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Age-Related to Breast Cancer Incidence in Cut Meutia General Hospital, Northern Aceh

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ABSTRACT

The risk of breast cancer increases with age, due to the progressive accumulation of genetic and epigenetic changes in breast epithelial cells as well as epigenetic changes in the microenvironment that lead to changes in gene expression. This study aims to determine the relationship between age risk factors and the incidence of breast cancer in Cut Meutia General Hospital, Northern Aceh. The research method used a cross sectional design which was carried out from June 2021 to January 2022. A total sample of 52 breast cancer patients were taken by total sampling that met the inclusion criteria. We found that patients with the most age characteristics are in the 41-50 age group with elementary education level, living in Aceh Utara and housewives. Based on the stage, it is known that the most dominant stage of the patient experiencing the incidence of breast cancer is stage III, which consist of 25 patients. Also, there is a significant relationship between age risk factors and the incidence of breast cancer in breast cancer patients in Cut Meutia General Hospital, Northern Aceh.

1. Introduction

Breast cancer is the second most common type of cancer that causes death globally. The Global Burden of Cancer Study (GLOBOCAN) stated that the number of new cases and deaths from breast cancer worldwide was 2,089 million new cases and 627,000 deaths.^{1,2} Breast cancer is the most common cancer among women in the world.³ The incidence of breast cancer in Indonesia among women in 2018 was 58,256 new cases (42.1%), with 22,692 deaths (17.0%). The highest incidence of women's breast cancer is in the Special Region of Yogyakarta (DIY), with a prevalence of 2.4%, while in Aceh, there are 0.8% cases. Medical record data from the Cut Meutia General Hospital, Northern Aceh in 2019 showed 303 breast cancer

cases, and in 2020 as many as 357 cases.⁴

The incidence of breast cancer has many risk factors. These risk factors are divided into modifiable and non-modifiable. Age is a factor that cannot be modified. The risk factor for age is the most important in causing breast cancer. Breast cancer is most common in middle-aged and older women. The risk will continue to increase sharply until the age of 40-45 years; it will tend to persist after menopause. According to previous research, the age group of 30-50 years has a high risk of breast cancer.^{5,6}

The positive correlation between age and breast cancer incidence and death is believed to be due to the progressive accumulation of genetic and epigenetic

changes in breast epithelial cells and epigenetic changes in the microenvironment, leading to changes in gene expression.⁸⁻¹⁰ Currently, the incidence of breast cancer in young women is increasing. It reviews the risk of breast cancer starting at a young age. This study aimed to determine the relationship between age-related risk factors and the incidence of breast cancer in Cut Meutia General Hospital, Northern Aceh.

2. Methods

This study was observational research with a cross-sectional design. The research was carried out from June 2021 to January 2022 at the Cut Meutia Hospital, Northern Aceh. The ethical committee has approved the procedure in this research of the Faculty of Medicine, Universitas Malikussaleh. The sampling technique in this study is total sampling. The participants had to fulfill the inclusion criteria.

Inclusion criteria were patients who have been diagnosed with breast cancer in Cut Meutia General Hospital and have complete medical records of breast cancer. The sample size in this study was 52 inpatients for breast cancer in the Cut Meutia Cut Meutia General Hospital Northern Aceh.

3. Results and Discussion

Table 1 shows the baseline characteristics of the patients. Most of the patients were aged 41-50 years (44.2%), had primary education (36.5%), lived in Northern Aceh (38.5%), and were housewives (71.2%). Table 2 shows the distribution of patients based on stage; the majority of patients were found in stage III, as many as 25 patients (48.1%), and a minority of patients were found in stages I and II, which amounted to 3 patients (5.8%).

Table 1. Baseline characteristics of patients.

Patient Characteristic	Frequency (n=52)	Percentage (%)
Age (year)		
30-40	10	19,2
41-50	23	44,2
>50	19	36,5
Education		
Primary school	19	36,5
Junior high school	9	17,3
Senior high school	18	34,6
Bachelor degree	6	11,5
Address		
Lhokseumawe	11	21,2
Northern Aceh	20	38,5
Bireun	13	25,0
Central Aceh	3	5,8
Aceh Tamiang	3	5,8
Western Aceh	1	1,9
Langsa	1	1,9
Occupation		
Housewife	37	71,2
Employee	4	7,7
Farmer	6	11,5
Civil servant	5	9,6

Table 2. Breast cancer staging

Breast cancer staging	Frequency (n)	Percentage (%)
Stage I	3	5,8
Stage II	3	5,8
Stage III	25	48,1
Stage IV	21	40,4
Total	52	100,0

There is an overall accumulation of risk factors, the tendency for cell repair mechanisms to become less effective with aging.¹¹⁻¹³ Most patients who develop breast cancer are over 40 years old. Based table 1 shows, that the distribution of education level of the majority of patients who obtained elementary education is 19 patients (36.5%), and the minority of patients with a college education is six patients (11.5%). This shows that the lower a person's level of education, the less knowledge they gain. A low level of education affects a person's common knowledge. Women with low education tend to be diagnosed with an advanced stage of breast cancer, while women with higher education tend to be diagnosed at an early stage.^{8,14}

Based on table 1 shows the distribution of patients by occupation. It was found that the majority of patients who work as a housewife is 37 patients (71.2%), and a minority of patients who work as employees are four patients (7.7%). This is because most women in Aceh do not earn a living but do housework and generally have low education, so they do not get more knowledge because work indirectly affects a person's level of knowledge, so work is closely

related to the exchange of information. Housewives tend to have higher anxiety because they think about home conditions, so they do not focus on the treatment they have.⁹

Table 2 shows that the distribution of breast cancer incidence is based on stage, where most patients suffer from stage III is 25 patients (48.1%), and a minority of patients who suffer from stages I and II is three people (5.8%). This indicates that the patients undergoing treatment have entered an advanced stage. The results of this study are in line with research Iting (2021) reported that the highest stage of breast cancer is at stage III, which is 49%, and the lowest is at stage I, which is 23%, this is because the high frequency at stage III is due to lack of knowledge, education, awareness of people living with cancer and cancer detection tool that takes a long time such as clinical pathology examination.¹⁵ Table 3 shows the analysis results using the Chi-square test with a p-value of 0,000. The value of p = 0,000 is smaller than the value of 0,05. This indicates a significant relationship between the two variables; there is a relationship between age risk factors and the incidence of breast cancer in Cut Meutia Hospital, Northern Aceh.

Table 3. Relationship of age with breast cancer incidence

Age (year)	Breast cancer staging								Total		P-value
	Stage I		Stage II		Stage III		Stage IV				
	n	%	n	%	n	%	n	%	n	%	
30-40	1	10,0	1	10,0	5	50,0	3	30,0	10	100,0	0,000
41-50	1	4,3	1	4,3	17	73,9	4	17,4	23	100,0	
>50	1	6,7	1	0,0	3	66,7	14	26,7	19	100,0	
Total	3	5,8	3	5,8	25	48,1	21	40,4	52	100,0	

Based on the study results, there was a relationship between age and the incidence of breast cancer in the Cut Meutia Hospital, Northern Aceh, in 2020. This means that certain age groups tend to develop breast cancer. Based on the table, for the age range > 50 years, there were 19 patients (36.5%). Breast cancer patients in the 41-50 year age group are breast cancer patients with a diagnosis of stage III in 17 patients (73.9%). This indicates that a person's age is a risk factor that affects the occurrence of breast cancer. Breast cancer patients aged 30-40 years who were diagnosed with stage III had five patients (50.0%) dominated by a higher education level than patients aged 40-50 years with a low level of education is the patients with the lowest frequency, even though the patients are at the risk age. The patient can take action to prevent breast cancer because of sufficient knowledge that comes from higher education compared to patients with low education. This is due to other factors such as the use of hormonal contraception, and lifestyle, which were not taken in this study so that even though the patient was not included in the risk category, he had breast cancer. The analysis showed that middle-aged women were significantly associated with the incidence of breast cancer.

4. Conclusion

We found that patients with the most age characteristics are in the 41-50 age group with elementary education levels, living in North Aceh, and housewives. Based on the stage, it is known that the most dominant stage of the patient experiencing the incidence of breast cancer is stage III, which consists of 25 patients. Also, there is a significant relationship between age risk factors and the incidence of breast cancer in breast cancer patients in Cut Meutia General Hospital, Northern Aceh.

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