Comparison of Colorectal Cancer in Patients Below and above 40 Years

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Abstract

Background: Colorectal cancer is a common disease in old patients, but it has become increasingly evident in young patients.

Objective: To compare the colorectal carcinoma, between young and old patients.

Patients and Methods: a prospective study of 87 patients with colorectal cancer treated in the department of surgery at Al-Yarmouk Teaching Hospital, From Jan.2007-Jan.2012. The patients were divided according to age into group A; below 40years, and group B; above 40years. These two groups were compared regarding; clinical presentations, pathological features of the tumor, staging of the tumor, and sex.

Results: Twenty three patients (26.44%) in group A; their age ranging from 12 to 40 years, with male to female ratio was 1.3:1 the commonest affected age group was 31-40 years old, positive family history was significantly higher than that in group B (39%), the commonest presenting features were altered bowel habits (87%) and abdominal pain (65%), left side colonic tumors were more common than right side tumors, Moderately differentiated tumors were constitute 52% and60.8% were stage C2, there was no significant difference between the two groups.

Conclusion: there was an increasing incidence of colorectal cancer in young patients. Family history was a risk factor for group A patients. Diagnosis was usually delayed and this needs more attention because of the lack of alarming symptoms.

Keywords: Colorectal cancer, incidence.

Introduction

Colorectal cancer (CRC) is the commonest malignancy in the gastrointestinal tract, and is the fourth leading cause of cancer associated death in the world.[1] In the United States, it has been estimated that 108,070 new cases of colonic cancer and 40,740 rectal cancers, respectively, would have been diagnosed in 2008 and 49,960 would have died from CRC[1].Compared with the West, CRC in South and South East Asia has been reported to occur with a greater frequency in young patients (usually <40 years)[2], although, in recent years, a population based study in the United States has shown an increase in the incidence of CRC in the young[3]. Recent studies suggested that as many as 7% of patients who developed CRC were under 40 years of age, and this incidence keeps increasing[4]. It is traditionally thought to be a disease of older patients with most being diagnosed after the age of 50 years. [5]

Some studies have shown that CRC in young patients appears to be more aggressive, to present with later stage, and to have worse pathological findings. However, young patients with early pathological lesions have better overall 5- year survival rates if detected early. [6]

CRC presents most commonly as altered bowel habits, bleeding per rectum, tenesmus, and symptoms of anemia and weight loss. [7] Higher stage of colon cancer is associated with poor prognosis and is independent of sex of the patients [8]. The incidence of CRC is increasing in the world especially in younger age group and about 42% present with advanced disease [9]. Carcinoma of rectum can be diagnosed at an earlier stage in patients presenting with symptoms of ano-rectal condition when examined properly including digital rectal examination, proctoscopy and biopsy of suspected lesions [10].

Studies have highlighted that emergence of CRC in younger age groups demands thorough workup of presenting bowel symptoms [11]. Thus, it is important for CRC in young patient and follow an aggressive approach for the diagnosis and early treatment of the disease [12] Unfortunately, these early symptoms are ignored by the patients or more commonly, insufficiently investigated by the physicians. [13]

Patients and Methods

This is a prospective study for patients who were admitted with CRC to the Al-Yarmouk Teaching Hospital over a period of 5 years (Jan. 2007– Jan. 2012).

Eighty seven patients divided into two groups, group A; patients below 40 years, group B; above 40 years, were selected and treated through the period of five years. The inclusion criteria were patients younger than 40 years of age with CRC of both sexes. Patients were admitted to the surgical department. In all patients' detailed history, physical examination, abdominal examination, and digital rectal examination were done. Base line and other relevant investigations including full blood count, serum electrolytes, blood urea, serum creatinine, chest x-ray, plain abdominal x-ray, Contrast barium study, Trans-abdominal ultrasound scanning, Computerized tomography, Magnetic resonance imaging, Flexible colonoscopy were done.

The management of such patients included maintaining good hydration with intravenous fluids,

IV antibiotic, bowel preparation and surgical treatment. In anemic patient`s blood transfusion was also done. The nature of surgical procedure carried out depended upon the stage and the findings at the time of surgery. All these patients were operated in the general surgical operation theater and the resection specimens were sent for histopathological examination.

Right sided lesions were classified as tumors proximal to splenic flexture whereas left sided lesions were classified as tumors from splenic flexture to recto sigmoid junction. The rest were classified as rectal lesions. Synchronous tumors were defined as colon and rectal tumors detected either at pre-operative colonoscopy, at operation, or within 6 months of operation. All operative specimens were evaluated by histopathologist.

Potentially curative resection was undertaken in 60 patients, in 9 of them Right hemicolectomy performed, 4 of them were below the age 40 years. Twenty two patients had left hemicolectomy, 8 of them were below the age of 40 years. 19 patients had anterior resection, 7 of them below the age of 40 years. AP resection was done in Ten patients, only one of them below the age of 40 years. In the remaining cases the initial operation was considered to be palliative in 27 patients, Only Three patients below the age of 40 years had limited resection of left colon. In patients above the age of 40 years, 10 patients had only colostomy and 14 patients had limited resection of left colon.

Follow up was by direct communication with patients and their relatives in the out-patients clinic. The patient or a family member was contacted and interviewed to obtain further information. Patients were considered lost to follow up if the patient had failed to present at an out-patient clinic, after more than a year.

During follow up, patients were evaluated by history and physical examination, including digital rectal examination and CEA level every three months. A chest radiography and trans-abdominal ultrasound scan or computerized tomogram was undertaken at one year. Annual colonoscopy was performed for the first two years, if individuals were found free of polyps or recurrent disease. Suspicious recurrent lesions were further evaluated with endoscopic ultrasound, computerized tomography, magnetic resonance imaging if appropriate.

Results

There were 23(26.44%) patients below the age of 40 years comprising 13 male (56.52%) and 10 female (43.47%), male to female ratio was1.3:1, and 64 patients above the age of 40 years, 34 male, 30 female with a male to female ratio of 1.13:1.

Age and sex;

Distribution of CRC in our study, there were 9 patients below the age of 30 years and 14 patients below the age of 40 years. Between the ages of 51-60 years there were 21 patients (peak incidence), Followed by 41-50 years there were 16, between 61-70 there were 16, between 71-80 there were 11patients. (Table 1)

Table 1; Age and sex distribution of colorectal cancer

Age	20-30	31-40	41-50	51-60	61-70	71-80	Total
Male	5	8	7	12	9	6	47
Female	4	6	9	9	7	5	40
Total	9	14	16	21	16	11	87

Family History;

The number of first-degree relatives diagnosed with CRC in group A patients was 9 (39.13%). In group B the number of first degree relative was 6 (9.37%)

Clinical Presentations;

All patients with CRC presented with symptoms (table 2). 87% experienced altered bowel habit, 65% abdominal pain, 56.5% bleeding per rectum, 40% of these patients considered their symptoms as intermittent pattern.

Table 2: Presenting symptoms

SYMPTOMS	**NO. OF PATIENTS**		**TOTAL**
	<40	**>40**	
Altered bowel habits	20 (87%)	55 (86%)	75(86.20%)
Loss of weight	18 (78%)	45 (70%)	63(72.41%)
Abdominal pain	15 (65%)	43 (67%)	58(66.67%)
Bleeding per rectum	13 (56.5%)	31 (48.5%)	44(50.57%)
Abdominal distension	5 (21.7%)	27 (42%)	32(36.78%)
Abdominal mass	5 (21.7%)	18 (28%)	23(26.43%)
Tenesmus	7 (30%)	13 (20%)	20(22.98%)

There are 23 patients had an abdominal mass out of them 5 patients (21.7%) below the age of 40 years. Twenty one patients were admitted as emergency with intestinal obstruction out of them 6 patients (26%) were below the age of 40 years and 15 patients (23.44%) were above the age of 40 years.

All patients underwent surgery; potentially curative resections were undertaken in 60 patients and palliative surgery on 27 patients in whom distant metastasis had been found. The surgical treatment shown in table 3.

Table 3: Surgical Treatment.

Procedure	**No. of Patients**		**Total**
	<40	**>40**	
Potentially curative			
Rt hemicolectomy	4	5	9
Lt hemicolectomy	8	14	22
Anterior resection	7	12	19
AP resection	1	9	10
Palliative			
Limited resection of colon	3	14	17
Colostomy only		10	10
Total	23	64	87

The presenting features, the duration of symptoms, and the stage of the tumor in patients all are shown in Table (4). Caecal tumors were found in 10 patients, 4(17.39%) of them were below the age of 40 years, 2 presented with bleeding per rectum, other 2 with abdominal pain of mean duration for 6 months and in all the patients, the tumor was stage C.(Duckes classification).

Hepatic flexure tumors were found in 6 patients, 2(8.6%) of them were below 40 years, presented with abdominal mass for 4 months and the tumor was stage A.

Transverse colon tumors were found in 3 patients (4.6%) above 40 years and not found in patients below the age of 40 years.

Splenic flexure tumors were found in 12 patients, 4(17.3%)of them were below the age of 40 years with intestinal obstruction and abdominal pain with history of 6 months duration, the tumor were stageC.

Sigmoidal tumors were found in 12 patients (18.7%) above 40 years and not found in patients below the age of 40 years.

Rectosigmoidal tumors seen in 18 patients, 5 (21.7%)of them were below the age of 40, 3 presented with bleeding per rectum for 4 months and the tumor was stage C, and other 2 (8.6%) patients who had symptoms of 4 months duration presented with intestinal obstruction and the tumor was stageA.

Rectal tumors were found in 26 patients, 8 (34.7%) of them below the age of 40.

Left sided colorectal tumors were found more frequently than right sided tumors.

Table 4.show number of patients, duration of symptoms and stage of tumor

site	Below 40 years			Above 40 years		
	No. of patients	Duration mean ±sd	stage	No. of patients	Duration mean ±sd	stage
Caecum	4 (17%)	6 months±0.81	C2	6(9.3%)	4 months±1.09	4; B 2; C2
Hepatic Flexure	2 (8.6%)	4 months±1.41	A	4(6.2%)	4 months±1.63	B
Transverse colon	……	…….	……	3(4.6%)	6 months±1.oo	C2
Splenic Flexure	4(17.3%)	6 months±1.82	C2	8(12.5%)	4 months±1.30	5; C2 3; B
Sigmoid (only)	……	……	……	12(18.7%)	6 months±1.70	5; A 5; C2 2; B
Recto-sigmoid	5(21.7%)	4 months±1.22	3; C2 2; A	13(20.3%)	6 months±1.06	9; C2 4; B
Rectal (only)	8(34.7%)	5 months±1.85	5; B 3; C2	18(28%)	6 months±1.28	9; C2 7; B 2; A
Total	23	5 month±1.63		64	5.5 month±1.56	

Pathological Findings

In 34(39.08%) patients, the tumors were moderately differentiated, 12(52%) of them were below the age of 40. In 39(44.82%) patients, the tumors were poorly differentiated, 8(34.7%) of them below the age of 40. In 14(16.09%) patients, the tumors were well differentiated, 3(13%) of them below the age of 40. The tumors which reported as stage C2 were 47(54.02%) cases, 14(60.8%) of them were in patients below age of 40. The tumors which reported as stage A were 11(12.64%) cases, 4(17.3%) of them below 40. and the tumors which

reported as stage B were 29(33.33%) cases, 5(21.7%) of them below 40.

Table 5: Histopathological findings of the tumor in patients above and below 40.

SITE	NO<40	GRADE	STAGE	DM	NO>40	GRADE	STAGE	DM
Caecum	4	MDAC	(4) C2	1	6	MDAC WDAC	(2)C2 (4)B	
Hepatic flexure	2	WDAC	(2) A	-	4	MDAC PDAC	(2)B (2)B	
Transverse colon	….	……	……	….	3	PDAC	(3) C2	
Splenic flexure	6	PDAC MDAC	(4) C2 (2)C2	-	8	MDAC PDAC	(5)C2 (3)B	
Sigmoid	…	…….	…..	….	12	WDAC MDAC PDAC	(5) A (2) B (5) C2	
Rectosigmoidal	3	PDAC MDAC WDAC	(1)C2 (1)A (1)A	- - -	13	PDAC MDAC	(9)C2 (4)B	1
Rectal	8	MDAC PDAC	(5)B (3)C2	- -	18	PDAC MDAC WDAC	(9)C2 (7)B (2)A	1

* WDAC: well differentiated adenocarcinoma., *MDAC: moderately differentiated adenocarcinoma.
*PDAC: poorly differentiated adenocarcinoma., * DM : distant metastasis.

Discussion

Over five years, Twenty three out of 87 (26.43%) patients were treated at our center comprised the young CRC group. Prevalence was reports from Asia; 10% in Taiwan,[14]18% in Istanbul [15], 23% in Saudi Arabia. Our figure was considerably more than that reported from the West; 2.8% in the United States, 3% in France and 5.5% in New Zealand.[16] In Iraq study done at 1994, the incidence of CRC was 21.9% of patients below the age of forty.[17]while in present study even though the number of patients were small, we reported an incidence of 26.43% of CRC in patients under age of 40 years. Recent studies in Indian population showed that even within a country, this proportion might highly vary from 12.6% to 39% in 2009 and 2010[18]. Such high incidence of CRC in young patient is no longer considered to be rare nowadays.

Regarding the sex distribution, the male to female ratio in present study was 1.3:1. Similar studies in Jordan (2003) and Israel (2009) showed a predominant proportion of female in patients below the age of 40 years. [19]

In present study, the proportion of patients who had familial history of CRC in group A(39.13%) was significantly higher than that in patients with group B(9.37%). Our result also mirrors those studies on other populations (2008, 2010).[20]

There was a delay of more than six months from the presenting symptoms to the definitive diagnosis in all patients under age of 40 years. [21]

The most common presenting symptom was alteration of bowel habit. Other symptoms were rectal bleeding, non-specific abdominal pain, tenesmus, anemia, loss of appetite and weight loss. The majority were not obstructive lesions. Furthermore, in this study, the majority of young patient cancers were sporadic with a greater frequency in the colon compared with older patients. Synchronous cancers were to be conflict exclusively in young patients. Hence, young patients of Asian origin, who present with these symptoms, should be investigated without delay to exclude malignancy. [22]

An altered bowel habit was one of most common symptoms and had been labeled by general practitioners as cases of chronic dysentery.[23] These symptoms may make it difficult to differentiate CRC from benign or functional bowel disorders and lead to a late diagnosis.

Abdominal pain with distention and bleeding per rectum should be fully investigated regardless of the age of the patient, since half of our patients below age of 40 had bleeding per rectum and abdominal distension in comparison with other study, abdominal pain is one of the common presenting symptom in both old and young age group in western countries. [24]

Rectal bleeding is the earliest and constant symptom in rectal cancer. There is nothing characteristic about the time at which it occurs, neither is the color or amount of the blood distinctive. These findings are comparable with other studies in the western countries which showed that the bleeding per rectum was the most frequent symptoms. [25]

Tenesmus is characteristic of rectal carcinoma, especially stenosing variety. Most of victims of rectal growths were of the young age group in present study which is also reported by other study. [26]

Therefore all patients with anemia, abdominal pain and alteration of bowel habits even with no history of passing blood per rectum should have per rectal examination and testing of occult blood in stool and then proceeding for proctoscopy, sigmoidoscopy and colonoscopy. We should not depend on negative contrast study to exclude early colorectal cancer. Ultrasound does not pick up early cancer of large bowel but it is still of value in detecting abdominal mass and secondaries.

Regarding tumor location and histology, the findings that more than half of our CRC cases were diagnosed in the colon and that adenocarcinoma was the commonest histological type are inagreement with most studies.[7] Left sided tumors were found more frequently than right sided tumors. The distribution of tumors through the colon and rectum in patient below age of 40 showed that the more frequent site was the rectum and recto sigmoid area (similar findings were reported by others).[27] Regarding the tumor characteristic, the location of the tumor was in accordance with previous studies showing a majority of sigmoid and rectal tumor. [28]

Tumors in the caecum could present with bleeding per-rectum, although it is mentioned that occult blood in stool is more common, and the patients with such tumors usually present with abdominal pain and anemia. Multiple studies have found anemia to be a more common finding in right-sided tumors. [29]

The most common endoscopic CRC growth forms in our study were sessile polypoid and circular ulcerated lesion located in the recto sigmoid segment. Previous studies in other Asian population also reported the same results.[30] Regarding the pathological differentiation of CRC, there was no significant difference in proportion of poor-differentiated CRC between group A and group B. However, several studies in other populations reported that poor-differentiated CRC tended to cluster in group A patients.[30]

Most of our young patients had tumor stage C and stage B and histopathological report of moderately to poorly differentiated adenocarcinoma, which may suggest that carcinoma of large bowel is more malignant in young patients, and this also reported by other studies.[31]

The real problem is that young patients with colorectal cancer come to surgery at much later stage in the natural history of the disease which is caused by combination of late presentation and diagnostic delay.

Conclusion

CRC show an increasing incidence in young patients (26.44%). Most lesions clustered in the recto sigmoid segment. There was no significant difference in location and pathological differentiation of CRC in young and old age groups. The disease should be included in the differential diagnosis of patients who presents with bleeding per-rectum, and alteration of bowel habits with or without abdominal pain regardless of the age. Positive family history of CRC is a risk factor of young age group with CRC. Clinicians should be aware of its occurrence in young patients for early diagnosis and aggressive surgery to improve the survival in this group.

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