

Age, Onset, and Tumor Size Differences in Newly Diagnosed Breast Cancer Patients Before and During the SARS-Cov-2 Pandemic at Siloam Hospital Lippo Village (April 2019 – December 2020)

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Abstract

Citation: Halim Freda. Age, Onset, and Tumor Size Differences in Newly Diagnosed Breast Cancer Patients Before and During the SARS-Cov-2 Pandemic at Siloam Hospital Lippo Village (April 2019 – December 2020). *Medicus*. 2024 June. 13(3): 202-208.

Keywords: Pandemic; SARS-CoV-2; Breast cancer; Characteristics

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Online First: June 2023

Background: The current pandemic condition has caused delays in cancer treatment therefore surveillance should be increased.

Methods: By total sampling, this retrospective cross-sectional study enrolled 108 samples, who were newly diagnosed breast cancer patients at the outpatient department of Siloam Hospital Lippo Village (April 2019 - December 2020). Data obtained from medical records and interviews from December 2020 – February 2021.

Result: From the total of 108 samples which consisted of 54 samples before the pandemic (April 2019 – February 2020) and 54 samples during the pandemic (March 2020 – December 2020), accompanied by an increasing trend. The age during pandemic was younger than before pandemic (51,167 years old \pm 11,255 vs 47,537 years old \pm 9,824, p value=0,038), the tumor size during pandemic was bigger than before pandemic (3,403 cm \pm 3,024 vs 4,262cm \pm 4,212, p value=0,046) but the onset of patient during pandemic was not longer than before pandemic (281,69 days \pm 401,387 vs 178,09 days \pm 292,563, p value=0,036).

Conclusions: Newly diagnosed patients have younger age and larger tumor size during pandemic when we compare to before pandemic period, but no difference in onset term. Surveillance to society is needed to ensure older people with smaller tumor size to seek medical attention.

Introduction

Breast cancer is one of most common cancer in whole world women population, as well as in Indonesia according to Global Cancer Incidence, Mortality and Prevalence (GLOBOCAN) 2020 with high mortality.¹ The health care to this population therefore important, with each delay with contribute to significant morbidity and mortality.²

COVID-19 (Corona Virus Disease-19) is caused by SARS-COV-2 (Severe

Acute Respiratory Syndrome-Coronavirus 2), an aerosol and airborne transmitted disease that rapidly spread from Wuhan, China to whole world within 3 months since its finding. WHO declared the pandemic condition since March 11th, 2020, and affecting whole healthcare services as well as the socioeconomic condition. Indonesian government itself has established the emergency health condition caused by the SARS-COV-2 since February 29th, 2020. Social mobilization prompt by local government

and fear of COVID-19 spread withing families making the patients especially elderly are afraid to go to public places including hospital.³

Reach and quality of care is essentially important for cancer patient, and it is disrupted in every healthcare service during COVID-19 pandemic. Many patients are often underserved, and breast cancer patients is no exception. A cross-sectional study by Kaufman, et al 2020 in United States of America find decreased cancer patient weekly volume up to 46.6% with newly diagnosis breast cancer patient decreased 51.8%. Decreased patient's average age, means the patient who are having the breast cancer treated are younger than before the pandemic period, also noted in this study.⁴ Similar results also reported by Kiziltan, et al 2020 noting decreased newly breast cancer patients' volume who are being treated in pandemic period.⁵ Study by Vanni et al 2020 also found increased of tumor diameter/size during pandemic period although this finding was not significant statistically.⁶

Breast cancer service in Indonesia is still not well developed and it's decreased in quality and reach is most likely disrupted during the SARS-COV-2 pandemic period. There is still no report from Indonesia to conclude such reduction, and comparative simple research to conclude such conclusion is needed. The purpose of this review is to find out the characteristics such as age, onset, and tumor size differences of newly diagnosed breast cancer patients before and during the SARS-COV-2 pandemic at Siloam Hospital Lippo Village.

Material And Methods

Patients

This retrospective cross-sectional study collects 108 newly diagnosed breast

cancer patients who came to outpatient department clinic at Siloam Hospital Lippo Village. We use total sampling method, collecting data spanned from April 2019-December 2020. Fifty-four patients were newly diagnosed before pandemic times (April 2019-Feb 2020) and another 54 patients during pandemic times (March 2020-Dec 2020). All diagnoses were made using biopsy, done by certified general surgeon and oncologist surgeon, all were interpreted by certified pathologists. Age was defined as the age of patient when they are newly diagnosed with breast cancer, expressed in years. Tumor size was defined as the largest diameter found in operation or pathological data, expressed in centimeter (cm). Tumor onset was defined as the period between the patient knew about the lump/tumor to first time they went to Siloam Hospital Lippo Village for treatment, expressed in days.

All data investigations were conducted according to the principles expressed in the Declaration of Helsinki. The Institutional Review Board of the Pelita Harapan University and Siloam Hospital Lippo Village approved the study, and all participants provided informed consent via google form sent via whatsapp.

Data Collection.

Due to pandemic condition, investigator cannot meet the patient directly. All patients data (age, onset of tumor and tumor size) were recorded from secondary data in the medical record, with some of the missing data were interviewed using google form sent via whatsapp. All patients were asked for permission/informed consent before filling the google form. Interview was done from January-February 2021.

Statistical analysis.

Statistical analysis was performed using SPSS® (version 25) towards age, onset of tumor, and tumor size within the before pandemic and during pandemic group. We used T-test for normally distributed data, and it is considered significant if the p value meets < 0.05. With abnormal data distributed data, analysis will use Non-parametric Mann-Whitney, and it is considered significant if the p value meets <0.05.

Result

At total we find 237 patients (136 patients from before pandemic period and 101 patients during pandemic period). Most of exclusion reason are due to incomplete medical record, inactive phone number (cannot be contacted), or the patient does not reply to the text. All the data collection were explained from the Chart 1 and 2 below:

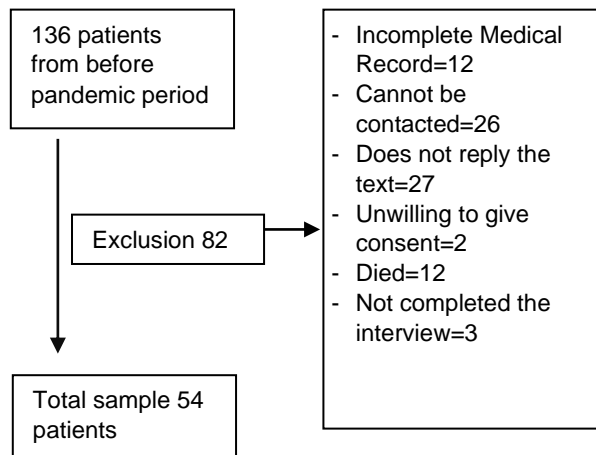


Chart 1. Patient Data Collection for Newly Diagnosed Breast Cancer Patients from Before SARS-COV-2 Pandemic Period

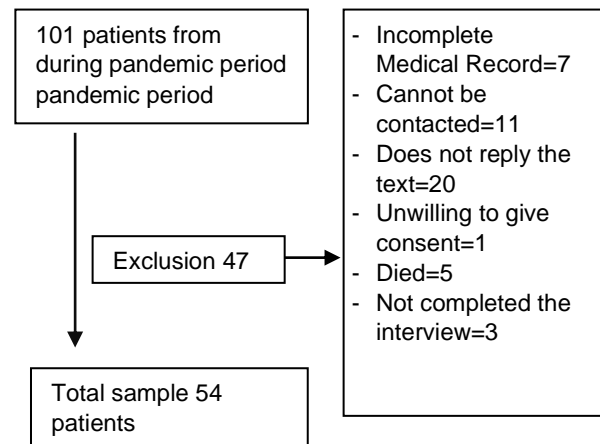
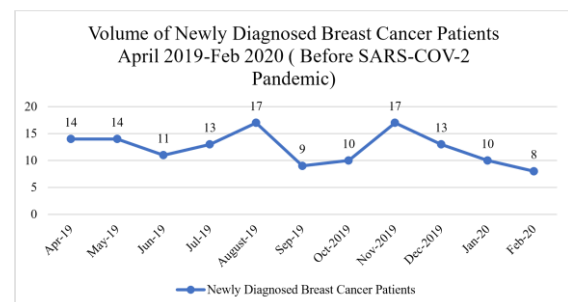
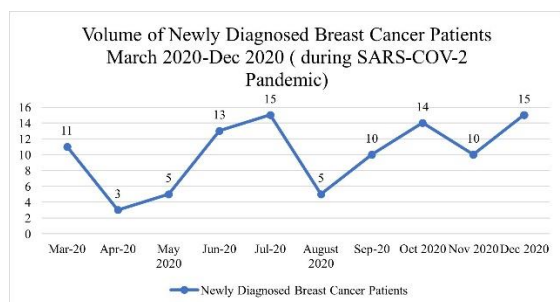


Chart 2. Patient Data Collection for Newly Diagnosed Breast Cancer Patients from During SARS-COV-2 Pandemic Period

The volume of newly diagnosed breast cancer patients during early pandemic was decreased during early pandemic months (March-May 2020). It bounced back to pre-pandemic period in June-July 2020. Although it was decreased again in August 2020 (probably due to large scale social restriction instructed by Indonesian government due to increasing of COVID-19 cases across the country, causing patients to restrain their mobilization).



Graph 1. Volume of Newly Diagnosed Breast Ca Patients Before SARS-COV-2 Pandemic



Graph 2. Volume of Newly Diagnosed Breast Ca Patients During SARS-COV-2 Pandemic

For age variable, the data is found in table 1:

Table 1. Age of Newly Diagnosed Breast Cancer Patients Before and During SARS-COV-2 Pandemic

Age (yrs) (n = 108)				
	Mean ±SD	Median	Min-Max	P value
Before pandemi (n=54)	51,167 ± 11,255	49	29 – 77	0,038
During pandemi (n=54)	47,537 ± 9,824	48,5	22 – 80	

In this variable, we found it is significant difference statistically for the age of newly diagnosed patient before and during pandemic, with mean and median are younger. Thus, from here we see that age are significantly younger in during SARS-COV-2 pandemic.

For onset of the tumor, the data is found in table 2

Table 2. Onset of Newly Diagnosed Breast Cancer Patients Before and During SARS-COV-2 Pandemic

Onset (days) (n = 108)				
	Mean ±SD	Median	Min-Max	P value
Before pandemi (n=54)	281,69 ± 401,387	125	1 – 1825	0,036
During pandemi (n=54)	178,09 ± 292,563	90	1 – 1825	

The onset of disease are shorter in during pandemic group, suggesting the patient are faster to get medical attention rather than to wait at home for the disease but it is statistically insignificant (p value 0.036).

For tumor size, the data is found in table 3:

Table 3. Tumor size of Newly Diagnosed Breast Cancer Patients Before and During SARS-COV-2 Pandemic

Tumor size (cm) (n = 108)				
	Mean ±SD	Median	Min-Max	P value
Before pandemi (n=54)	3,403 ± 3,024	3	0,3 – 20	0,046
During pandemi (n=54)	4,262 ± 4,212	3,225	0,5 – 30	

The tumor size also bigger in during pandemic period, with significant statistical result, suggesting the patient with smaller size probably are not coming to hospital to get treatment.

Discussion

In the chart 1 and 2 data shows that increasing trend of patient volume after the 3rd months of SARS-COV-2 pandemic period is shown, although probably variability is still shown. Some months are showing decreased volume, but the increased trend is still expected, showing the patient belief towards Siloam Hospital Lippo Village security in terms of sterility. A similar result was found in study by Zhongqing Xu, et al 2021 in Shanghai, which shows decreased patient volume in January-June 2020 compared to January-June 2019.⁷ the report also noted the society belief is strong to the health care services or hospital, then increased volume after the early pandemic is

expected, although still decreased compared to the normal period.⁷

In this study average age of newly diagnosed breast cancer patient in pre-pandemic period is 51.167 years old, meanwhile during pandemic period is 47.537 years old, with p value < 0.038. Kaufmann, et al 2020 in United States of America also found similar result, although Vanni et al 2020 in Italia found no difference in age of newly diagnosed breast cancer patient in both periods 4,6. Because if it was true, then the older age patient is underserved during this pandemic period for their breast health service. In other words, more vigilant surveillance regarding breast cancer awareness towards society are needed, if it is proven.⁸

Indonesian governments are working vigilantly to restrict social mobilization and this could be main reason why older patient are not coming to hospital due to social limitation for people with 45 years old age although it is not correctly proven in our study.^{9,10} Therefore longer, more careful study, with society-based population is needed to prove such observation.

Onset of our patients are shorter in during pandemic period, which is exhilarating both for patients and clinicians, because shorter onset correlates to earlier stadium.¹¹ In this study average onset for before pandemic patients are 282,462 days, compared to 178,056 days during pandemic period. This is contradictory with previous study by Kaufman, et al 2020 in US and Kiziltan, et al 2020 in Turkey which show that lateness are more profound during pandemic period.^{4,5} This finding is not statistically significant, and it could be from recall bias due to long period from occurrence to interview. Also, the

interview is not done directly by primary investigator to the patient due to social limitation in hospital and society.

In tumor size variable, average of tumor size before pandemic is 3,403 cm (min– max=0,3–20) and 4,262 cm (min– max=0,5–30) during pandemic period. In statistical analysis increase of the tumor size is found significantly meaningful (p 0.046). Other report by Vanni et al 2020 in Italy found that no significant increase of size in both groups.⁶

The tumor size itself reflect the lateness towards medical attention in cancer patient, which could also alter the prognosis later. The tumor size also impacts the stadium, which a main factor to be considered when we want to triage and prioritize which breast cancer patient to be treated first.^{12,13}

This study has never been done before in Indonesia, especially in Tangerang. Some disadvantages are profound, and some cannot be undone. Recall bias is very likely due to long period from onset to interview. Indirect interview via whatsapp also could make bias, where we realize that direct interview with direct contact with patient is best to recall long time information. Due to inability of primary investigator to go to patients location and inability of patient to go to hospital frequently then it is cannot be avoided.

Some of the patients are having incomplete medical record and no phone number could be contacted in the medical record, some also cannot be contacted due to inactive phone number. Homogeneity of the sample due to just one study location also noted. Finally, confounding variable such as stadium and histological grade is not analyzed, due to inadequate sample amount.

Despite all of the deficiencies of our study, the investigator hopes this result could be reference study to be developed in more elaborate, longer period and more careful observation in society-based population. Such study hopefully could help to make breast cancer health care and services better in Indonesia in SARS-COV-2 Pandemic.

Conclusion

Newly diagnosed patients have younger age and larger tumor size during pandemic when we compare to before pandemic period, but no difference in onset term. Surveillance to society is needed to ensure older people with smaller tumor size to seek medical attention. This result is yet has to be proven in more elaborate, longer period and more careful observation in the next study.

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