

Demographic, Clinical and Histopathological Study of Colorectal Cancer in Baghdad City

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Abstract: *Background:* The frequency of colorectal carcinoma is inadequate in Iraq compared to the western world. The carcinoma of colon and rectum is usually disturbing among the individuals of older age groups, whereas it is less frequent in younger age groups. This study was based on age, gender, site of primary tumor and histopathological type of colorectal cancer cases. *Methods:* This study was carried out on 105 colorectal carcinoma patients who were admitted to Al-Amal National Hospital for Cancer Treatment Baghdad during the period from January 2012 to July 2016. All the demographic and clinicopathological data were collected from the medical records of the patients. The detailed information were entered into tabular sheet and statistical analysis was performed. *Results:* During these five years, out of total (2059) cases of cancer, 105(5.09%) patients with colorectal carcinoma were admitted for colectomy or hemicolectomy. The percentage of middle age group with colorectal cancer was risen up sharply in comparison with the older age group. The ratio of male to female patients affected with colorectal cancer was 64:41(1.6:1). Rectum was the most common site among the total cancer lesions. Histopathological findings showed that the frequency of poorly differentiated adenocarcinoma was the highest among colorectal cancer patients.

Keywords: Colorectal Cancer, Demographic study, Histopathology

1. Introduction

Colorectal cancer is the third most commonly diagnosed cancer and the third leading cause of cancer death in both men and women in the United States. The American Cancer Society estimates that approx. (136.000) people will be diagnosed with colorectal cancer and (50.000) people will die from the disease in (2014). Most of these cancers and deaths could be prevented by using existing knowledge about cancer prevention, increasing using recommended screening tests and ensuring that all patients receive timely and standard treatments. In the past decade, there was unprecedented progress in decreasing colorectal cancer incidence and death rates in the United States, largely because of the prevention and detection of colorectal cancer through screening. However, in (2010), only 59% of people aged 50 years or more, for whom screening is recommended, were recorded to have received colorectal cancer testing consistent with the existing guidelines [1].

Colorectal cancer develops in the rectum or colon, also known as the large intestine. The rectum and colon are parts of the digestive system, which is also called the gastrointestinal system. Cancer occurs much less frequently in the small intestine than in the colon or rectum (colorectum) [2].

Colorectal cancers have various properties depending on their location within the rectum or colon [3], for example, the proximal, or right colon tumors are more common among women and older patients whereas distal, or left-sided tumors are more common among men and younger patients [4, 5].

Colorectal cancer often develops slowly, over a period of 10-20 years. Most of them begin as a noncancerous growth called a polyp which develops on the inner lining of the colon or rectum [6].

The most common polyp type is called an adenomatous polyp or adenoma. Adenomas originate from glandular cells, which form mucus in order to lubricate the colorectal

part. An estimated 1/3 to 1/2 of all individuals will eventually develop one or more adenomas [7, 8]. Although all adenomas have the ability to become cancerous, less than 10% are estimated to advance to invasive cancer [9, 10].

There are several known factors that decrease or increase colorectal cancer risks; some of which are modifiable, while others are not. Non-modifiable risk factors include personal or family history of colorectal cancer or adenomatous polyps and a personal history of chronic inflammatory bowel disease. The American Cancer Society and other organizations recommend that some people at increased risk for colorectal cancer because of these conditions begin screening at an earlier age. Epidemiologic studies have also identified many modifiable risk factors for colorectal cancer. These include physical inactivity, obesity, increased consumption of red and/or processed meat, smoking, and moderate to heavy alcohol consumptions [11].

Colon cancer treatment differs by tumor location and stage at diagnosis. Based on the disease stage, the patient undergoes multimodal treatment, chemotherapy, radiotherapy, surgery and hormonal therapy. Surgical removal of tumor and nearby lymph nodes is mainstay of treatment for early stage of colorectal cancer. However, with a potentially curative surgery alone, nearly (50%) of patients will finally relapse and die after 14 metastatic diseases [12].

2. Aim of the Study

This study is designed to describe the distribution of the colorectal carcinoma while considering age, gender, site of tumor, tumor pathology and other related diseases in a retrospective fashion

3. Methodology

This current retrospective study was conducted on (105) patients with colorectal malignancy who underwent

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colectomy or hemicolectomy in Al-Amal national hospital for cancer treatment during the period from January 2012 to July 2016. All the cases were histopathologically confirmed. The information were collected from the medical records of the patients. The survival pattern of the patients was not included in the study.

All the data were entered into Microsoft Office Excel 2010 spreadsheet. Statistical Analysis was performed with help of EPI INFO (TM) 3.5.4 from the Centers for Disease Control and 15.

Prevention (CDC) Descriptive statistical analysis was performed to calculate the means with corresponding standard deviations (SD). Test of proportion was used to find the Standard Normal Deviate (Z) to compare the difference proportions and Chi-square (x²) test was performed to find the associations. Odds Ratio (OR) with 95% confidence interval (CI) had been calculated to find the risk factors. P < 0.05 was taken to be statistically significant

4. Results

During this study period, a total number of 2059 cancer patients attended to Al-Amal national hospital for cancer treatment. Only 105(5.09%) patients were diagnosed with colorectal carcinoma.

Results of the year-wise distribution of these 105 colorectal cases in table and figure (1) showed that 19(4.11%) of all the 462 cancer cases had colorectal cancer in the year 2012, 18 (4.80%) of 375 in the year 2013, 20(5.11%) of 391 in the year 2014, 22(5.83%) of 377 in the year 2015 and 26 (5.72%) of 454 in the year 2016.

Table 1: Year-wise distribution of colorectal incidences

Year	Total number of cases	Colorectal cases	Percentage
2012	462	19	4.11%
2013	375	18	4.80%
2014	391	20	5.11%
2015	377	22	5.83%
2016	454	26	5.72%
Total	2059	105	5.09%

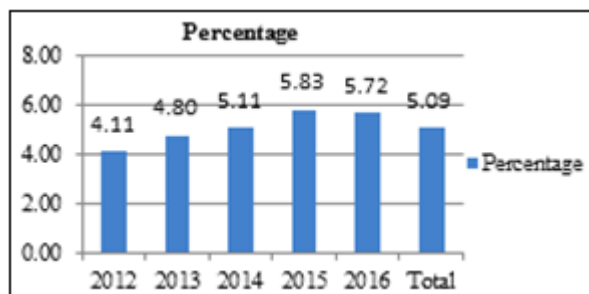


Figure 1: Year-wise distribution of colorectal incidences

Mean age distribution of colorectal patients per year showed that 19 patients were with mean age of (54.71±16.25) years in the year 2012, 20 patients were with mean age (52.45±16.30) years in the year 2013, 20 patients with mean

age (53.16±16.61) years in the year 2014, 22 patients with the mean age of (50.32±17.58) years in the year 2015 and 26 patients with the mean age (49.57±16.74) years in the year 2016 as shown in table and figure (2).

Table 2: Year-wise mean age distribution of colorectal patients

Year	Number	Mean±SD	Median	Range
2012	(n = 19)	54.71±16.25	51	44–70
2013	(n = 18)	52.45±16.30	50	39–65
2014	(n = 20)	53.16±16.61	52	41–67
2015	(n = 22)	50.32±17.58	48	38–65
2016	(n = 26)	49.57±16.74	49	37–68
Total	(n = 105)	51.6±16.70	50	37-70

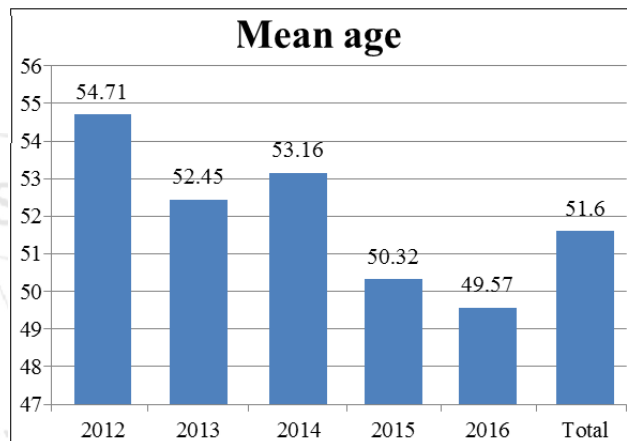


Figure 2: Year-wise mean age distribution of colorectal patients

Results of histopathological findings according to age groups in table and figure (3) demonstrated that out of the total 105 colorectal cancer patients, 30(28.6%) had poorly differentiated adenocarcinomas, 19(18.1%) had moderately differentiated carcinomas, 10(9.5%) had well differentiated adenocarcinomas, 6(5.7%) had tubular adenoma, 5(4.8%) had squamous cell carcinoma, 3(2.8%) had lymphoma, 25(23.8%) had mucinous adenocarcinoma and finally 7(6.7%) of the patients had other types of histopathological findings.

Table 3: Histopathological findings according to age group

		Younger	Mid	Older
Poorly Differentiated Adenocarcinoma	30(28.6%)	7(20.9%)	15(33.3%)	8(29.6%)
Moderately Differentiated Adenocarcinoma	19(18.1%)	4(8.6%)	8(17.8%)	7(25.9%)
Well Differentiated Adenocarcinoma	10(9.5%)	2(7.2%)	5(11.1%)	3(11.1%)
Tubular Adenoma	6(5.7%)	2(7.2%)	3(6.7%)	1(3.7%)
Squamous Cell Carcinomas	5(4.8%)	0	3(6.7%)	2(7.4%)
Lymphoma	3(2.8%)	1(1.4%)	1(2.2%)	1(3.7%)
Mucinous Adenocarcinoma	25(23.8%)	16(46.8%)	6(13.3%)	3(11.1%)
Other types	7(6.7%)	1(5.0%)	4(8.9%)	2(7.4%)
Total	105(100%)	33(100%)	45(100%)	27(100%)

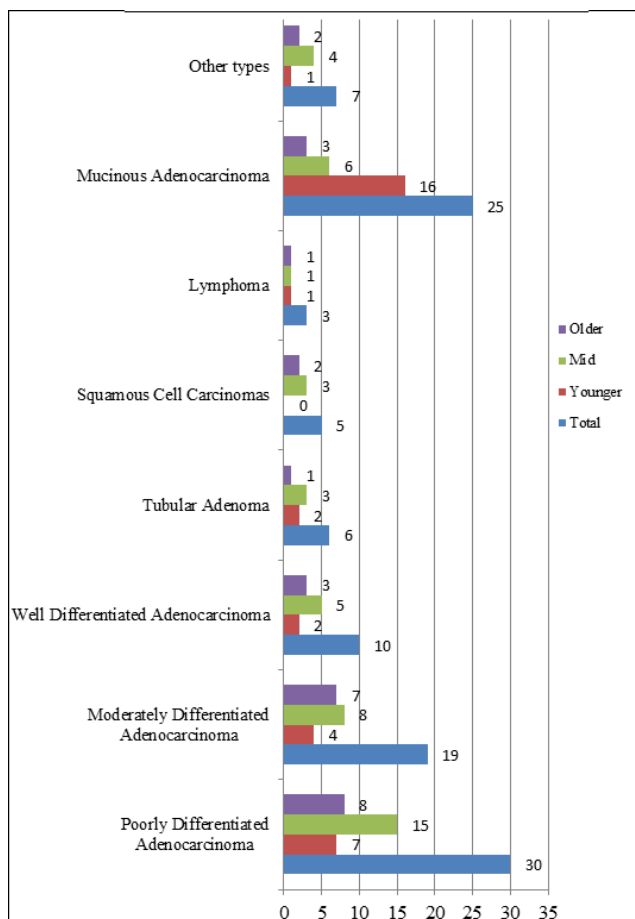


Figure 3: Histopathological findings according to age group

In regard to anatomical position of colorectal tumors according to gender in table and figure (4), it was found that out of the 6(5.6%) patients who had caecum tumor 4(6.3%) were males and 2(4.9%) were females, out of 12(11.7%) ascending colon tumor patients, 7(10.9%) were males and 5(12.2%) were females, out of 13(12.0%) transverse colon patients, 7(10.9%) were males and 6(14.6%) were females, out of 12(11.7%) descending colon tumors, 7(10.9%) were males and 5(12.2%) were females, out of 8(7.2%) sigmoid colon tumors, 4(6.3%) were males and 4(9.8%) were females and out of 54(51.7%) rectum tumors, 35(54.7%) were males and 19(46.3%) patients were females.

Table 4: Anatomical position of colorectal tumors according gender

Anatomical position	Frequency (%)	Gender (%)		male:female
		Male	Female	
Caecum	6(5.6%)	4(6.3%)	2(4.9%)	2.0:1
Ascending colon	12(11.7%)	7(10.9%)	5(12.2%)	1.4:1
Transverse colon	13(12.0%)	7(10.9%)	6(14.6%)	1.2:1
Descending colon	12(11.7%)	7(10.9%)	5(12.2%)	1.4:1
Sigmoid colon	8(7.2%)	4(6.3%)	4(9.8%)	1.0:1
Rectum	54(51.7%)	35(54.7%)	19(46.3%)	1.8:1
Total	105(100%)	64(100%)	41(100%)	1.6:1

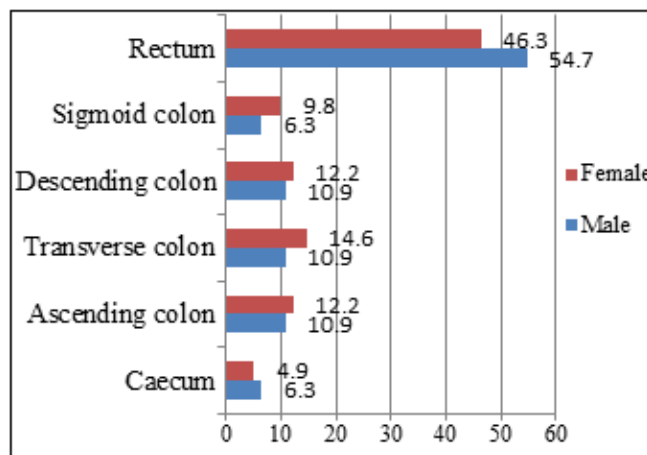


Figure 4: Anatomical position of colorectal tumors according to gender

Association of other GI problems with colorectal cancer showed that the frequency of associated GI problems out of the total 105 patients was 32(31.5%) {18(17.4%) in the colonic region and 14(13.3%) in the rectal region}, the frequency of liver metastasis was 19(18.8%) {11(10.4%) in the colonic region and 8(7.6%) in the rectal region}, the frequency of hepatomegaly was 7(6.7%) {3(2.8%) in the colonic region and 4(3.8%) in the rectal region}, the frequency of ascites was 5(5.0%) {3(2.8%) in the colonic region and 2(1.9%) in the rectal region} and finally the frequency of gastric cancer was 1(1.0%) {1(1.4%) in the colonic region and 0(0%) was in the rectal region} as seen in table (5).

Table 5: Representation of other GI problems associated with colorectal cases

Associated GI problems	Frequency (%)	Colonic region (%)	Rectal region (%)
	32(31.5%)	18(17.4%)	14(13.3%)
Liver Metastasis	19(18.8%)	11(10.4%)	8 (7.6%)
Hepatomegaly	7(6.7%)	3(2.8%)	4 (3.8%)
Ascites	5(5.0%)	3(2.8%)	2 (1.9%)
Gastric Cancer	1(1.0%)	1(1.4%)	0 (0%)
Total	105(100%)	64(100%)	41 (100%)

5. Discussions

Colorectal tumors are not uniformly distributed through the large bowel. Overall, colorectal cancer incidence and mortality rates are often higher in men than women. The causes of this are not completely understood, but may reflect complex interactions between gender-related differences in exposure to hormones and risk factors [13].

Gender differences in risk patterns may also help to explain why a larger part of cancers in women are located in the proximal colon [14].

Rectum was the most common site among the total cancer lesions. The site of the tumor location was found significantly higher in rectum.

In this study, colonic region cancer led significantly with synchronous liver metastasis than rectal region. Higher

stages of carcinoma in colonic region can be based on direct venous drainage. Furthermore, adhesive interaction with the hepatic endothelial cells is another important step in liver metastasis [15, 16].

This finding indicates that venous infiltration of colorectal patients seems to be important for synchronous liver metastasis development. More studies are necessary for the detection of the venous infiltration impact on long-term survival.

Histopathological data from a number of patients with colorectal carcinoma were collected and analyzed. This study reported that the more aggressive histology of tumors in middle aged patients with colorectal carcinoma.

In a study by [15], it was shown that trends in colorectal cancer incidence rates also vary by age. Rates are declining among adults whose ages are 50 years and older, but are increasing among those who are younger than 50 years. This increase appears to be restricted to cancers originating in the distal colon and rectum. Reasons for this trend are unknown, but can reflect increased obesity prevalence and/or unfavorable dietary patterns in children and young adults [16].

6. Conclusion

This retrospective observational analysis pointed out a number of significant outcomes:

- 1) Only 105(5.9%) out of 2059 cancer patient had colorectal cancer.
- 2) Histopathological findings showed that the frequency of poorly differentiated adenocarcinoma was the highest among middle-aged patients, while lymphoma was the lowest.
- 3) Middle aged patients are more affected by colorectal cancer.
- 4) Rectum is the most anatomical position of colorectal cancer and males are more affected than females, while caecum was the least anatomical position affected.
- 5) Liver metastasis is more frequently associated with colorectal cancer, while gastric cancer is less frequently associated.

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