating that in advanced stages with hormone receptor-positive, endocrine therapy is the main choice because it can control symptoms, improve quality of life, and provide results comparable to chemotherapy but with lower toxicity (Cardoso et al., 2019) (ASCO, 2022).

Table 5. Factors influencing the use of therapy types in breast cancer patients at Dr. Moewardi Surakarta Regional Hospital (N = 64)

Variables		**Use of Therapy**		**p-value (<0.05)**
		Chemotherapy + hormonal	Hormonal	
Age	<50 years	14	25	0.012
	≥50 years	17	8	
Further stadium	Early stage (I-II)	18	9	0.013
	Advanced stage (III-IV)	13	24	

CONCLUSION

This study shows that the majority of breast cancer patients at Dr. Moewardi Hospital, Surakarta, are aged <50 years and are in advanced stages (III–IV). The most commonly used type of therapy is a combination of chemotherapy and hormonal therapy, with the dominant chemotherapy regimen being a combination of Cyclophosphamide & Epirubicin. In hormonal therapy, the combination of Tamoxifen and Zoladex is the most commonly used regimen. Statistical analysis showed a significant relationship between age and stage with the type of therapy chosen (p<0.05).Overall, this therapy pattern is in accordance with clinical guidelines and indicates that tamoxifen remains the main agent in adjuvant endocrine therapy in breast cancer.

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