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Breast Cancer Profile In Very Young Women At Haji Adam Malik General Hospital Medan

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Abstract. Breast cancer is the most kind of cancer that happens to women, and it's one of the cancer that can cause the major death in the world and in Indonesia. Breast cancer cases at age are very young tend to have lower percentages of old age, but have a bad prognosis. Family history of breast cancer because of the BRCA1 and BRCA2 mutation . Objective. The aim of this research is to study about breast cancer very young age profile in H. Adam Malik Medan General Hospital. From 2016-2018 based on age, family history and grading histology. Methods. In this descriptive research with cross-sectional study, the sample were collected from medical record of breast cancer patient in H. Adam Malik Medan General Hospital. This research use total sampling method and matched with inclusion and exclusion criteria. Results. Total of the sample is 160 subject. The majority of age group is 31-35 year's old (81 subject or 51,0%). The majority of age menarche group is <12 year's old (104 subject or 65,5%). Do not have family history (82 subject or 51,3%), and have a family history just found (78 subject or 48,8%). The majority of grading histology is grade 3 (68 subject or 42,5%). Conclusion. Sufferers of breast cancer at very young age is quite a lot with grade 3 on grading histology.

Keyword: breast cancer, very young age, family history.

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1. Introduction

Breast cancer is breast malignancy coming and derived from ductal epithelial cells and their lobules [1]. Breast cancer is one of the most common malignance among women, but less than 2% occur in women younger than 35 years old [2]

In normal condition estrogen hormone can affect the growth and development of a women's breast tissue during the reproductive age, start from puberty until menopause and during the pregnancy phase. Estrogen hormone also can affect the growth and development of breast cancer which will stimulate the production of growth factors such as transformation (transforming growth factor-a) and other factors that will trigger tumor development through paracrine and autocrine mechanism [3].

In a Portuguese study in 2017, patients under 35 years old from all breast cancer, 5% is occur in women under 35 years old, making it the most common cancer in women of this age group. About tumor subtype, 20% is triple negative, 28% is HER2 positive [4]. There are many factors related with breast cancer, mostly related with women reproductive history and hormonal exposure in their whole life. These factors include age, age at menarche, age at menopause, first gestational, long breastfeeding status, alcohol consumption, body mass index (IMT) and women with a family history of BRCA 1 and BRCA 2 gene mutations have an increased risk [5].

According to Basic Health Research, breast cancer has the second highest prevalence in Indonesia in 2013 which was 0.5%, while in North Sumatra the prevalence of breast cancer was estimated at 2.682 people (0.4%) [6]. Data about the breast cancer profile in young women still very rare in Indonesia, especially in North Sumatra, Medan. Therefore, researcher is interested in knowing the profile of breast cancer in young woman at Haji Adam Malik Hospital Medan.

2. Method

Collecting data is done by collecting secondary data sourced from medical records of breast cancer patients at Haji Adam Malik Hospital Medan 2016-2018 period. This research was conducted from March to December 2019. The method used is descriptive approach crosssectional and consecutive sampling which all breast cancer patient who met the inclusion criteria as many 160 patients.

Characteristics of the sample taken based on clinical features (age group, menarche age, family history) and histological grading. This research has received permission from the Medical Faculty Ethic Commission of the University of Sumatera Utara Medan No: 152/TGL/KEPK FK USU-RSUP HAM/2019 August 8th, 2019.

3. Result

Medical record data that has been collected then analyzed so the result obtained in the frequency distribution based on clinical features can be seen in Table 1 below:

Tabel 1 Distribution Frequency of Age Group, Menarche, Family History

Age Group	Frequency (n)	Percentage (%)
<20 Age	1	0.6
21-25 Age	28	23,7
26-30 Age	50	31,0
31-35 Age	81	51,0
Age of *menarche*	Frequency (n)	Percentage (%)
<12 Age	104	65,5
13-15 Age	52	32,5
>15 Age	4	2,5
Family History	Frequency(n)	Percentage (%)
Yes	78	48,8
No	82	51,3
Total	160	100

Histological grading is a score that tells the difference growth of cancer cells from normal and healthy, can be seen in Table 2 below:

Tabel 2 Distribution of Grading Histologi

Grading Histology	Frequency (n)	Percentage(%)
Grade 1	31	19,4
Grade 2	61	38,1
Grade 3	68	42,5
Total	160	100

4. Discussion

Based on the age group of breast cancer patients in young women (table 1), most found in the group age 31 years old until – 35 years old as many (51.0%) of 81 patients, following by age group 26 years old - 30 years old (31.0%: 50 patients), 21 years old – 25 years old (23.7%: 28 patients) while the age group under 20 years old there are only (0.6%) of 1 patient. The results of this research are same as Georgeta and Maria's research (2014) [7] which stated in every year it increases 2% breast cancer patients at young age and the data on 132 young women patients diagnosed with breast cancer at a young age of 31 years old (24 years old- 35 years old: 46%), and then Nasution (2018) [8] also conducted the research at Haji Adam Malik Hospital Medan, there are (9.8%) of 116 breast cancer patients under 35 years old.

In addition, research on women in the United States is 0.2%, in young women under 20 years old affected by breast cancer and 0.5% at 30 years old (American cancer society, 2017) [9]. In Portugal also stated 5% tumor aggressiveness occurs in women with breast cancer under 35 years

old, and confirmed that higher percentage of aggressive tumor subtype occur at young age tend to be more HER2 positive and triple negative (European society for medical oncology, 2019) [10].

Early menarche is included as a risk factor associated with breast cancer related with lifetime hormone exposure (Maria et al, 2019) [11]. Based on age group, early menarche in young age (Table 4) breast cancer patients which is most prevalent younger than 12 years old as many (65,6%) of 104 patients, following by age group 13 years old – 15 years old (32,5%: 52 patients), while the age group older than 15 years old there are only (2,5%) of 4 patients. Early menarche increase developing breast cancer in some women who menstruated for younger than 12 years old risky 1.7 – 2.4 higher than the women who menstruate at normal age. Menstruation before 11 years old will increase the risk of breast cancer 3 times higher, and early menstruation also related with the length of exposure to the estrogen hormone which influences the process of tissue proliferation including breast tissue (kartikawati, 2013) [12].

Family history also a risk factor related to breast cancer such as biological mother or biological sister. The most common cause of hereditary breast cancer is mutations inherited in the BRCA 1 or BRCA 2 genes, around 5% until 10% cases of breast cancer are considered hereditary due to changes in genes, passed on from parents. Women with one of these mutations more tend to be diagnosed with breast cancer at young age, ovarian cancer, and several other types of cancer (American cancer society, 2019) [13]. Based on family history groups, breast cancer patients (48.8%) of 78 patients at a young age (table 1) had family history, and had no family history (51.3%) of 82 patients.

Everyone has the BRCA1 and BRCA2 genes. Function of these genes is to repair damaged cells and maintain the breasts, ovaries, and other cells to grow normally. But, when these genes contain mutations handed down from generation to generation, these gens do not function normally in the breast, ovary, and other cancer risks (Maria, 2019) [14]. Sumadee et al (2019) [15] stated that breast cancer is a multifactorial disease. Genetic factors, environmental factors, and hormonal factors also can be a predisposing to malignancy. According to epidemiological research which is done in breast cancer, only 10% of all breast cancer cases involve genetic factors, while 90% of other breast cancer are caused by environmental factors, complex interactions between environmental factor and genetic factors influence the development of breast cancer.

Histological grading (table 2) breast cancer patients at young age are the most in grade 3 (42.5%) of 68 patients, in grade 2 (38.1%) of 61 patients, and in grade 1 (19.4%) of 3 patients. Histological grading is done to see how bad the prognosis is in the breast cancer patients, and the woman who affected by breast cancer have a poor prognosis (dian and wayan, 2012) [16]. In (table 2) show that Grade 3 is the highest number in breast cancer patients. In Grade 1 or low grade (well differentiated) normal cells are still visible and the growth of new cancer cells is still slow. In Grade 2 or moderate grade (moderately differentiated) normal cells are increasingly invisible and the growth of cancer cells is slightly faster. In Grade 3 or high grade (poor differentiated) the

normal cells are no longer visible and the growth of cancer cells is very fast and abnormal (Maria, 2017) [17].

Negative estrogen receptors are many found at a younger age, younger women who have tumors with significant estrogen negative receptors and progesterone at a young age are present in Grade 3. The tumor is more aggressive and the prognosis is worse and overexpression HER2/NEU. Overexpression HER2/NEU in tumors that develop at a younger age is considered a part of aggressive immunophenotype in cancer, especially lymph node metastasis (Eric *et al*., 2018) [18].

5. Conclusion

Breast cancer patient at younger age most found in the age group of 31 years old – 35 years old as many 81 patients, 104 patients with a history of menarche younger than 12 years old, 82 patients did not had a family history of breast cancer, and 72 patients had a family history of breast cancer. And 68 breast cancer patients at a young age are found more in high histological grading (Grade 3).

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