

## Relationship of Age With Right or Left Position and Colorectal Cancer Stadium

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### Abstract

Colorectal adenocarcinoma can be divided into three types according to etiology and genetics, namely sporadic, familial, and hereditary. Risk factors such as old age, inflammatory bowel disease, family history, genetic syndromes and lifestyle factors may increase the incidence of colorectal adenocarcinoma. Knowing the relationship between the age factor and the position or location of the adenocarcinoma with the stage of colorectal adenocarcinoma is very important, especially at Bethesda Hospital, Yogyakarta. To improve the understanding of relation and characteristics each stage in an effort to determine treatment options including effective therapy for patients at Bethesda Hospital Yogyakarta. Research with cross sectional analysis method. The source of data used is secondary data in the form of Medical Records (MR) with 67 samples divided into 17 groups of young age and 50 groups of old age. In all case groups, the samples were divided into 6 samples with right position adenocarcinoma and 61 samples with left position adenocarcinoma, as well as 35 early stage samples (grade I, II, III) and 32 advanced stage samples (grade IV). Calculation of the value of the relationship is done quantitatively. Statistical data analysis with Chi-Square test with significance test  $p < 0.05$ . Bivariate analysis was carried out using SPSS (Statistical Package for Social Sciences) Statistic 26. In the bivariate analysis test, it was found that there was no relation between age and the right or left position of colorectal adenocarcinoma ( $p$  value = 0.608) and between age and colorectal adenocarcinoma stage ( $p$  value = 0.946). There was no significant relationship between age and the right or left position of colorectal adenocarcinoma, nor was there a relationship between age and the stage of colorectal adenocarcinoma at Bethesda Hospital, Yogyakarta.

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**Keywords:** Colorectal Adenocarcinoma, Age, Right Position, Left Position, Colorectal Cancer Stage.

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## INTRODUCTION

Colorectal adenocarcinoma can be divided into three types based on etiology and genetics, namely sporadic, familial, and hereditary. Approximately 75% of cases of colorectal adenocarcinoma are sporadic and often occur in the elderly without any hereditary gene association, while the familial type is also called sporadic without a genetic association. Meanwhile, hereditary types are divided into five, namely Familial Adenomatous Polyposis (FAP), MUTYH-Associated Polyposis (MAP), Peutz-Jeghers Syndrome (PJS), Serrated Polyposis Syndrome (SPS), and Lynch Syndrome (LS) (Nojadeh, 2018). Risk factors such as old age, inflammatory bowel disease such as Crohn's disease or ulcerative colitis, family history of polyps or colorectal adenocarcinoma, genetic syndromes such as Familial Adenomatous Polyposis (FAP) or non-polyposis hereditary adenocarcinoma (Lynch syndrome), and lifestyle factors such as lack of physical activity, low intake of vegetables and fruits, low fiber and high-fat diet, overweight or obesity, alcohol consumption, and smoking are likely to increase the incidence of colorectal adenocarcinoma. Knowing the relationship between age factors and the location of adenocarcinoma with the stage of colorectal adenocarcinoma is very important. This is aimed at improving understanding of the correlation and characteristics of each stage in an effort to determine treatment options, including effective therapy for patients (Baran et al., 2018).

In a study on risk factors for colorectal adenocarcinoma, including the correlation between age and incidence of colorectal adenocarcinoma, it was found that the productive age group (15-64 years) had a 79.49% higher risk of developing colorectal adenocarcinoma compared to those in the younger age group (<15 years) at 2.56% and the non-productive age group (>65 years) at 17.95%, out of a total of 39 samples studied, with the youngest and oldest diagnosed with adenocarcinoma at 14 years and 70 years respectively.

In contrast, other studies have shown that epidemiologically, 90% of colorectal adenocarcinoma cases occur in those over the age of 50. On the right side, it is more commonly found in elderly women, while on the left side, it is more commonly found in young men. However, overall, colorectal adenocarcinoma is more frequently found on the left side of the colon than the right side in patients over 50 years of age. In a study with a sample size of 53,801, it was found that 2/3 of total patients had colorectal adenocarcinoma on the right side, while the other 1/3 was on the left side. Among these two variations, significant differences were found in colorectal adenocarcinoma patients on the right side compared to the left side in patients aged 61-75 years and it was more commonly found in women.

These varying results from previous studies have motivated this research. This study is a new research conducted at Bethesda Hospital with the aim of determining the relationship between age and right or left position with the colorectal cancer stage in patients diagnosed with colorectal adenocarcinoma at Bethesda Hospital.

## **RESEARCH METHODS**

This study used a correlational analysis method with a cross-sectional design. The sample was determined using a total sampling technique consisting of 67 patients with inclusion criteria of all patients with colorectal adenocarcinoma and undergoing treatment for colorectal cancer at Bethesda Yogyakarta Hospital, while the exclusion criteria were incomplete medical record data. The data used were medical record data from 2016-2020. The independent variables in the study were age (<50 years

and >50 years) (Rahdi et al., 2015), while the dependent variable was the position of right/left and the stage of colorectal adenocarcinoma. The position was divided into two, the right colon (in the cecum area, ascending colon, hepatic flexure, and/or transverse colon) and the left colon (in the splenic flexure area on the transverse colon, descending colon, and/or sigmoid colon), while the stage was divided into early stage (grade I-III) and advanced stage (grade IV) (Weiss et al., 2011). The univariate analysis was based on the characteristics of the age, position, and stage of colorectal adenocarcinoma variables. Meanwhile, the bivariate analysis used the Chi-Square test to see the correlation between age and the position of colorectal adenocarcinoma, as well as the correlation between age and the stage of colorectal adenocarcinoma at Bethesda Yogyakarta Hospital.

## **RESULT AND DISCUSSION**

**Table 1. Distribution of Respondents Based on Age**

<b>Age</b>	<b>Amount (N=67)</b>	<b>Persentase (%)</b>
Young (<50 years)	17	25,37
Old (≥50 years)	50	74,63

Based on the table, it can be known that the characteristics of respondents based on age, most of the respondents are in the old category, which is as many as 50 respondents (74.63%). The oldest patient age is 83 years old and the youngest patient age is 24 years old, with the average age of colorectal cancer patients being 57 years old.

**Table 2. Distribution of Respondents Based on Colorectal Cancer Position**

<b>Position</b>	<b>Amount (N=67)</b>	<b>Persentase (%)</b>
Right	6	9,0
Left	61	91,0

Based on the table, it can be known that the characteristics of respondents based on Colorectal Cancer Position, most of the respondents are in the left category, which is as many as 61 respondents (91%).

**Table 3. Distribution of Respondents Based on Colorectal Cancer Stage**

<b>Stadium</b>	<b>Amount (N=67)</b>	<b>Persentase (%)</b>
Beginning (Grade I, II, III)	35	52,24
Advanced (Grade IV)	32	47,76

Based on the table, it can be known that the characteristics of respondents based on Colorectal Cancer Stage, most of the respondents are in the early category, which is as many as 35 respondents (52.24%).

**Table 4. Relationship between Age and Position**

Location of Colorectal Cancer		Age		Chi-Square
		Young (<50)	Old (≥50)	
Right	Amount	1	5	0,608
	%	1,49	7,46	
Left	Amount	16	45	
	%	23,88	67,16	
Total	Amount	17	50	
	%	25,37	74,63	

The Chi-Square test result shows a value of  $P=0.608$  or  $p>0.05$ , which means there is no significant difference in the position of colorectal cancer based on age. In the elderly age group, most cases of colorectal cancer are located in the left position, with 45 cases, while in the younger age group, there are 16 cases. The average age of colorectal cancer patients in the elderly group is 57 years old and the location of colorectal cancer is mostly on the left side, with 61 patients (91%).

**Table 5. Relationship between Age and Stage**

Location of Colorectal Cancer		Age		Chi-Square
		Young (<50)	Old (≥50)	
Beginning (Grade I, II, & III)	Amount	9	26	0,946
	%	13,43	38,81	
Advanced (Grade IV)	Amount	8	24	
	%	11,94	35,82	
Total	Amount	17	50	
	%	47,76	52,24	

The Chi-Square test result shows a value of  $P=0.946$  or  $p>0.05$ , which means there is no significant difference in the stage of colorectal cancer based on age. In the elderly age group, there are 26 cases of early-stage colorectal cancer, while in the younger age group, there are 9 cases of early-stage colorectal cancer. On average, most patients have early-stage colorectal cancer, with 26 patients (52.24%).

In this study, the majority of colorectal cancer was found to be located in the left position, with 61 patients (91.04%) compared to the right position with only 6 patients (8.96%). This finding is consistent with a study in WenZhou, China, where colorectal cancer was more commonly found in the left position, with 202 cases (59.1%) compared to the right position with 140 cases (40.9%) (Cai et al., 2018) while in Turkey, the left position accounted for 78.1% of cases compared to the right position (Ozaydın et al., 2019), and in Japan, colorectal cancer was 2.8% more likely to occur in the left position (Sofian & Singarimbun, 2012).

This study did not find a significant relationship between patient age and the right or left position of colorectal cancer or differences in the location of colorectal cancer. There are two positions for colorectal cancer: the left position includes the splenic flexure, descending colon, or sigmoid colon, which were found in 61 cases, while the right position includes the cecum, ascending colon, hepatic flexure, and/or

transverse colon, which were found in six cases. This study is consistent with other studies in Austria, where no correlation was found between age and the right or left position of colorectal cancer in patients ( $p=0.058/p>0.05$ ) (Brozek et al., 2009). The results of the study in Austria are similar to other studies conducted in Iran, where no relationship was found between age and the right or left position of colorectal cancer ( $p=0.04/p>0.05$ ) (Omranipour et al., 2012). There was also a study in America that found no difference between the right or left position of colorectal cancer in patients with colorectal cancer ( $p=0.581/p>0.05$ ) (Hamfjord et al., 2022). These three studies support the results of this study by showing that there is no relationship or difference between age and the right or left position of colorectal cancer. However, a study in Romania had different results than this study, as their research found a correlation between age and the right or left position of colorectal cancer ( $p=0.002/p<0.05$ ), especially the correlation between age and the right position of colorectal cancer ( $p=0.001/p<0.05$ ) (Efremidou, 2008). Additionally, a study in Shanghai, China found that right-sided colorectal cancer was more common in women and/or those over 65 years of age ( $p<0.0001/p<0.05$ ) (Liu et al., 2017).

This study found no significant correlation between age and the stage of colorectal cancer in patients with colorectal cancer. Colorectal cancer stages are divided into two categories: early and advanced stages. The study found that the majority of colorectal cancer cases were in the early stage, with 35 cases, while 32 cases were in the advanced stage. This study is consistent with research conducted in Lampung, which also found no correlation between age and the stage of colorectal cancer in patients with colorectal cancer ( $p=0.356/p>0.05$ ) (Anggunan, 2019). Similarly, a study in Makassar also found no correlation between the variables ( $p=0.681/p>0.05$ ). A different result was found in a study in Samarinda, which showed that the variables of age and stage of colorectal cancer in patients with colorectal cancer were correlated ( $p=0.004/p<0.05$ ) in its sample of 71 cases. In addition, a study in Semarang found that the younger the patient's age, the more moderately-to-poorly differentiated degrees were found and the fewer well-differentiated degrees were found ( $p=0.01/p<0.05$ ) (Ratnasari, 2019). The similarity or difference in the results of this study and previous studies is due to the similarity or difference in the sample size, location of the study, and research methods used. In most cases, the differences in research results were found in other countries with different races and backgrounds, which may lead to different findings from this study (Yuniasari, 2016).

In this study, no significant relationship was found between age and the right/left position and stage of colorectal adenocarcinoma with the Chi-Square bivariate test ( $p>0.05$ ). This is due to the lack of good data distribution results and the study's minimal sample size, as well as the limitations of time and completeness of Medical Records (RM) data in the study. Therefore, it is hoped that future researchers can conduct studies with a larger sample size and with even distribution of samples among colorectal adenocarcinoma variables in Bethesda Hospital Yogyakarta and other hospitals.

## CONCLUSION

There is no significant relationship between the age of colorectal cancer patients with the right or left position and the stage of colorectal cancer at Bethesda Hospital Yogyakarta.

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