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Colorectal Cancer Prevalence in Palembang, South Sumatera, Indonesia

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Abstract

Background: Colorectal cancer is the third number of cancer diagnosed worldwide. The incidence of this cancer is increasing year by year, particularly in developing countries. However, there is less known the number of CRC in Palembang, South Sumatera, Indonesia. **Method:** This study used a descriptive research design to describe the demography of epidemiology of CRC and the spread of colorectal cancer survivors in Palembang. This study used secondary data from 3 hospitals in Palembang municipality from 2013-2016. **Results:** The results of this study were found that the average age of CRC survivors 51,36 years which the number of CRC prevalence in a female was higher rather than male, rectal cancer was higher rather than colon cancer and the highest prevalence of this cancer is located at the sub-district of Seberang Ulu I (SU I). **Conclusion:** Determine the highest area of CRC could lead to further action by related stakeholders on increasing healthy behaviour of the community.

Keywords: colorectal cancer; incidence; prevalence

1. Introduction

Colorectal cancer (CRC) is one of the most commonly diagnosed cancers in the world, where it is commonly known that this cancer belongs to the 3 major types of cancer that often occur.(1) As many as 10% of the world's cancer incidence is CRC(2) with an estimated incidence rate in 2012 of 1.4 million in women and men.(3)

There is a change in patterns and issues related to the development of CRC due to geographic differences, as well as lifestyle changes to "westernized style"(4) with the highest incidence of 55% occurring in developing countries.(5) The highest rates of CRC occur in China (27.35%), Taiwan and some Southeast Asian countries including Malaysia (18.95%).(6);(7) Research by Jan, et al., on the incidence of colorectal cancer in Association of Southeast Asian Nations (ASEAN) found the highest was in Singapore (34.6), Malaysia (26.7), Brunei (17.5%) and Indonesia (17.2) per 100,000 people.(8) Based on data from Basic Health Research of Indonesia, it is known that the prevalence of the highest incidence of cancer rates occurred in DI Yogyakarta, Central Java, Bali, Bengkulu and DKI Jakarta.(9) However, according to the incidence of cancer is only based on cancer load data in populations where the number is not enough to represent the number of a population.(10)

The existence of changes in lifestyle greatly affects the increase in the number of CRC patients. In addition, to the researcher's knowledge, recently is unknown the number of incidences of CRC in Indonesia yet, especially in Palembang, South Sumatra. Palembang is one of the big cities in Indonesia with economic growth and rapid development. Hence, it can affect the pattern of risky behaviour against CRC. Moreover in Indonesia remain does not have comprehensive cancer registration data, which is available only using hospital

base data and not using community base data yet. Database owned by the hospitals also have many limitations, such as involving only a few hospitals and newly implemented in DKI Jakarta and the high number of loose of following-up.[11] The aim of this study was to know the prevalence and the scattering of colorectal cancer survivors. Therefore, with the information of the number of CRC patients based on the hospital-based and community-based in Kota Palembang, it is expected to contribute to mapping the geographic location of colorectal cancer patients with the synergy between Public Health Center, community, hospitals and related stakeholders.

2. Method

This study used descriptive analytic research with cross-sectional as a design approach. The purpose of the descriptive study is to describe the finding in natural situations[12];[13] or providing a picture of how the phenomena go.[14] Secondary data were collected at 3 hospitals in Palembang, unfortunately, the 2 major (government and private) hospital were not granted permission to get the data regarding administration problem between the researcher institution and that hospital. However, data from 3 hospitals (Type B Hospital) could describe the number of CRC survivors. The population in this study is the secondary data from the medical record during the last 4 years (2013-2016).

Data collection in this study was conducted by the researchers themselves by looking at secondary data from medical records at the hospital. The data collection instruments in this study are the instruments used to determine the demographic characteristics of patients: age, type of cancer (colon and rectum), sex, level of education, address (sub-district/under village), kind of ostomy (colostomy, ileostomy), treatment (chemotherapy, radiotherapy), grade of cancer. However, based on medical record data in several hospitals, the data were obtained: age, sex, type of cancer, address (under village and sub-district). While the data of treatment and grade of a cancer is not present in the medical record data, hence the data is not included in the data analysis.

Nonparametric analyses were performed using distribution and frequency table. Statistical software was used to analyse the data. Numerical variable described by mean, standard deviation if the data is normal and categorical variables provided with percentages and proportion.

3. Results and Discussion

Based on the medical record of 3 hospitals in Palembang municipality, as much as 105 patients diagnosed with CRC. The average age of CRC survivors was 51,36 years (standard deviation [SD]=13,12, as many as 52,4% of women diagnosed with CRC. Colon cancer is the most dominant type of cancer suffered by respondents with a total of 66.7%. The highest incidence of CRC had occurred at Under Village 5 Ulu and Bukit Lama with the percentage of incidence of 5.7%. While at the sub-districts Seberang Ulu I (SU I) had a high rate of CRC incidence with the number of events as much as 21.9% and 14.3% (the details of characteristics of colorectal cancer patients, listed in Table 1).

From the findings of this study, the mean of CRC survivors in Palembang is >50 years old. Recently, the relationship between age and CRC is not uncertainty, but there are several theories explained the developed of CRC, such as the accumulation of risk factors that lead to genetic and epigenetic mutations, DNA mechanisms and cell growth regulation mechanisms, increased inflammation and immune function decline.[15] The risk of developing CRC goes along with age where over 90% of people diagnosed with colorectal cancer are over 50 years old.[16] However, the incidence of CRC increased significantly between the ages of 40-50 years.[1] On the other hand, by 2016 in Malaysia found out that the incidence of CRC in the country is over 90% occurring at aged >40 years, between 45-50 years with an average age ranges from 47 years.[17]

The most striking fact, this study found that the younger diagnosed patient with colorectal cancer at age 18 years old. In the United States at this time, CRC is the 10 largest diseases diagnosed at the age of 20-49 years.[18] In line with research at the at RSCM supports data obtained by investigators in which an increase in the percentage of colorectal cancer patients <30 years old between 2002 and 2006[19], which means that the incidence rate of CRC at the young age in Indonesia is quite high.[19] The increasing of CRC numbers some of the reasons are obesity, smoking and alcohol consumption increasing the

incidence of CRC at a young age.[20] In addition, the "westernized" lifestyle with the highest of ready-to-eat foods (canned or red meat) and consume less dairy products (containing calcium) also increases risk of CRC. Beside on those risks, behaviour and diet such as red meat consumption may increase the risk of developing CRC.[16]

Table 1. Demographics of Colorectal Cancer Patients in Palembang

Characteristics	Frequency	Percentage
Age		
Mean	51.36	
SD	13.12	
Min-Max	18-87	
Productive (15-64 years)	89	84.8
Not productive (> 64 years)	16	15.2
Sex		
Male	50	47.6
Female	55	52.4
Type of Cancer		
Colon Cancer	35	33.3
Rectal Cancer	70	66.7
Sub-Districts		
Ilir Barat II	2	1.9
Gandus	3	2.9
Seberang Ulu I	23	21.9
Kertapati	6	5.7
Seberang Ulu II	6	5.7
Plaju	8	7.6
Ilir Barat I	15	14.3
Bukit Kecil	3	2.9
Ilir Timur I	3	3.8
Kemuning	8	7.6
Ilir Timur II	7	5.7
Kalidoni	5	4.8
Sako	6	5.7
Sukarami	4	3.8
Alang-alang Lebar	6	5.7
Total	**105**	**100**

The finding of this study also described that female has had a higher number of CRC diagnosed in Palembang municipality. Recently, the role of sex in the development of CRC incidence remained unknown clearly described.[16] However, there are several risk factors that as a pivotal factor including exposure to risk factors (smoking) and hormonal imbalances.[19] The majority of existing studies suggests that the incidence rate of colorectal cancer is higher for men rather than women.[1];[3];[20] However, inversely with previous studies, this study found that the incidence rate of colorectal cancer is higher in women than men in statistically. This is also supported by Haggar & Boushey (2009), where they mentioned that the incidence of colorectal cancer in women was 10.1% and in males by 9.4%. This difference is likely due to several risky behavioural factors associated with colorectal cancer i.e: smoking and obesity.[21] In contrast, another research explaining opposite, higher in male rather than female even the caused are unclear understanding.[1] However, several evidence convinced of the risk factors, processed and red meat, alcohol consumption and obesity.[2]

Moreover, this study findings the deployment of CRC in Palembang municipality. Wahidin et al., (2012) showed that the incidence of colorectal cancer in Indonesia (Jakarta province as a sample) is 4.13 per 100,000 populations. However, Jan et al., (2012) mention that the average incidence of Indonesia is 17.2 per 100,000 population. Comparing the results finding and the previous study, it explained that there is similarity in the ratio of CRC incidence in among provinces in Indonesia. The mortality of colorectal cancer is quite high in the developing regions of the world that induce a "western" cultural lifestyle, indicating that low endurance in the area.[6];[18]

The results of this study indicate that Sub-district of Seberang Ulu I (SU I) has a higher incidence of colorectal cancer (21.9%) than other sub-districts in Palembang. The number of residents in SU I sub-district is 187,245 people[22], which means that the incidence rate in sub-district is higher based on the average incidence in the previous study. In addition, 42.9% of the population in Sub-district of SU I was including of the poor people with low economic rate.[22] It is also supported by the Central Bureau of Statistics of South Sumatera Province regarding the welfare indicators of the people of South Sumatra explained that Palembang municipality is the largest number of low socioeconomic status of people[23], however, people with low socioeconomic status was higher in the rectal cancer rather than colon cancer.[24] Several factors that influence the disparity of colorectal cancer in some areas include socioeconomic factors, government policies and speed of health services.[25] Another factor that affecting on risk of CRC is education, aware of the health that becomes important to reduce the risk of incidence of colorectal cancer.[15] In addition, high obesity rates, smoking, and rarely regular physical activity are risk factors that often occur in people with lower economic levels[15] and the increased incidence of colorectal cancer is reported to occur in industrial areas with carcinogen concentrations in air, water, and oil.[25]

4. Conclusion

The increase in the incidence of colorectal cancer in the world especially in Palembang, it should be necessary special attention from the government in cooperation with relevant stakeholders in order to reduce the incidence rate. Moreover, it also needs self-awareness for every citizen of Palembang city against the development of the incidence rate of colorectal cancer. The results of this study can be used as a reference for the prevalence rate of colorectal cancer in the working area of Palembang municipality. Hence, the healthcare workers could more focus the program that can be done tailored vision and mission of the Ministry of Health of the Republic of Indonesia. On the other hand, for next researcher is expected to continuing research on the analysis of the region with the incidence of colorectal cancer is high. Lastly, further research should validate factors influencing the deployment of CRC at the highest area.

Conflict of interest: The authors declare no conflicts of interest.

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