RESEARCH COMMUNICATION

Screening Colonoscopy Participation in Turkish Colorectal Cancer Patients and their First Degree Relatives

Saadettin Kilickap[1]*, Cagatay Arslan[2], Dorina Rama[2], Suayib Yalcin[2]

Abstract

Background: This study aimed to research the awareness of screening colonoscopy (SC) among patients with colorectal cancer (CRC) and their relatives. Methodology: A questionnaire form including information and behavior about colonoscopic screening for CRCs of patients and their first-degree relatives (FDRs) was prepared. Results: A total of 406 CRC patients were enrolled into the study, with 1534 FDRs (siblings n: 1381 and parents n: 153) . Positive family history for CRC was found in 12% of the study population. Previous SC was performed in 11% of patients with CRC. Mean age of the patients whose FDRs underwent SC was lower than the patients whose FDRs did not (52 vs 57 years; p<0,001). The frequency of SC in FDRs was 64% in patients diagnosed CRC under 35 years of age. Persons having a positive family history of CRC had SC more often (51 vs 22%, p<0,001). FDRs of patients having a higher educational level and income had SC more frequently. Conclusions: When screening for CRC is planned, elderly subjects, those with family history for CRC, and those with low educational and lower income should be given esspecial attention in order that they be convinced to undergo screening for CRC.

Keywords: Colorectal cancer - first degree relatives - screening colonoscopy - family history

Asian Pacific J Cancer Prev, **13**, 2829-2832

Introduction

Colorectal cancer (CRC) is the third common malignancy and the second leading cause of cancer-related death in the Western World (Parkin et al., 2005). Since the results of overall and disease-free survival of early stage CRC are very favorable, early diagnosis is very important and screening for CRC is recommended for this purpose. The screening procedure may be performed with different strategies including fecal occult blood test, flexible sigmoidoscopy, double contrast barium evaluation, and colonoscopy. In asymptomatic average-risk individuals, routine CRC screening should start at the age of 50 years. If screening colonoscopy is negative, the procedure is repeated in every 10 years. Individuals at increased risk for CRC include those with a personal or family history of CRC or adenomatous polyps and inflammatory bowel disease. Very high-risk individuals are those with hereditary colorectal cancer syndromes, such as familial adenomatous polyposis (FAP) and hereditary non-polyposis colorectal cancer (HNPCC).

CRC may appear as sporadic or familial. About 15 to 20% of CRCs are of familial origin. Hereditary colorectal cancer syndromes account of 3% of all CRCs (Aaltonen et al., 1998). Furthermore, in majority of familial CRCs, a specific hereditary colorectal cancer syndrome can not be identified.

The incidence for subjects who have diagnosed CRC in first-degree relatives younger than age 40 is higher. While people with a first-degree relative with CRC double the lifetime risk of developing CRC, the risk is a threefold increased in those with two or more relatives with CRC (Fuchs et al., 1994; Johns and Houlston, 2001). Screening by sigmoidoscopy or flexible colonoscopy for CRC may be useful in this group subjects. But, participation rate in screening colonoscopy in this group of patients mostly depends on a number of issues including social, family, and personal factors (Ladabaum, 2007).

In this study, we aimed to determine the frequency of screening by flexible colonoscopy in patients with CRC and their first-degree relatives and the factors influencing their attitudes toward colonoscopy.

Materials and Methods

This study was performed at Hacettepe University Institute of Oncology Division of Medical Oncology between July 2008 and June 2009. The study population included patients with histopathologically diagnosed CRCs at the age of 18 years and older. A questionnaire form was prepared, it consisted of questions included information and behavior about colonoscopic screening for CRCs of patients and their first-degree relatives (FDRs). The questionnaire form also included patient information such as education status and income, stage, family history for cancer, and comorbid disease. All

*[1]Department of Medical Oncology, Faculty of Medicine, Cumhuriyet University, Sivas, [2]Department of Medical Oncology, Institute of Oncology, Hacettepe University, Ankara, Turkey *For correspondence: skilickap@yahoo.com*

questionnaires were completed with face-to-face interview by a medical oncologist at the medical oncology outpatient clinic. Clinicopathological data which included age at the diagnosis, gender, stage, metastasis status, ECOG performance status, comorbidity, and the treatment used were obtained from hospital records.

Data obtained from the questionnaire forms were recorded on database. Statistical analyses were performed using the SPSS software version 15.0. The frequency tables were undergone by using Excel program. Ki-square test, Student t tests, Mann-Whitney U test were used for analyses. All P values were two sided, and P values of less than .05 were considered statistically significant.

Results

A total of 406 CRC patients including 242 men (60%) and 164 women (40%) were enrolled to the study. Mean age of the patients was 56.0±11.8 years. Patients' characteristics were illustrated in Table 1. Most of the patients (72%) were 50 years and than older patients. Stage III was the most common stage (40%). Family history for any cancer was recorded in 41% of patients. Positive family history for CRC was found in 12% of the study population. Thirty-eight percent of the patients were aware of the increased risk of CRC at FDRs, and 88% of them recognized the benefit of SC for early diagnosis. But, previous SC was performed only in 11% of patients with CRC. However colonoscopy was the method of diagnosis in 71% of the CRC patients.

Prevalence and screening for CRC in the first-degree relatives of patients with CRC

A total of 1534 FDRs (sibling n: 1381 and parents n: 153) of 406 patients enrolled to the study were evaluated. Of the patients 4.4% patients had a parent with CRC and 5.7% had a sibling with CRC. One of the parents and one of the siblings at minimum was screened by colonoscopy at 9% and 20% of the patients, respectively. The factors influencing SC for FDRs were showed in Table 2. Mean age of the patients whose FDRs underwent SC was lower than the patients whose FDRs did not have SC (52 vs 57 years; p<0,001). When patients were grouped according to age < 50 or >50 years, 37% and 17% of the patients' FDRs had SC respectively (p<0,001). However, the frequency of SC in FDRs was 64% in patients diagnosed CRC under 35 years of age. Persons having a positive family history of CRC had SC more often (51 vs 22%, p<0,001). FDRs of patients having a higher educational level had SC more frequently. The frequency of SC in patients with higher educational level (ninth class), below the ninth class and none were 33%, 21%, and 17% respectively (p=0,017). The FDRs of patients with higher income levels (>1000 Turkish Liras, Equvalent to about 700 USD at the time of the study) had SC twice more often than the patients having lower income (36% vs 18%, p<0,001). About half of the patients did not know anything about cancer screening, and 35% was aware that at least one cancer can be diagnosed early with cancer screening.

A total 1369 (89%) FDRs of the patients with CRC had contact with the patients and their 97% (n=1327) knew that the patients were diagnosed CRC. Of 1534 FDRs, 59 (4%) were diagnosed CRC. CRC was diagnosed 28 parents and 31 siblings. While 41 of FDRs were diagnosed before detection of the patients with CRC, the diagnosis was established only in 18 of FDRs after the index patient. SC was performed in 127 (8%) of FDRs (n=37 in parents and n=90 in siblings). This procedure had been performed in 42 (33%) of FDRs (15 parents and 27 siblings) before CRC diagnosis in the patients, in 85 (67%) (22 parents and 63 siblings), colonoscopy was performed after the index patient.

Table 1. Patients' Characteristics

		n	%
Gender	Male	242	40,4
	Female	164	59,6
Martial status	Single	21	5,1
	Married	385	94,9
Family history	No	241	59,4
	Yes	165	40,6
	Colorectal cancer	49	12,1
Êducation level	Lower	237	58,4
	Higher	169	41,6
Income	≤1000 TL	251	61,8
	>1000 TL	155	38,2
Stage	I	22	5,4
	II	92	22,7
	III	163	40,1
	IV	118	29,1
	Unknown	11	2,7
Do you know an increased risk of CRC for your FDRs? (Yes)		156	38,4
Did you performed SC beforeCRC was diagnosed? (Yes)		83	20,4
Was CRC diagnosed with a SC? (Yes)		287	70,7

*SC: screening colonoscopy; FDRs: first-degree relatives; TL: Turkish Liras; CRC: colorectal cancer

Table 2. The Factors Influencing SC for FDRs

		SC for FDRs (%)		p
		Negative	Positive	
Age	< 50	63	37	<0.001
	≥ 50	83	17	
Education level	None	83	17	0.017
	Lower	79	21	
	Higher	67	33	
Income	≤ 1000 TL	82	18	0.002
	> 1000 TL	64	36	
Family history for CRC	No	78	22	<0.001
	Yes	49	51	
Stage	I-II	84	16	0.102
	III-IV	74	26	

*TL: Turkish Liras (1.8 TL ≈ 1 ABD Dolar)

Discussion

CRC is one of the few cancers occurring on premalignant lesion. If it is diagnosed at an early stage, the median survival is extremely high. Furthermore, because death from CRC can be reduced significantly by the screening procedures, establishement of population based screening program has a strong rational.

The lifetime risk of developing colorectal carcinoma

in The United States is approximately 1 in 18. A family history of CRC is one of the most important risk factors for developing of the disease. The risk of CRC in subjects who have a FDR with CRC is higher than those without family history for CRC. If the family history of an individual includes one first degree relative and one second degree relative affected then the risk is one in 12. Current guidelines about the screening of CRC recommend starting at age 40 years in subjects with the increased risk (Winawer et al., 2003; Schmiegel et al., 2004). But, usually these subjects have inadequate interest to participate in screening programs.

In this study, although majority of the patients and their first-degree relatives believe that screening with colonoscopy for CRC is useful in early diagnosis, the rate of screening among these subjects is very low. In our study; the frequency of SC in parents and siblings of the index patients was 9 and 20% after the diagnosis of CRC in the index patient, respectively. These levels are too low compared to western countries regarding that 38% of the patients was aware of the increased risk for their FDRs and 88% of them knew SC is the useful tool for early diagnosis (Murff et al., 2008).

A number of factors was shown to affect the frequency of SC in FDRs of CRC patients and normal population such as; ethnicity, awareness of the index patient about the CRC screening, age, income and education levels, healthcare coverage, lifestyle characteristics and perceptions of cancer prevention and prevention (Ioannou et al., 2003; Larsen et al., 2006; Ruthotto et al., 2007; Murff et al., 2008). Similarly, the results of our study suggest that a number of factors influenced attitudes of FDR of patients with CRC, toward screening colonoscopy. In our study; we found that there was a significant relationship between the rate of participation in SC program in the FDRs of CRC patients and educational and income levels, and the index patient age.Among them age of the index patient is one of the most important factors for participitation the screeningcolonoscopy in the FDR of the CRC patients. If the age of an index patient is young, then the frequency of screening colonoscopy is high and early. Also, a positive family history, defined as the presence of CRC in one or more first- and/or second-degree relatives, for CRC in the index patients is a strong factor for screening colonoscopy. Also the ratio of screening with colonoscopy was higher in the first-degree relatives of the index patient who had positive family history compared to those with negative family history of the disease. Our results were similar to those of previously published studies (Clavel-Chapelon et al., 1999; Richardson et al., 1995; Cockburn et al., 2002; Thrasher et al., 2002).

There was insufficient data about association between the rate of SC and education level and income of subjects. The frequency of screening for CRC may be associated with sociodemographic factors such as education level and income. In a population-based study, parcipitation in screening programs with fecal occult blood test was higher in patients with higher education levels, married and higher income (Frederiksen et al., 2010). Similarly (Swan et al., 2010) suggested that the rate of SC were positively associated with education and income.

Our data demonstrated that subjects having low educational and low income levels had showed less interest in participation to screening with colonoscopy for CRC and the rate of SC in FDRs of patients with CRC was higher when the patient had cancer before the age of 50. When screening for CRC is planned, elderly subjects, those with family history for CRC, and those with low educational and lower income should get special attention to be convinced to undergo screening for CRC. There is also an immediate need for increasing the knowledge and awareness in patients and relatives about risk of CRC and benefits of SC.

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