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Epidemiologic and Clinicopathologic Characteristics of Patients with Colorectal Cancer Referred to Imam Khomeini Centers and Tooba Clinic in Sari, 2015-2020

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1. Abstract

1.1. Background: colorectal cancer (CRC) in young adults is increasing worldwide. This study aimed to investigate the epidemiological and clinicopathological features of patients with colorectal cancer who were referred to the Imam Khomeini Hospital and Tuba Clinic in Sari from to 2015-2020.

1.2. Objectives: This cross-sectional study included patients with CRC treated at Imam Khomeini Hospital and Tuba Clinic in Sari between 2015-2020.

1.3. Methods: Age, sex, tumor site, metastasis site, clinical signs and lymph node involvement were descriptively analyzed using SPSS.

1.4. Results: This study included 402 CRC patients between 2015 and 2020. The mean age of patients at diagnosis was 62.05 years. Among the patients, 15.7% were aged <50 years old. Liver metastasis was observed in 20.1% of patients. The most common clinical symptom was rectorrhagia (34.4%). No statistically significant relationships were found between age and sex, clinical signs, or clinical findings.

1.5. Conclusions: Age and sex were not significantly associated with the clinical and pathological features of patients with colorectal cancer. Reducing the age at colorectal cancer screening can improve the diagnosis and prognosis of patients.

2. Background

Colorectal Cancer (CRC) is the most common malignant tumor in Western and Asian countries, and is the major cause of cancer-related deaths worldwide. It is estimated 1.8 million CRC new cases in 2018 [1]. A recent study has shown that the incidence of CRC is increasing in the population.

Some studies have shown that advanced stage and invasive diseases appear more often in younger patients than in older patients [2, 3]. While the death rate from colon cancer is declining in the elderly, it is increasing in patients aged <50 years [4]. The death rate and incidence of colorectal cancer have been rising in the younger population since the year 2000. In the last years, incidence of young-onset CRC which define as CRC in adult younger than 50 years old is increased [5]. Early- onset colorectal cancer (EOCRC) is a poor differentiation, aggressive disease with unclear reason. in United States, 1.6% of CRC cases <50 years old has increased between 2009 and 2013 (6). Many of EOCRC occurs in cases with no history of cancer in family that possibly exacerbated role of life style or environmental factors include smoking, alcohol and obesity [3, 7].

While colorectal cancer over the age of 50 years is more aggressive, young patients have better outcome and improved long-term overall. This data suggest that adjuvant chemotherapy have different result in patients under 50 years of age than in patients over 50

years of age. The American Cancer Society suggested lowering the colonoscopy screening age from 50 to 45 years, but this advice will not be useful for patients at risk for CRC under the age of 45 [8]. Despite the widespread diagnosis of EOCRC in screening, a significant number of patients are still identified outside the screening program. There is limited evidence to support these data about screening in family-based EOCRC [6]. Therefore, this study was to determine epidemiologic and clinicopathologic characteristics of patients with colorectal cancer.

3. Materials and Methods

This cross-sectional study included 402 adult patients with colorectal cancer of Imam Khomeini Hospital and Tuba Clinic in Sari, 2015-2020. Patient's data including age, sex, tumor site, metastasis site, clinical signs and lymph node involvement were obtained. Based on the information in the patients' files and by examining the information in the pathology sheets, the clinical and pathological information of the studied patients were completed, respectively. All cases with cancer in the proximal two-thirds of the transverse colon, ascending colon, hepatic flexure and cecum were considered RCC while those cases with cancer in the distal third of the transverse colon, splenic flexure, descending colon, and sigmoid colon were considered LCC.

All patients diagnosed with colorectal cancer included to study. Patients with unknown origin of tumor and stage of disease was excluded.

Differences between groups compared by using Chi-square test. Data were analyzed in SPSS statistical software, all tests were two-tailed and P-value of less than 0.05 were considered as significant threshold.

4. Results

Results shows 402 CRC patients between 2015 and 2020 were included, of with 18 patients were excluded because absence of essential information. The mean age of the patients at diagnosis was 62.05 years (range 17-91). Of all 402 CRC patients, more than 50% were men (58.6%; male to female ratio, 1.41). 15.7% of patients were younger than 50 years.

Of the 370 cases, 108 tumors had metastasized. 42 patients had lung metastasis (10.9%), 77 patients had liver metastasis (20.1%), and 37 patients had metastasis to other organs (9.6%) and

333 patients had recorded information about the lymph node involvement variable, of which 202 patients (52.6%) without lymph node involvement, 91 patients (23.7%) with 1 to 3 lymph node involvement, 20 patients (5.2%) with lymph node involvement 3 to 6 lymph nodes and 20 patients (5.2%) with more than 6 lymph nodes were involved (Table 1).

Chart 1 details the early symptoms in patients with colorectal cancer admitted to the Imam Khomeini Hospital and Tuba Clinic in Sari between 2015 and 2020. According to results, the most prevalence of early symptoms was rectorrhagia (chart 1). There was no

significant difference in Early symptoms in patient under 50 years and patient older than 50 years (p-value>0.05).

Most cases were rectal cancers (40.9), prevalence of right and left colon was 20.3 and 34.6 respectively. There was no significant difference in site of metastasis in patient under 50 years and patient older than 50 years (p-value>0.05) (Table 2).

Table 1: Demographic characteristics of patients with colorectal cancer

The frequency of metastasis by organ (n=370)		
Organ	Frequency	Percentage
Liver	77	20.1
Lungs	42	10.9
Other	37	9.6
Lymph node status (n=333)		
IQR		
Without involvement	202	52.6
01-Mar	91	23.7
03-Jun	20	5.7
>6	20	5.7

Table 2: Age and site of tumor

	Tumor site			
p-value	Right colon	Left colon	Rectom	Age
	16	18	22	<50 y
0.224	62	115	135	>50y

5. Discussion

In the present study we examined the epidemiologic and clinicopathologic characteristics of patients with colorectal cancer and compare with relevant studies. In this study, prevalence of patient under 50 years old is higher than prevalence has reported in the world [9]. Also, the mean age of patients in our study was higher than the mean age of the colon cancer patients in the world. Observations do not support improved health outcomes such as CRC incidence or CRC-related mortality. But the American Gastroenterological Association still recommends screening patients over the age of 45. This recommendation is based on the increased incidence of colorectal cancer in people under 50 years of age [10].

In 2020, the global incidence of colorectal cancer was 44% higher in men than in women, which contradicts the current study. There was no significant difference between patients with colorectal cancer in terms of gender in our study, which is similar to the study of Janbabaei and many internal and external studies [11, 12].

Considering the study of Janbabaei in 2008 and Metwally, the mean age of the patients with colorectal cancer was higher in our study. Also, the incidence of patients under 50 years of age in our study was lower than the study of Janbabaei [12, 13]. This information can indicate the lack of an efficient method in identifying colorectal cancer patients in Iran, which makes the diagnosis of the disease in old age and increase mortality due to colorectal cancer

in these patients. Scheduling for screening and identifying patients depends on the cost and prevalence of cancer in the community. Due to the poor identification of patients in Iran in recent years and the increasing prevalence of colorectal cancer, screening of patients should be considered.

Studies showed EOCRC incidence is increasing in the world, and data is variable among countries. More studies are needed to clarify the true etiology of this difference. Early onset of CRC can be associated with change in life style like smoking, obesity, inactivity and diet habit [14].

According to the histological findings of colorectal cancer patients, we found that the highest frequency was linked to stage 2 of CRC which contradicts the results obtained by Janbabaei et al [15]. Despite the differences in patient grading in our study and Janbabaei, in both studies the liver was the most metastatic organ. This data can explain that the liver metastasis and tumor grading is not related and screening has to be considered.

 The relationship between the lymph nodes involved and the stage of the disease in our study and Janbabaei shows that liver metastasis is not necessarily associated with higher grades of the disease, and screening patients in the early stages of colorectal cancer diagnosis will help improve patient's prognosis.

In consistent with our findings, Alvarez et al reported that the incidence of family history was lower in our study [16]. Considering the high prevalence of positive family history in CRC, it seems that screening can be effective on decreasing EOCRC.

In the present study, the most common sites of colon cancer in men and women were the rectum and left colon, respectively. In Shi's study, as in ours, there was no significant difference in the frequency of rectal tumors between men and women [17].

The Kishiki study found that in patients with right colon cancer, the size of the tumor was larger than in left cancer [18]. However, in the Helvaci study, the rate of patients aged 65 years and the rate of patients with a family history of colon cancer were higher in RCC patients [19]. The rate of metastatic patients in the RCC group was higher than the LCC group. Although the survival time was longer in the LCC group (62 vs. 43 months), no significant difference in survival was found between the RCC and LCC groups. In the present study, the incidence of mass in the left colon was higher in patients over 70 years than in the right colon and rectum. Kasi reported that tumors in younger individuals are predominantly left-sided colon and rectal cancers [20].

 In our study, as in the study of Johnbabaei and the Patel, most patients were in stage 2 disease [21]. While the frequency of patients in stage 1 in our study was higher than patients in stage 3, in the study of Janbabaei stage 3 included more patients. Differences in the results of the relationship between gender and tumor frequency have been reported in many studies and remain one of the goals of research on colorectal cancers. There are several factors involved

in the incidence of gastrointestinal cancers, and considering gender and age as factors in the incidence of gastrointestinal cancers would be misleading. Further studies are needed to decide whether to plan colorectal cancer screening in Iran.

6. Conclusion

In present study, prevalence of EOCRC was higher than other studies. Early symptoms, tumor site, rate of metastasis and gender in patient over 50 years were not different with patients under 50 years. Reducing the age of colorectal cancer screening can improve the diagnosis and prognosis of patients.

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