RESEARCH COMMUNICATION

Colorectal Cancer in Iran: an Epidemiological Study

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Abstract

Background: Colorectal cancer (CRC) is one of the most common cancers worldwide. But information regarding CRC in Iran is limited; the aim of this study was to investigate the epidemiologic features of CRC in Iran, using 5-year data from cancer registry. Methods: This survey is a descriptive-analytic study consists of 1138 colorectal cancer patients who registered in Cancer Registry Center of Research Center for Gastroenterology and Liver Disease, Tehran, Iran. These data gathered using interview and pathology reports that registered in cancer registry forms. Data analysis was performed with descriptive and univariate methods. Results: Of 1138 patients, 696 cases were male and 442 female. There was no significant difference between males and females regarding age at diagnosis. 400 patients (35.1%) had a family history of cancer. The most common histology type of tumor was adenocarcinoma, NOS. In most cases (39.1%) tumor grading was well differentiated and there was no significant difference between males and females. Conclusion: Colorectal cancer is a disease with nonspecific symptoms. Family history of cancer was evident in 35.1% of our cases and also 42.9% of patients were below the age of 50 years old, suggests that genetic factors may be play an important role in the development of this disease in our country.

Keywords: Colorectal cancer - epidemiologic study - Iran

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Introduction

In countries with westernized lifestyle about half of all deaths are caused by circulatory disease and a quarter by cancer. Cancer is an important problem in both public health and political terms worldwide (Boyle and Langman, 2000). Colorectal cancer (CRC) is one of the most common cancers and is the 2nd leading cause of cancer death in men and women in the United States (James et al., 2002; Stone WL et al., 2004). There are nearly one million new cases of colorectal cancer diagnosed world-wide each year and half a million deaths. Recent reports show that, in the US, it was the most frequent form of cancer among persons aged 75 years and older (Stone et al., 2004). Epidemiologic features of CRC vary widely in different parts of the world (Ansari et al., 2006). While the annual incidence of CRC in North America and Europe is approximately 30–50/ 100,000 (Stewart and Kleihues , 2003), the incidence is estimated to be approximately 3–7/100,000 in most Middle-Eastern countries (Stewart and Kleihues, 2003). In Western countries, only 2–8% of all CRCs occur in young (<40 year-old) patients (Bulow, 1980; Griffin et al., 1991; MacGillivray et al., 1991; Guillem et al., 1999; Mitry et al., 2001). In contrast, 15–35% rates are typical in Middle-Eastern countries (Isbister, 1992; Jaberi et al., 1997; Soliman et al., 1997). According to Iranian annual national Cancer Registration Report, colorectal cancer is third common cancer in women and 5th in Iranian men (Ministry of health of Islamic Republic of Iran, 2007) and incidence of colorectal cancer is increased during the last 25 years (Mosavi et al., 2005). Since the information regarding the epidemiology of CRC in Iran is limited, we decided to investigate the epidemiologic features of CRC in Iran using 5-years cancer registry data.

Materials and Methods

This survey is a descriptive-analytic study, consists of 1138 colorectal cancer patients who registered during Dec 2000 to Jan 2007 in Cancer Registry Center of Research Center for Gastroenterology and Liver Disease, Tehran, Iran. This study is based on the data derived from cancer registry forms. Demographic factors (i.e. sex, age, education, occupation and etc.), medical records, family history and diagnosis information (i.e. symptoms at diagnosis, tumor metastasis, grade of tumor etc.) were included in the study. These data gathered using interview and pathology reports that registered in cancer registry forms. Data analysis was performed with descriptive and univariate methods (t-test, ANOVA, chi-square). The computer software "SPSS.V.13" used for all calculations. $p<0.05$ was considered to be statistically significant.

Results

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Table 1. Demographic Characteristics of Patients with Colorectal Cancer

Variable	Subgroup of variable	Patients (n)	%
Age at diagnosis(yrs) (n=1138)	≤50	488	42.9
	>50	650	57.1
Sex (n=1138)	Male	696	61.2
	Female	442	38.8
Marital status (n=1096)	Married	1,021	89.7
	Other	75	6.6
Education (n=937)	Illiterate	246	21.6
	Primary school	302	26.5
	High school	231	20.3
	university	158	13.9
Ethnicity (n=1138)	Fars	560	49.2
	Kurd	89	7.8
	Turk	236	20.7
	Other	253	23.3

Of the 1,138 patients, 696 cases were male with mean age 54.3 ± 14.5 and 442 patients were female with mean age 53.9 ± 35.6. Some 42.9% of patients were below 50 years old. There was no significant difference between males and females regarding to the age at diagnosis (P>0.78). Most of cases (89.7%) were married and their level of education was low (58.5%) (Table 1).

From the 1138 patients included in the study, 400 patients (35.1%) had a family history of cancer in the first and second degree relatives, of whom 49(4.3%) had a family history of colorectal cancer .Family history of cancer was seen in men rather than women (p=0.001).8.7% of patients had a history of alcohol consumption, 24.7% were current smoker or previous user, 6.1% had a history of opium consumption and only 6 patients (0.5%) reported that used IV drugs. The most common histology type of tumor was adenocarcinoma, NOS (85.2%). No significant difference observed between males and females regarding histology type (p>0.5). The mean age at diagnosis in patients with adenocarcinoma tumor was greater than other patients (p=0.009). The mean size of tumor was 53.2±31.7 mm and however there was a significant difference between men and women (P=0.032), age at diagnosis was not related to tumor size (p=0.4) (Table 2).

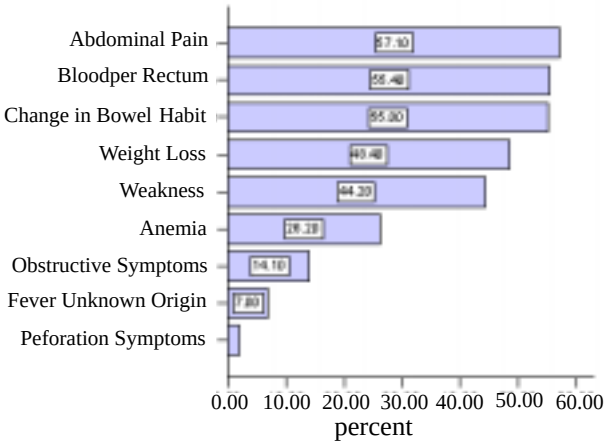

Figure 1. Most Frequent Symptoms at Diagnosis in Colorectal Cancer Patients

We have also investigated the tumor distribution by anatomic sites. In 180 (16.1%) cases tumor was located in proximal to hepatic flexure, 44 cases (3.93%) in transverse, 338 cases (30.2%) in splenic flexure, 295 cases (26.36%) in colon,NOS and 262 cases (23.41%) in rectum,NOS. Note that information about tumor site in 19 patients was not available.

In most cases (39.1%) tumor grading was well differentiated and there was no significant differences between males and females (P>0.05). Mean age at diagnosis in patients with well differentiated tumor grade was greater than poorly differentiated one (p<0.01). 59 patients (47.4%) were in advanced stage (III, IV) at diagnosis and 443 cases (38.9%) were in early stage (0, I, II). Although there was no significant different between male and female, advanced stage were most observed in patients older than 50 years old (P=0.01) (Table 2)

The most symptoms in patients at diagnosis consisted of abdominal pain (57.1%), blood per rectum (55.4%), weight loss (48.4%) and weakness (44.2%). Surgery was most common treatment (77.3%) that was used as first step in patient's treatment (Figure 1).

Discussion

CRC is a leading cause of death in the Western world, and it has also become the third leading cause of death among cancer disease in developing countries (Kan et al., 2006). The incidence of colorectal cancer showed a

Table 2. Distribution of Clinical and Pathological Factors According to Age and Sex

Variables		Sex		P value	Age		P value
		Male	Female		<50	>50	
Family history (n=1073)	No	440	239	0.001	288	391	0.655
	Yes	215	179		173	221	
Histology type (n=1127)	Adenocarcinoma	535	337	0.765	369	503	0.149
	Mucin & mucin producing ade.	86	60		72	74	
	Other type	69	40		41	68	
Grade of tumor (n=798)	Well diff.	263	180	0.587	186	257	0.095
	Moderately diff.	180	105		122	163	
	Poorly diff.	42	28		39	31	
Stage of tumor (n=971)	Early	269	169	0.439	166	272	0.006
	Advanced	331	202		246	287	

Table 3. Clinopathologic Characteristics of Patients with Colorectal Cancer

Variable	Subgroup of variable	Patients (n)	%
Pathologic Primary tumor(Pt) (n=952)	T0	2	0.2
	T1	17	1.5
	T2	100	8.8
	T3	632	55.5
	T4	201	17.7
Pathologic Regional Lymph Nodes(Pn)(n=861)	N0	444	39.0
	N1	312	27.4
	N2	105	9.2
Pathologic Distant Metastasis(Pm)(n=772)	M0	600	52.7
	M1	172	15.1
Tumor grading(n=804)	well differentiated	445	54.0
	moderately differentiated	289	52.7
	poorly differentiated	70	48.7

remarkable increase over the three decades in Iran (Hosseini et al., 2004); however, few studies have addressed this problem in our country. There is a lack of good descriptive data on CRC in Iran, where both cancer registration and prevalence of risk factors are relatively unknown. This investigation was undertaken to better define the demographic, clinicopathological factors in patients with colorectal patients.

The data used in this study were collected in cancer registry of Research Center for Gastroenterology and Liver Diseases of Shahid Beheshti University of Medical Sciences, Tehran, Iran. It is very important to mention that our study is a retrospective study in a vast Middle Eastern country. Even though this cancer registry is a major referral center, our study has some limitations.

The data of the present study suggested a younger age distribution compared to Western reports. Data from the west countries emphasized that less than 20% of CRCs occur below 50 years old (Crawford, 1991) whereas in our survey, 42.9% of patients were below 50 years of age. Iran has a very young population; 1997 Census of the Statistics Center of Iran showed that approximately 80% of the population in Iran were younger than 40. Therefore, high proportion of the CRC in young Iranians can be explained by two factors: high proportion of young population in Iran, and relatively low rates of CRC in older age groups (Ansari et al., 2006). On the other hand, genetic factors maybe play an important role in the development of colorectal cancer in young patients in our country.

Like the Western data where in there is a preponderance of male distribution (male versus female 2: 1) for colorectal cancer (Crawford, 1991) we found 1.51:1(male: female) sex ratio as similar as the other study in Iran (Samareh Pahlavan and Kanthan, 2006).

The tumor distribution throughout the large intestine depends on genetics and environmental factors involved in colorectal carcinogenesis, and one the sex, race and the patient's age (Neagoe et al., 2004; Okamoto et al., 2002; Vassilopoulos et al., 2000; Demers et al., 1997). Several studies regarding colorectal carcinoma incidence have shown significant differences between colon and rectal cancers. In our study, in most cases tumor was located in colon.

According to the other study, the most prominent symptoms were the abdominal pain (Cleary et al., 2007). Rectal bleeding, change bowel habit and weight loss were also frequent in patients (Kalavi, 2005). The weight loss findings may represent an association with advanced disease, which is itself associated with an increased risk of obstruction (Cuffy et al., 2004; Olsson et al., 2004). In addition, rectal bleeding is a well-recognised feature of colorectal cancer, and so referral may be made without delay.

Family history of cancer was evident in 35.1% of our cases and 4.3% of the patients had colorectal cancer history in their relatives. Family history of cancer was observed especially in men. Our data suggested that genetic factors maybe play an important role in the development of this disease.

In conclusion, the main result of this study is that 43% of CRC patients identified in Iran are < 50 years old in contrast to the western countries data. Based on this alarming observation we suggest that screening programs, especially genetic screening programs, should be considered as a main measure for prevention and control of colorectal cancer in Iran

Also this retrospective study suggested that: although the malignancy presents with the nonspecific symptoms of abdominal pain, a similar number presents with rectal bleeding. Prevention is possible by earlier recognition of cancer, especially in patients with symptoms mentioned above. If cancer is deemed to be a possible cause, patients with these symptoms should be investigated rapidly. History of colon cancer is observed especially in men that should be considered as a main factor in prevention of colorectal cancer. Our epidemiological study has attempted to offer an overview regarding a major problem of public health. The descriptive data maybe used for efficient education, screening and prevention programs, in particular, subgroup of the population.

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