# EPIDEMIOLOGICAL EVALUATION OF COLORECTAL CANCER

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**Abstract-** This study was carried out to analyze certain epidemiological variations in Iranian patients with colorectal cancer. (CRC): From March 1981 up to March 1993, 103 patients were analyzed retrospectively for age, gender, marital state, job, nutritional habits, presenting symptoms and histopathological features. Most of the patients with colorectal cancer were male, age range 20-75 (mean 56), 25.4 percent were long-term smokers and bleeding was the most common symptom. The rectum was the most common site and moderately differentiated carcinoma was considered as the main common histopathological variety. In conclusion, increasing incidence of colorectal cancer in younger Iranian population, below 30 and late admission and diagnosis were the main findings in the present study necessitating screening programs with annual fecal occult blood tests in high risk families

Acta Medica Iranica, 41(3): 156-160; 2003

**Key Words:** Epidemiology, Colorectal Cancer (CRC), Iran

## INTRODUCTION

Colorectal cancer (CRC), the second most common cancer, is a leading cause of death worldwide (1,2,3,4). This is the fourth most common cancer (breast, prostate, lung, colorectal) in Iran. This cancer is curable in 90 percent of patients if diagnosed in early stage. But unfortunately, it is diagnosed only in 40 percent of cases in early stage. The roles of genetic abnormalities, socio-economical status, dietary fat and nutritional a habits in the pathogenesis of the CRC have been extensively studied. Risk factors include ages between 40 to 50 and diabetes. There is 15 fold variations in CRC incidence across regions of the world (16 percent higher in black American, lower incidence in Asians, American Indians and Hispanics). Protective factors are diet, fiber, folic acid, calcium, physical activity and aspirin (5-8). Epidemiological information of this potentially curable disease is limited in Iran.

In the present study, 103 patients with (CRC) were evaluated for certain independent epidemiological variables from March 1981 up to March 1993 in two-university hospitals.

Received: 27 October 2002, accepted: 16 April 2003

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## MATERIALS AND METHODS

From March 1981 up to March 1993, 103 patients with documented CRC were analyzed for age, gender, marital state, job, nutritional habits, area of residence, initial major presenting symptom/sign, anatomical location of the tumor and histopathological features. The files of patients were thoroughly analyzed and data were compiled for statistical analysis.

## RESULTS

### Age, sex and marital status

Mean age of patients with CRC was 55-60 with the range of 20-75, the youngest patient was 20-year-old and the oldest 75 (Fig. 1). 64.71% of the patients were male and 35.29% females with a ratio of 1.8 (Fig. 2). 90% of the subjects with CRC were married and 9.8 % were single (Fig. 3).

### Professional status and residential area

Of 103 patients with CRC 27.45% were housewives, 5.88% farmers, 14.71% workmen, 34.31% officers, and 17.65% had other jobs. The most common job subgroup in men was officers (Fig. 4). 68.64% of the patients were inhabitants of central industrialized parts of Iran, notably Tehran, 15.68% Western cities, 6.86% Northern cities, 4.9% Southren and 3.92% Eastern areas (Fig. 5).

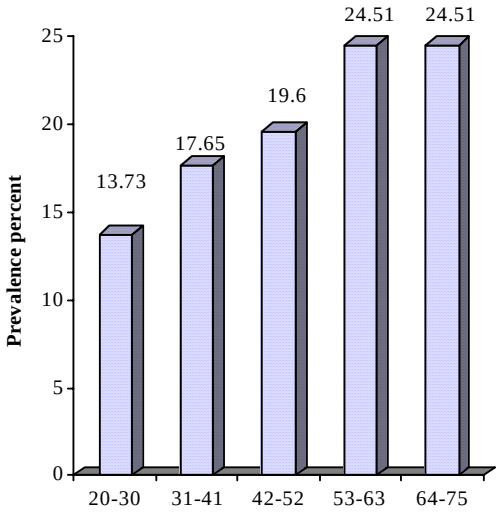


**Fig. 1.** Age distribution

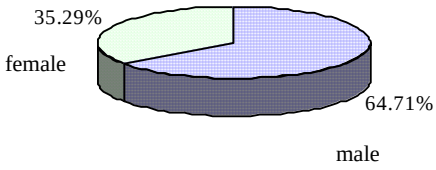


**Fig. 2.** Sex distribution

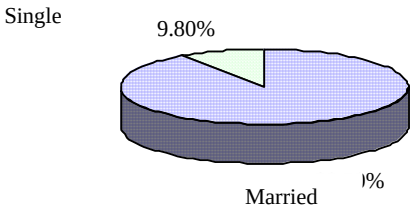


**Fig. 3.** Marital status

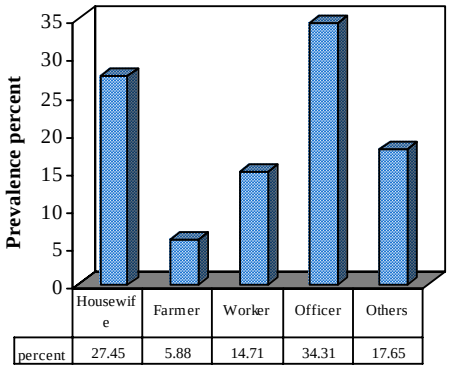


**Fig. 4.** Job sabgroups

**Nutritional habits**

Of 103 patients with CRC 70.5% had intake of dietary fat more exceeding 30 % of total daily energy intake, these patients used canned red meats and conserved fish in oil (18). The diet in these patients contained low vegetable contents.

**Nutritional**

25.49% of our patients had a history of long term smoking. 70.5% were non smokers (Fig. 6)

**Presenting symptoms**

64.7% of the patients complained of rectal bleeding as the major symptom. 29.42% had lower abdominal pain and 5.88% constipation as the initial chief complaint (Fig. 7).

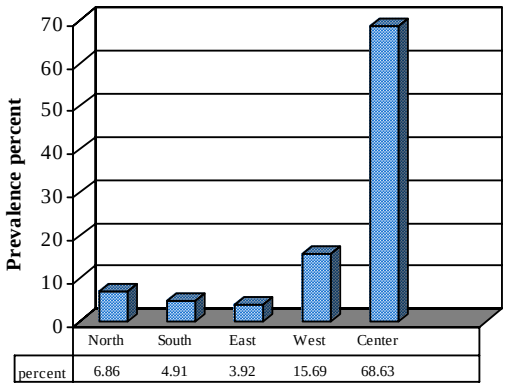


**Fig. 5.** Geographical distribution

**Anatomical location**

Of 103 patients, 50.9 % had carcinoma localized to the rectum. 19.7% suffered from sigmoid cancer, 9.8% descending colon cancer, 7.84% transverse colon cancer and 11.76% ascending colon cancers (Fig. 7).

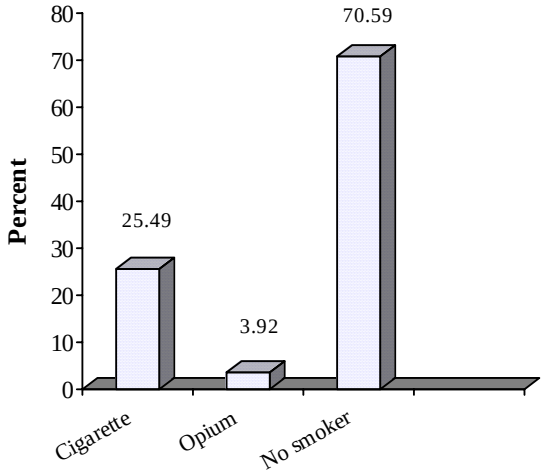


**Fig. 6.** Habit

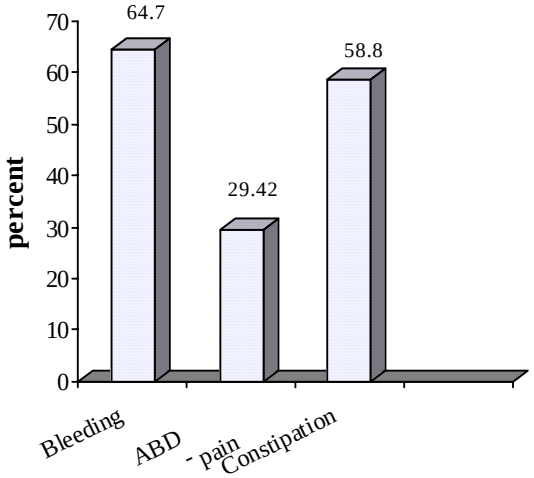


**Fig. 7.** Symptoms of color rectal cancer

### Histopathology

Adenocarcinoma was the histopathological diagnosis in 86.27% of our patients with CRC (Fig. 8). 54.9% of those with adenocarcinoma were male 31-37% were female (ratio= 1.74). 4.91% had squamous cell carcinoma (predominantly rectum) of which 3.93% were male and 0.98% female (ratio= 4.05). 8.82% of the patients suffered from mucin producing carcinoma. The male to female ratio was 2/1.

### Differentiation of tumor

In the 32.35% of the patients, carcinoma of well-differentiated variety was encountered 48.05% had moderately differentiated and 19.6 % had poorly differentiated carcinoma (Fig. 10). Many authorities have noted moderately differentiated carcinoma is more frequent than well differentiated. Poorly poorly differentiated tumors are least common (Fig. 10).

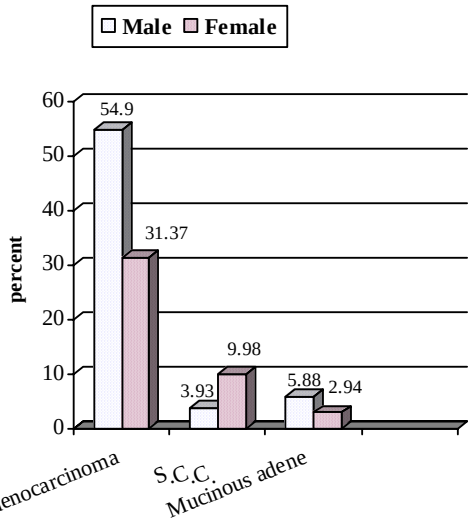


**Fig. 8.** Histology of colorectal cancer

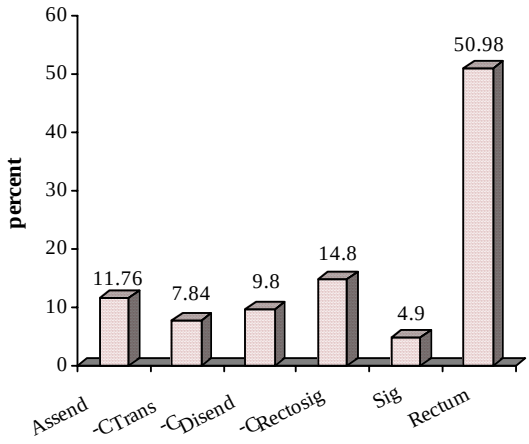


**Fig. 9.** Anatomy of colorectal cancer

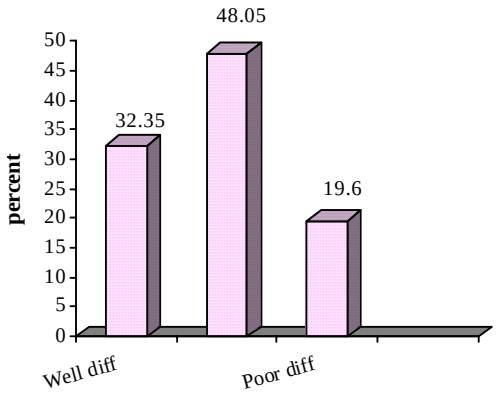


**Fig. 10.** Differentiation of colorectal cancer

# DISCUSSION

Colorectal cancer CRC the most common malignancy of the gastro-intestinal tract and the second most common cause of death due to cancer, have been diagnosed more frequently in young and middle aged population in Iran. In the present study, a retrospective epidemiological analysis of 103 patients with documented CRC during twelve years revealed certain notable important points with respect to age, nutritional and habitual status. Age distribution of the patients clarified a greater incidence of CRC in the populations younger than 30 years (13.73 %) compared to the reported incidence of 8% in western countries (9). A positive family history was noted in only five patients with CRC. Numerous prospective studies have analyzed genetic predisposition for CRC and genes responsible for this cancer susceptibity have been mapped to chromosomes "5, 11, 18" (5,9,15). Further genetic analyses are needed to define the precise incidence of hereditary colorectal cancer syndromes in Iranian peoples (15). A history of long-term (more than twenty years) smoking was noted in 25.4% of our patients. A significant correlation to the risk of colorectal tumors between long-term smoking and extent of colo-rectal adenomatous polyps has been observed. Heinemann and co-workers revealed that increased amount and duration of tobacco consumption was directly proportional to the risk of colo-rectal tumors (16,17). None of our patients were steady alcohol drinkers. Consumption of alcohol for more than twenty years especially if associated with low folate and low methionine intake, has been shown to be a risk factor for the subsequent colon cancer in men (17-19). There was no history of long-term use of anti-inflammatory drugs "NSAID" in our patients. Non-steroidal anti-inflammatory drugs have been regarded as protective agents against development of CRC (20).

A history of gallstone or cholecystectomy was not found in any patient in the present study. Some retrospective studies have found a weak relationship between gall bladder stones and CRC (21). Nutritional habits in a high percentage of our patients resembles diet styles in western countries. Fats and red meats comprise about 40-45% of the total daily energy intake in a substantial group of patients which is accepted as a risk factor for the development of CRC (22,23). Daily intake of fat less that 20% of total energy intake has been associated with significantly decreased risk of colorectal tumors (24,25). A prospective study of 88757 women failed to support a protective role for dietary fibers. Other epidemiological studies have shown conflicting results concerning the association of dietary fat and risk of CRC. The most scrupulous studies have not provided definitive evidence linking dietary fat and increased frequency of CRC (26). Another point of interest was the absence of opium addiction in the most of our patients with CRC. Only 3.92% of the subjects were opium addicted. There is no positive correlation between protracted opium abuse and CRC. The size and extent of malignant colo-rectal tumors in smokers were not significantly different from non-smoker CRC patients. From the standpoint of anatomical location the most frequent site of tumors was rectum and sigmoid and the transverse colon were the least involved sites. A number of statistical studies have addressed greater incidence of CRC in ascending and sigmoid colon and least occurrence in upper descending colon. Moderately differentiated carcinoma was encountered in 48% of our cases followed by well differentiated in 32-35.5% and poorly differentiated tumor in 19.6% of the patients. The incidence of mucin producing carcinoma was 8.82% as compared to the 15-17 % reported in western medical literature. This lower incidence of mucin producing tumors in our patients may be related to the underestimation of mucin contents in some tumor cells stained with hematoxylin-eosin for routine histological examination. Another critically important finding is that a great percentage of our patients presented late in the course of the malignant process. Delay in seeking medical attention actually results in serious limitations in treatment initiation making and decreases the chance for resectability and curability. Screening with fecal occult blood tests and if clinically indicated sigmoidoscopy can help diagnose early colo-rectal tumors and allow curative management. This would be appropriate for young patients with positive family history of colorectal tumors.

## Acknowledgement

We thank colleagues in Department of Radiation Therapy of Shohada and Imam Khomeini Hospitals for their kind assistance and also we thank Mrs.. P.Kianipoor for her enthusiasm in providing us with necessary information.

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