

Five-Years Review of Colorectal Carcinoma in Iran-Guilan During 2005-2010; An Epidemiologic Study.

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Research Article

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Abstract

Purpose: Different factors including race, ethnicity, nutritional, environmental, and socioeconomic factors affect the prevalence of CCC and result in special epidemiologic features in the different geographic locations throughout the world.

Methods: This survey was a cross-sectional retrospective descriptive study that investigated all of the operated patients with a definite diagnosis of CCC from March of 2005 to March of 2010 in the Guilan province of Iran.

Results: Of a total of 311 patients, 55.3% were male and 44.7% female. The mean age was 58.91 ± 14.29 years old. The mean average age was 60.76 ± 4.38 years for men and 56.62 ± 13.88 years for women. 159 patients had rectum carcinoma and 152 patients had colon carcinoma.

The duration of the symptoms was less than six months in 56.9% of the patients and more than six months in 34.1%.

The most common primary site of the tumor was the rectum (159 patients). The most common symptom was rectorrhagia. In the patients with FAP, the mean age was 26 years lower than patients without FAP.

The mean Hemoglobin level at planning for surgery was 11.37 ± 2.02 with arrange of 4.7 to 16.4 mg/dl.

Conclusion: Considering the ever-increasing the disease and decrease in the age of affliction reported in this study, it is considered to the evaluating to the risk factors, survey the more epidemiologic study, promote the public and special screening program, and timely therapeutic intervention. Moreover, considering the high rate of rectosigmoid cases, it seems that fiber optic sigmoidoscopy has an important role in the screening and diagnosis of the disease.

Introduction:

Colorectal carcinoma (CCC) is the third most common cancer, generally, and the most common malignancy of the gastrointestinal tract. Every year, more than 150000 new cases have been diagnosed and more than 52000 patients have died in the United States. So it is the third lethally cancer in the united states (After lung and prostate cancer in men and lung and breast in women) [1, 2]. Its incidence is the same in the male and female and has been unchanged within the recent 20 years [1, 3, 4]. The overall risk of affliction is 5.79 percent (1 per 17 people) for men and 5.37 percent (1 per 19 people) for women in the United States [3]. More than 90 percent of patients have been diagnosed at or above five decades of life which suggested the role of age as a dominant risk factor for colorectal carcinoma [1]. Different factors including race, ethnicity, nutritional, environmental, and socioeconomic affect the prevalence of CCC and result in special epidemiologic features in the different geographic locations throughout the world [5, 6].

Genetic is one of the most important risk factors, so in some families, these factors result in higher incidence and affliction at a lower age [7].

The tumor stage at the diagnosis is one of the most important factors that result in death. It is obvious which earlier diagnosis results in a better outcome (five-year survival of 90 percent in stage one versus lower than five percent in stage four) [3].

According to the latest studies in our country, Iran, the CCC is one of the five most common cancers and is the third common cancer in men and fourth in women. Its incidence is 8.3 and 6.5 per 100000 populations in men and women, respectively. Annually, more than 3500 new cases and more than 2200 death have been reported in our country. This mortality rate accounted for about 6.3 percent of all cancer-induced death [7, 8, 9]. Comparing CCC in Iran and western countries demonstrated the lower incidence of the disease in the elderly population, the higher prevalence in the lower age population, and the more prominent factor of family history in the suffered patients [7, 10].

Considering this and that the difference in genetic susceptibility and environmental and nutritional factors result in variation in incidence, clinical and pathologic features of CCC in different geographic locations, and for planning a suitable screening program and earlier diagnosis, has been decided to design, survey, and performing a comprehensive epidemiologic study of CCC in the special geographic location. Via collecting the primary data and compared it with the available data, it is possible to demonstrate the epidemiologic, clinical, and pathologic differences. Also, it helps to plan the diagnostic and therapeutic programs and aims to design future studies.

Materials And Methods:

This survey was a cross-sectional retrospective descriptive study that investigated all of the operated patients with a definite diagnosis of CCC from March of 2005 to March of 2010 in the Gilan province in Iran.

Guilan province is one of Iran's provinces located in the north of Iran and has a population of 2480000 peoples according to the Population census in 2012.

The required data (the intended variables) including the demographic data, the clinical, surgical, and pathological data, and the others were collected according to the admission hospital files.

The inclusion criteria included all of the patients with a definite diagnosis of CCC or the patients who operated emergently due to intestinal obstruction or acute abdomen with a probable diagnosis of CCC, and the exclusion criteria include the patients without confirmed the CCC, the patients with confirmed CCC who did not operate for any reasons, and patients with deficient data.

This study was a cross-sectional retrospective descriptive study and the study volume include all of the patients with have inclusion criteria at the aforementioned period. After collecting the data and intended variables, the data were analyzed using SPSS software by a statistic specialist.

Aiming the Chi-square, Independent T-test, and Fissure tests, the collected data analyzed. The significant value for this study was 0.05.

Ethical consideration:

Regarding the retrospective nature of this study, we had no intervention or effect on the patients or patient's outcome. Moreover, the institutional ethics committee of the Gilan University of Medical Sciences approved this study.

Results:

According to the inclusion criteria, 509 patients were surveyed. After applying the exclusion criteria 311 patients remaining and have studied. (119 patients excluded with a Non-CCC diagnosis, 36 patients excluded because of the absence of confirmed pathology report, 26 patients excluded due to hospital files deficient, and 17 patients excluded due to recurrent carcinoma.)

Of a total of 311 patients, 172 patients (55.3%) were male and 139 patients (44.7%) were female. The mean age was 58.91 ± 14.29 years with a range of 17 to 92 years old. The mean average age was 60.76 ± 4.38 years for men and 56.62 ± 13.88 years for women. This difference was statistically significant (P-Value: 0.01). The 25, 50, and 75 percentiles were 50, 60, and 70 years old.

The most common age groups were the patients higher than 70 years old and then 50–59 years old. Thirty-four (10.9 %) of the patients had an age below 40 years and 23.8% below 50 years.

In the patients who belong to the age group of below 40 years; 35.3% were male and 64.7% were female (P-Value:0.03) and in patients higher than 70 years; 67.9% were male and 32.1% were female (P Value:0.005)

One hundred fifty-nine patients had rectum carcinoma and one hundred fifty-two patients had colon carcinoma.

Two hundred thirty-three (74.9%) patients lived in the urban regions and seventy-eight (25.1%) in the rural regions. Twenty-five patients (8%) operated in an emergency state and the others (92%) operated on an elective basis. The duration of the symptoms was less than six months in 56.9% of the patients (205 patients) and more than six months in 34.1% (106 patients). The most common histopathology subtype was adenocarcinoma in 99% of the patients; 309 cases (including three cases of signet ring adenocarcinoma) and in two patients was the carcinoid tumor.

The most common primary site of the tumor was the rectum with 51.1% (159 patients). Other sites include the sigmoid colon, ascending colon, transverse colon, and descending colon, respectively. In the patients who belonged to the age group of below 40 years, the most common primary site of the tumor was the same for all age groups. In the patients who operated emergently, the sigmoid, and transverse colon was the most common site (36 and 32%, respectively). In the emergency operated patients, the rate of rectum cancer was low, and generally, right side cancer was significantly lower in the emergency operated patients (P-Value: 0.01).

The most common complaining symptoms were rectorrhagia, abdominal pain, and change in bowel habit, generally. Nevertheless, in the left-sided tumors it was rectorrhagia and bowel habit change, and in the right-sided tumors was abdominal pain and abdominal mass. In the left-sided tumors, no patients presented with abdominal mass, at all.

Of all the patients, seventeen and eight patients operated in an emergency state because of intestinal obstruction and peritonitis, respectively.

The majority of the patients with Familial Adenomatous polyposis (FAP) had age below 40 years old and all of them were below 50 years old. However, the majority of the patients with a previous history of intestinal polyp suffered from the CCC at the age of more than 70 years.

In the patients with a history of FAP, the mean age was 26 years lower than patients without FAP, which was statically significant (P-Value:0.001).

The mean Hemoglobin (HB) level for the patient at planning for surgery was 11.37 ± 2.02 with arrange of 4.7 to 16.4 mg/dl. Eighteen of the patients had an HB level of below the eight (5.8%), and 66 patients (21.3%) had below the 10 mg/dl. The HB level below the 8 mg/dl was obvious in 2/3 cases with right-sided tumors. The mean HB level in the right-sided tumors was lower than left-sided tumors (9.39 versus 11.86) which showed a statically significant difference (P-Value: 0.001).

The overall number of patients and the number of patients with right-sided tumors demonstrated a nonsignificant increase in the sequential years of the study (P-Value > 0.05).

Table 1 (part of A and B), 2, and 3 summarized the epidemiologic features of our patients.

Table 1
Epidemiologic features of patients surveyed in our study, part A.

Variable		Mean age	Male	Female	P-Value
Age	In general	58.91 ± 14.29	60.76 ± 4.38	56.62 ± 13.88	0.01
Age group	< 40	34(12–22) people	35.3%	64.7%	0.03
	40–49	40 (26 – 14)	65%	35%	0.03
	50–59	79 (37–42)	46.8%	53.2%	> 0.05
	60–69	77 (42 – 35)	54.5%	45.5%	> 0.05
	> 70	81 (55 – 26)	67.9%	32.1%	0.005
CCC	Colon Cancer	152	53.9%	46.1	> 0.05
	Rectum Cancer	159	56.6%	43.4%	

Table 1
Epidemiologic features of patients surveyed in our study, part B.

Variable		Number	Percentage	
General Complaint	Rectorrhagia	139	44.7	
	Abdominal pain	79	25.4	
	Bowel habit change	58	18.6	
	Anemia	14	4.5	
	Abdominal mass	9	2.9	
	Anal pain	5	1.6	
	Pelvic pain	3	0.9	
	Others			
	Melena	1	1.2	
Abdominal distension	1			
Weight loss	1			
Follow to screening	1			
The most common chief complaint	General	Rectorrhagia	139	44.7
	Ascending Colon	Abdominal pain	-	54.8
	Transverse colon	Abdominal pain	-	71.1
	Descending colon	Rectorrhagia	-	37.5
	Sigmoid colon	Rectorrhagia	-	50.9
	Rectum	Rectorrhagia	-	63.5
	Emergency surgery	Intestinal obstruction	-	68
	Elective surgery	Rectorrhagia	-	48.6

Table 2
Clinical features of colorectal carcinoma in our patients.

	Number	Percentage
Liver metastasis	23	7.4
Local invasion	21	6.8
Previous history of intestinal polyp	20	6.4
Known case of FAP	6	1.9
Family history of familial CCC	6	1.9
Family history of familial Non-CCC	4	1.3

Table 3
demonstrate the comparison between the age-history of polyp and Hemoglobin-age.

Variable			The mean	P-Value	
Variable 1	Variable 2				
Age	Previous history of polyp	Without previous History	59.49	0.001	
		With a history of polyp	60.50		
		With a history of FAP	33.83		
		With a history of familial CCC	56.17		
		With a history of familial Non-CCC	53		
HB	Age	< 40 years	10.73	> 0.05	
		40–49 years	12.16		
		50–59 years	11.50		
		60–69 years	11.31		
		≥ 70 years	11.16		
	Duration of symptom	< 6 months	11.59	0.006	
		> 6 months	10.93		
	Location		Ascending colon	9.39	0.001
			Transverse colon	10.58	
			Descending colon	11.95	
			Sigmoid colon	11.73	
Rectum			11.91		

Discussion:

This study was performed in the population of patients with CCC whose diagnosis was not via the screening program but was merely according to the patients who have been symptomatic. In this study, the mean age was 58.91 years that was significantly lower than the developed countries [1, 11] and slightly higher than some other studies performed in our country including Fakheri et al. (52.6 years) [12], Jalali et al. (51.07 years) [13] and is somewhat similar to the study performed by Fateh et al. (56.22 years) [14], Semnani et al. (56 years) [15], and Peedikayil et al. (58.4 years) [16]. The 25 and 50 percentile of our study were the 50 and 60 years that is different from the study of Fateh et al. (44 and 58 years) [14], and Jalali et al. (40 and 52 years) [13].

In the developed countries, only 6 to 8 percent of the patients with CCC have the age below 40 years old and only 10 percent lower than 50 years old [1]. According to a study that surveys the race differences in the USA in 2007, the rate of CCC before 50 years is 7% in white, 12.5% in blacks, and 17.1% in the emigrants of the Pacific Asian islands [17]. This rate is so high (23.8%) in our study that although demonstrated the more involvement of the young patients in our geographic region compared to the aforementioned studies, is lower than other studies performed in other geographic regions in our country, Iran [12, 13, 14, 18]. This difference probably can be explained as the following: either the rate of CCC in the population below 50 years old is lower in Gilan province compared to the other geographic of Iran, or there is not a suitable screening program for identifying the patients. Albeit if the second was true, the patients, have been symptomatic and recognized, ultimately, so we think the first explain should be true.

on the other hand, this high rate of disease in young patients compared to the western countries suggested the need for a good and timely screening program for this population age group.

Some explanations for the high rate of CCC in the young patients in our country can be made. First, the high rate of young population in Iran. Second, the low prevalence rate of CCC in the elderly population. Third, an absence of a suitable screening program in the high-risk population (who mainly are higher than 50 years). Fourth, the effects of environmental (raised consumption of carbohydrates and fats and low consumption of fibers) and habits (absence of sufficient mobility and obesity) factors; and fifth, probably the genetic issues.

Considering the sex difference, there was no significant difference between the two sexes that is similar to some studies [19, 20, 21]. Although some other studies reported a more prevalence of the disease in men [12–15, 22].

In opposite to the developed countries the colon cancer is two times more prevalent than rectum cancer, in our study, the rate of rectum cancer is the same or even slightly more than colon cancer, similar to reports of other developing countries [19, 23].

Considering industrialization, the difference between residents of urban and rural regions was significant. Regarding the minimal difference between the rural and urban population in Gilan province, this study

demonstrated the higher prevalence of the disease in the urban region, similar to the study Fakheri et al. [12], and is suggestive of civilization in the higher prevalence of this disease. A study performed by You et al. [24] in China demonstrated the rapidly marked increase in the incidence of CCC in Shanghai; which is one of the most industrialized cities in China, and explain the relation between CCC and industrial life.

The duration of symptoms in our study was less than six months in 34.1% of patients and more than six months in 56.9%. In some studies, the mean duration was reported to the 14 weeks [25, 26, 27], but in the study by Semnani et al. [15], it was more than six months, too.

The most common histopathology subtype in our study was adenocarcinoma the was similar to most other studies [1, 2, 10, 12–15, 18].

Majamdar [28] reported that 58% of patients had left-sided involvement, but in some studies, colon cancer was more common [12, 14–16], and in some, rectum cancer was more common [13, 18, 29]. In our study, the rectosigmoid was the most common site of involvement.

The most common primary symptom was rectorrhagia in left-sided tumor and abdominal pain and mass in right-sided tumor similar to most studies performed in Iran [12–15, 18].

The percentage of right side involvement was 13.5%, that although was similar to the studies performed in our country [12–15, 18], is so lower than the study of Ashktorab et al. [11] performed in the USA.

According to western studies, 25% of patients with colorectal carcinoma have a familial history of the disease that 5% of them, belong to the HNPCC family and 1% to the FAP family [1, 12, 30]. In this study, 1.9% of patients had FAP, another 1.9% had a family history of CCC and 4 patients had a family history of non-CCC.

The mean age in patients with a previous history of the polyp is almost similar to the general population of the patients, which is suggestive of regular, but not accelerated course of the disease in this population. The age of affliction to the disease in the patients with FAP is so lower than the general population of the CCC, similar to the previously reported studies, and demonstrated the significance of performing the timely preventive and treatment intervention [26].

The mean count of the HG level was lower in the right-sided tumors, and the severity of the anemia was higher in this group of patients. This study is similar to the available results.

Surveying the patients with CCC demonstrate an increase in the number of patients in the last three years of study, which can be due to improvement to the general information and knowledge of the population regarding the importance of alarm signs of CCC.

Conclusion:

Considering the ever-increasing of the disease and decrease in the age of affliction reported in this study, it is considered to the evaluating to the risk factors, survey the more epidemiologic study, promote the public and special screening program, and timely therapeutic intervention.

Moreover, considering the high rate of rectosigmoid cases, it seems that fiber optic sigmoidoscopy has an important role in the screening and diagnosis of the disease.

Declarations

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