

Clinico-pathological patterns of colorectal cancer patients in Tehran, Iran

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ABSTRACT

Colorectal Cancer (CRC) is the third most common type of cancer in Iranian female and the fifth cancer in Iranian male. In this study we report the clinicopathological and demographic information of patients with colorectal cancer from Tehran Iran, from 2013-2014. In this retrospective study a total of 91 patients with diagnosis of colorectal cancer who referred to AJA Cancer Research Center, from 2013-2014 participated in this study and clinicopathological information of patients was recorded. Comparison of variables was performed using Pearson's chi-square test, Fisher's exact test, or the Mann-Whitney U test, depending on the nature of the data. Relationships among the clinicopathological factors were analyzed using the chi-square test. In the present study, the majority of cancers; 43 (47.3%), were present with stage II following 24 patients in stage III. We found a significant association between stage of the diseases and chemotherapy status ($P < 0.001$) and also between family history of GI cancer and stage of the disease ($P = 0.02$). In this study, we observed that most of the CRC cases less than 50 years of age were in stage II; 20 ($P = 0.01$). Regarding the tumor location, among 91 tumors, 73 of tumors (80.2%) were located in left side of colon, whereas, only 18 tumors (19.8%) were located at proximal colon.

Keywords: CRC, TNM stage, Chemotherapy, family history.

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Introduction

Colorectal cancer is the third most common cancer in males and the second in females. CRC is also the fourth most common cause of cancer related death worldwide which accounts more than one million new case each year (1, 2). Rectal bleeding, alterations in bowel habits, pain in abdomen, anemia and weight loss are considered

as the most prevalent symptoms. It has been indicated that colonoscopy is the gold standard technic to identify suspicious lesions in related patients (3, 4). Although recent studies reported that the rate of missing adenoma polyps fewer than 1 cm in diameter is approximately 27% in some case which will considerably influence the

rate of interval colorectal cancers incidence (5-7). It has been demonstrated that the incidence and prevalence of CRC has been dramatically increasing in Asian countries(8). In this regard, CRC is the second most common cancer in eastern China (9), and the second most prevalent type of cancer in Malaysia as well (10, 11). According to International Agency on Research Cancer (IARC) the incidence rate of colorectal cancer in Iranian women and men were 6.4 and 8.7 per 100000 in 2008. According to Iran Cancer Registry (ICR) CRC is the third most common type of cancer in Iranian female and the fifth cancer in Iranian male. In the last few years, the rapid rate of occurrence has been also accelerating in Iranian population (12, 13), and several studies even suggested a younger distribution age of the disease in comparison to western populations (13-15). It seems that the genetic risk actors and family history of the disease might be a strong contributor in Iranian CRC population. In this regard, several studies have been conducted to shed light on the demographic and clinicopathological patterns of CRC in each part of Iran (16-21). In this study we report the clinicopathological and demographic information of patients with colorectal cancer from Tehran Iran, whom referred to AJA Cancer Research Center, Imam Reza Hospital, Tehran, Iran.

Materials and Methods

In this retrospective study a total of 91 patients with diagnosis of colorectal cancer who referred to AJA Cancer Research Center, AJA University of Medical Sciences, Imam Reza Hospital, Tehran, Iran, from 2013-2014 participated in this study. Patients with familial syndrome of CRC including Lynch Syndrome and familial adenomatous polyposis coli, were

excluded from the study. Clinicopathological information of patients including age at diagnosis, gender, tumor location, pathological type of tumor (grade and stage of tumor), chemotherapy, family history of CRC, metastasis status in regional lymph node was recorded. The TNM (tumor, lymph nodes, and metastasis) staging system was applied to determine the severity of disease and the local or distant extent of disease spread. Written informed consent was taken from patients and the local ethics committee approved the study protocol which was in accordance with the principles of the Helsinki Declaration. Statistical analysis was performed using the SPSS 16.0 statistical package. Comparison of variables was performed using Pearson's chi-square test, Fisher's exact test, or the Mann-Whitney U test, depending on the nature of the data. Relationships among the clinicopathological factors were analyzed using the chi-square test. Significance for all statistics were recorded if $P < 0.05$.

Results

In the present study, totally 91 patient diagnosed with colorectal cancer was retrospectively evaluated (43 female and 48 male). In this study, mean age of diagnosis was 52.68 ± 11.122 . The clinicopathological features of participants in the present study are present in table I. According to our findings, the majority of cancers; 43 (47.3%), were present with stage II following 24 patients in stage III. Among 91 tumors, 52 (57.1) were well differentiated, 22 (24.2) were moderate and 14 were poorly differentiated, we could not identify the differentiation in three cases. As it is present in table 1, 73 of tumors (80.2%) were located in left side of colon, whereas, only 18 tumors (19.8%)

Table 1. Clinico pathologic characteristics of patients participated in this study

Variables	Subgroups	N (%)
Gender	Male	48 (52.7)
	Female	43(47.3)
Diagnosis Age	<50	32 (35.2)
	>50	59 (64.8)
Tumor Location	Right	18 (19.8)
	Left	73 (80.2)
Tumor Stage	I	12 (13.2)
	II	43 (47.3)
	III	24 (26.4)
	IV	12 (13.2)
Tumor grade (Differentiation)	Poor	14 (15.4)
	Moderate	22 (24.2)
	Well	52(57.1)
	Non defined	3(3.3)
Vital status	Alive	73(80.2)
	Dead	18(19.8)
Chemotherapy	Yes	35 (38.5)
	No	56 (61.5)
	Absent	209 (81.0)
Family History	YES	31 (34.1)
	No	60 (65.9)

were located at proximal colon. Regarding to the family history of gastrointestinal cancer, 31 patients (34.1%) were positive and 60 patients were negative in this regard. In this study, among 91 patients diagnosed with CRC, 65 (71.4%) had no metastasis in the time of admission; however, 26 (28.6%) patients had metastasis. A total of 35 patients (38.5%) received chemotherapy. The mortality was as bellow: among 91 cases, 18 (19.8%) was died during the follow up. The majority of patients in the present study; 59 (64.8%) were above 50 years of age, whereas, 32 (35.2%) had less than 50 years of age in the time of diagnosis (Figure 1). According to our results, among 52 tumors with well differentiated features, 34 (79.1%) were in stage II, and only one patient were in stage IV of the disease.

On the other hand, tumors with stage IV had mostly moderate feature (11; 91.7%). In the present study we found a strong association

between stage of the diseases and chemotherapy status ($P < 0.001$), table II. In this regard, most of the patients who received chemotherapy were in stage II; 39 (69.6%). In this study we also found a strong association between family history of GI cancer and stage of the disease ($P = 0.02$), we found that among 31 patients with positive family history of GI cancer, 32.3% (10 cases) were in stage II. In this regard we also found significant association between metastasis status and stage of the disease, as most of the cases who had ($P = 0.001$). Regarding to location and stages, we observed that among 73 patients with tumors located on left colon, majority of them were in stage II, 33;45.2%, although the association did not reached at the statistic significant level ($P = 0.287$). When we stratified the differentiation, we observed that most of the tumors in patients with more than 50 years of age; 33 (55.9) were well differentiated. In this study we did not also

Table 2. Clinicopathologic characteristics of the patients according to TNM staging

Variable		Stage I N (%)	Stage II N (%)	Stage III N (%)	Stage IV N (%)	Total N	P value
Family History	Yes	6 (13.7)	10 (35.6)	7 (32.9)	8 (17.8)	31	0.02
	No	6 (10)	33 (55)	17 (28.3)	4 (6.7)	60	
Location	Left	10 (13.7)	33 (45.2)	22 (30.1)	8 (11)	73	0.287
	Right	2 (11.1)	10 (55.6)	2 (11.1)	4 (22.2)	18	
Chemo therapy	Yes	0 (0.0)	4 (11.4)	22 (62.9)	9 (25.7)	35	0.02
	No	12 (21.4)	39 (69.6)	2 (3.6)	3 (5.4)	56	
Metastases	Yes	2 (7.7)	7 (26.9)	5 (19.2)	12 (46.2)	26	0.001
	No	10 (15.4)	36 (55.4)	19 (29.2)	0 (0.0)	65	

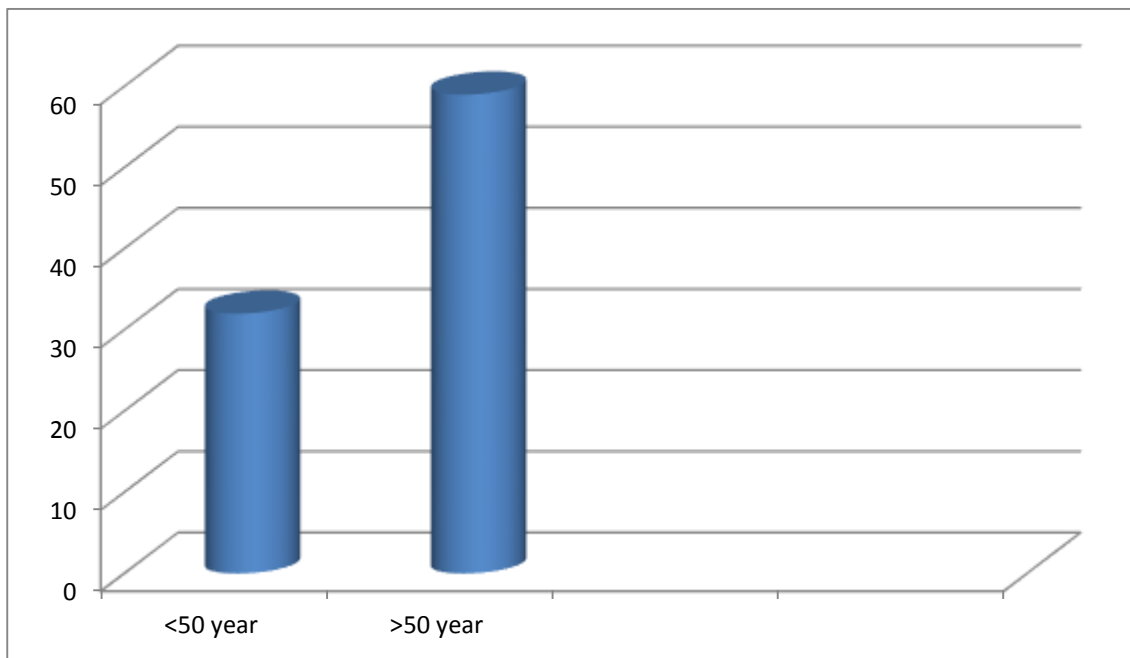


Figure 1. Age distribution of CRC patients participated in this study.

observe any association between mucinous type of tumors and age distribution ($P=0.5$). Among 73 patients with left sided tumors, 48 (65.8%) of them were in patients more than 50 years of age, however, the association did not reach the statistical significance ($P=0.09$). in the present study we found a strong association between stage of the disease and age distribution ($P=0.01$). in this regard, the majority of cases less than 50 years of age were in stage II; 20 (62.5%). The similar pattern

was also identified in patients more than 50 years of age and among 59 patients more than 50, 23 (39.0%) were in stage II. We also found an association between vital status and age distribution, however this rate was not reach the statistical significance level ($P=0.05$), in this regard, we found that among 18 cases who died during the follow up, 10 patients had less than 50 years of age (55.6). We observed that among 31 patients with positive family history of the GI cancer, 21

cases (67.7%) had age more than 50 years old, whereas, the remaining 10 patients (32.3%) had age less than 50 years. We also found that among 26 patients who developed metastasis, 18 patients (69.2%) were more than 50 years of age.

Discussion

According to colorectal cancer Statistics, 2014, the likelihood of an individual being diagnosed with colorectal cancer during the life time is 4.7% in females and 5.0% in males (11). Based on ICR, the majority of colorectal cancers were detected in North province of Iran, such as Mazandaran. despite the high rate of CRC incidence in younger age distribution of Iranian population and the higher probability of genetic components contribution in Iranian population, other risk factors including alterations in life style, dietary changes and fast food consumption, low physical activity are also considered as main responsible factors in increasing the incident rate of CRC as well (17, 22). In this regard, a recent systematic review and meta-analysis by Dolatkah et al. on colorectal cancer incidence in Iran revealed that, the incidence of CRC has raised due to individual and environmental risk factors as well as enhancements in CRC system registry and improvements in health service accessibilities (23). In the present study, the majority of cancers; 43 (47.3%), were present with stage II following 24 patients in stage III. Among 91 tumors, 73 of tumors (80.2%) were located in left side of colon, whereas, only 18 tumors (19.8%) were located at proximal colon. We observed that 59 (64.8%) of cases were above 50 years of age, however, 32 (35.2%) had less than 50 years of age in the time of diagnosis. In this study we found a significant association between stage of the diseases and

chemotherapy status ($P < 0.001$). We also found a strong association between family history of GI cancer and stage of the disease ($P = 0.02$), we found that among 31 patients with positive family history of GI cancer, 32.3% (10 cases) were in stage II. Regarding to location and stages, we observed that among 73 patients with tumors located on left colon, the majority of them were in stage II (33), although the association did not reach at the statistic significant level ($P = 0.287$). Among 73 patients with left sided tumors, 48 (65.8%) of them were in patients more than 50 years of age, however, the association did not reach the statistical significance ($P = 0.78$). In the present study we found that the majority of cases less than 50 years of age were in stage II; 20 ($P = 0.01$). We also found an association between vital status and age distribution, however, this rate was not reach the statistical significance level ($P = 0.05$). In consistent to our study, Safaee et al. in another study, assessed 393 patients with CRC with 393 matched controls and confirmed that the family history of cancer especially in first degree relatives increased the likelihood of developing CRC in individuals (24). Similar to our findings, Baniyasi et al. evaluated the age-adjusted incidence of CRC over a 10-year period in Kerman, Iran and found that the most prevalent age of CRC incidence was in patients more than 50 years of age. They also concluded that, this incidence rates of CRC in this province have been elevated by the time in the last few years (16). In other study by Safaee and her colleagues, revealed that the high incidence of colorectal cancer in young portion of population might contributed to genetic factors, and those factors may play a significant role in the disease progression in Iranian population (25). However, In contrast to Safaee

etal study we observed that most of the patients in our study were above 50 years of age (25). Delavari et al. evaluated the clinic pathological and demographic features of CRC in Iranian patients with colorectal polyps, the precursor of CRC, they revealed that, distal colon tumors are more prone than proximal tumors to develop to CRC (26). In contrast to Safaee et al. study (25) we observed that most of the tumors were located at left side of the colon. Similar to our results regarding to the location of tumors, in a study in Iranian population, Omranipour et al. did not observe any prone to right sided tumors in period of 15 years in Iran (27). Whereas, Mahmoulou et al study. Revealed that the most of the tumors were located in right colon in comparison to left colon (28). Moreover, Kashfi et al. evaluated the proximal shift of colon tumors in Iran and they also did not find any significant association in this regard (20). In another study, Derwinger et al. evaluated the association of age with outcome of patients, stage and tumor differentiation in 2220 CRC patients (29). In contrast to our study, they reported that young CRC patients (<53 year old) were mostly in advanced stages ($p=0.012$) and had higher N-status ($p=0.011$). However, in old cases, patients had higher postoperative mortality and the majority of them did not receive chemotherapy. Another valuable study revealed that in comparison to elderly CRC cases, the young CRC patients had a low proportion of male to female; a higher percentage of rectum cancer; a high proportion of poorly differentiated carcinomas; and a low proportion of right sided lesions (30). However, in consistent to our findings, several studies revealed the same findings regarding to tumour

features between younger and older CRC individuals and indicated that the young age is not considered as a distinct prognostic factor for colorectal cancer (30). One of the limitations in our study was the small sample size of study populations. The other limitation is that other valuable clinicopathological factors of the patients in this study were not available at the time of study, therefore, we could not evaluate the correlations of these variables with TNM stage, diagnosis age or tumor location.

Conclusion

In this study, unlike some previous reports in Iranian population, we observed that the majority of CRC cases 59 (64.8%) were above 50 years of age, and 32 (35.2%) were less than 50 years. We also found that most of the CRC cases less than 50 years of age were in stage II; 20 ($P=0.01$). There was a strong association between family history of GI cancer and stage of the disease ($P=0.02$). Regarding the tumor location, among 91 tumors, 73 of tumors (80.2%) were located in left side of colon, whereas, only 18 tumors (19.8%) were located at proximal colon.

Conflict of Interest

Not Declared.

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