

RESEARCH COMMUNICATION

Public Awareness of Colorectal Cancer in a Turkish Population: Importance of Fecal Occult Blood Testing

Koray Bas^{1*}, Tolga Guler², Levent Mert Gunay³, Hasan Besim¹, Dilek Uygur⁴

Abstract

To date, there was no controlled-study regarding awareness and knowledge of colorectal cancer in the Turkish population. We therefore designed a questionnaire consisting of items related to socio-demographic parameters, medical and family history and questions of awareness and knowledge about colorectal cancer for use in a descriptive cross-sectional study. An interviewer-administered technique was applied and 450 subjects were interviewed in the outpatient clinics at Near East University Hospital. Among all subjects, 337 were found to be eligible for the study group. Exclusion criteria were age below 18 years, any cancer history, family history of colorectal cancer, current colorectal problems, history of any diagnostic or therapeutic interventions for colorectal diseases. All participants stated that they heard about colorectal cancer. When asked about the lifetime risk of colorectal carcinoma, only 25.4% of women and 37.9% of men estimated correctly. Univariate analysis revealed that the total awareness score was significantly correlated with age, marital status, parenthood and fecal occult blood testing history. On multivariate analysis of independent predictors for awareness of colorectal cancer were found to be history of fecal occult blood testing, age and marital status were found to be the most important determinants. As a conclusion, opportunistic screening with fecal occult blood test by physicians from non-gastrointestinal specialties not only helps to reduce the mortality but also increases the awareness of colorectal cancer.

Keywords: Colorectal cancer - health knowledge - attitudes - practice - fecal occult blood test

Asian Pacific J Cancer Prev, 13, 195-198

Introduction

Although considerable progress has been achieved in the diagnosis and treatment of colorectal cancer, there are several questions still unanswered for public knowledge and awareness of this disease. To our knowledge, there is no any controlled study on knowledge and awareness about colorectal cancer among Turkish people. According to Boyle and Levin's world cancer report, up to one third of new cancers could be detected at an early stage (Boyle and Levin, 2008). To achieve higher success, improvement of knowledge and awareness not only for early symptoms but also for early detection methods and screening tools should be an important part of this strategy. Some barriers such as cultural, economic, ethnic beliefs and taboos may tackle early detection and effective management of cancer (Ravichandan et al., 2010). Understanding the basic level of cancer knowledge of the population is important for controlling any kind of cancer as well as the awareness for prevention, early diagnosis, screening and diagnostic tools and different treatment approaches. With some researches it has been approved that there is significant association with knowledge of cancer and some predictor variables such as education level, social participation and income.

¹General Surgery, ²Obstetrics and Gynecology, ³Urology, Faculty of Medicine, Near East University, Lefkosa Mersin, ⁴Obstetrics and Gynecology, Zekai Tahir Burak Women's Health Education and Research Hospital, Ankara, Turkey *For correspondence: drkoraybas@yahoo.com

Therefore knowledge and awareness of cancer can be improved by appropriate cancer literacy programs (Ray and Mandal, 2004).

In this study, we aimed to evaluate knowledge and awareness about colorectal cancer of Turkish Cypriots with the question in our mind 'how to improve people's interest and attitude for preventing and early diagnoses on this frequent and insidious type of cancer'. So far, this is the first particular study committed for this population. It is important to realize what people know about this cancer for planning control programs.

Background, earlier studies on cancer knowledge and awareness in Turkish population have been few and mostly limited to knowledge of and attitude towards breast cancer. The purpose of this cross sectional study was to assess the knowledge and awareness levels about colorectal cancer (CRC) and to identify associated factors with it among Turkish Cypriots.

Materials and Methods

The study conducted at Near East University Hospital between May and October 2011. This was a descriptive cross-sectional study based on a questionnaire consisting

socio-demographic items, medical and family histories and questions investigating awareness and knowledge about CRC. The questionnaire was administered in Turkish which is the native language in the area of interest. Four hundred and fifty patients who admitted to the outpatient clinics of General Surgery, Gynecology and Urology and willing to participate to this study were interviewed. Exclusion criteria were age below 18 years, any cancer history, family history of colorectal cancer, current colorectal problems, history of any diagnostic or therapeutic interventions for colorectal diseases. According to these criteria 113 patients were excluded and the study group was established with 337 patients. Age, education, household income, marital status, employment and parenthood were evaluated for the socio-demographic characteristics of the participants. Medical and family histories were noted by the physician and the history of fecal occult blood testing (FOBT) was also recorded. Twenty questions about awareness and knowledge of CRC were prepared and grouped as “How to screen” (Questions evaluating awareness about screening tools and strategies), “When to screen” (Questions investigating awareness about timing and periods of screening), “Risk and preventative factors” (Items exploring the awareness for known risk and preventative factors of developing CRC). One score point was assigned for each correct answer. Total awareness-knowledge score and subgroup scores were calculated.

Associations between socio-demographic characteristics and awareness-knowledge scores of the subgroups were analyzed by univariate and multivariate analysis. Pearson’s chi-squared test (p-value of 0.05 was set to test statistical significance) and Mann-Whitney U test (for ordinal parameters) were used for the statistical analysis of qualitative and quantitative parameters, respectively. Commercially available statistical software package was used for analysis.

Permission to carry out this study was granted by local institutional ethics committee.

Results

Three hundred and thirty-seven participants were enrolled in this study. All of them were Turkish Cypriots. The mean age of the participants was 35.6 ± 13.3 years (19-69). Fifty-eight (17.2%) of them were above 50 years of age. Socio-demographic variables of the participants are summarized in Table 1.

Seventy-one (21.1%) participants had a history of FOBT, while 44 (13.1%) of them was requested by a gynecologist and 9 (2.7%) by a general surgeon or gastroenterologist. More women had a history of screening with FOB testing compared to men (58/142 (40.5%) and 13/195 (6.7%) respectively).

All participants stated that they heard about colorectal cancer. When asked about the lifetime risk of colorectal carcinoma, only 36 (25.4%) women and 74 (37.9%) men estimated correctly. Questions for the awareness for CRC were grouped in to three; questions about “how to screen”, “when to screen” and “risk and preventative factors”. A total awareness score was calculated with including all

Table 1. Socio-Demographic Characteristics of the Participants (n=337)

Age	Years	
Median (range)	31	(16-69)
Mean	35.6	
Gender	n	(%)
Femal	142	(42.1%)
Male	195	(57.9%)
Educational level	n	(%)
High school	136	(40.4%)
University	201	(59.6%)
Household income (monthly)	n	(%)
< 3000 \$	106	(31.5%)
> 3000 \$	231	(68.5%)
Marital status	n	(%)
Never married	160	(47.5%)
Married	177	(52.5%)
Employment	n	(%)
Not employed	82	(24.3%)
Employed	255	(75.7%)
Parenthood	n	(%)
Do not have children	167	(49.6%)
Have children	170	(50.4%)

Table 2. Distribution of Participants Who Correctly Answered 50% or More of the Items in Three Subgroups According to Socio-demographic Parameters and History of FOBT.

	“How to screen”	“When to screen”	“Risk & preventative factors”
Overall	221(65.6%)	216(64.1%)	230(68.2%)
Age			
<50 years	171(61.3%)	174(62.4%)	181(64.9%)
>50 years	50(86.2%)**	42(72.4%)	49(84.5%)*
Gender			
Female	101(71.1%)	78(54.9%)	89(62.7%)
Male	120(61.5%)	138(70.8%)*	141(72.3%)
Educational level			
High school	78(57.4%)	92(67.6%)	113(83.1%)
University	143(71.1%)*	124(61.7%)	117(58.2%)**
Household income			
<3000 \$	76(71.7%)	62(58.5%)	64(60.4%)
>3000 \$	145(62.8%)	154(66.7%)	166(71.9%)
Marital status			
Never married	93(58.1%)	103(64.4%)	95(59.4%)
Married	128(72.3%)*	113(63.8%)	135(76.3%)*
Employment			
Not employed	40(48.8%)	50(61.0%)	59(72.0%)
Employed	181(71.0%)**	166(65.1%)	171(67.1%)
Parenthood			
Do not have	95(56.9%)	110(65.9%)	97(58.1%)
Have children	126(74.1%)*	106(62.4%)	133(78.2%)**
FOBT history			
No	163(61.3%)	167(62.8%)	164(61.7%)
Yes	58(81.7%)*	49(69.0%)	66(93.0%)

these subgroups. Distributions of the participants who correctly answered 50% or more of the items for these subgroups are shown in Table 2.

Univariate analysis for the relation between socio-demographic parameters and total awareness score (50% or more correct answer rate) revealed statistically significant difference only for age, marital status and parenthood. History of FOBT was also found to be

Table 3. Multivariate Comparison Results of Age, Marital Status, Parenthood and History of FOBT for Predicting Awareness of Colorectal Cancer

	Awareness of colorectal cancer		
	Significance (p value)	Odds ratio (OR)	95% CI for OR
History of fecal occult blood testing	0.008	2.9	1.33-6.33
Age (>50 years)	0.016	2.78	1.21-6.40
Marital status (Being married)	0.033	2.44	1.08-5.51
Parenthood (Having children)	0.149	0.53	0.22-1.26

related with the total awareness score. When multivariate analysis was performed with these 4 parameters, history of FOBT was found to be the most important predictor for awareness of CRC. Results of the multivariate analysis are shown in Table 3.

Discussion

Colorectal cancer is one of the major health problems in the world. It is most commonly seen in the developed countries. According to Surveillance, Epidemiology and End Results (SEER) database lifetime risk of developing CRC is 5.12% (Howlander et al., 2011). The incidence increases after fifth decade and peak at seventh. In oncology diagnosis and treatment programs and nationwide protocols are based on the data collected from up-to-date statistics on cancer occurrence and outcome. The education of patients and the evaluation of the awareness are also essential for planning of programs for cancer control. However data on knowledge and awareness of CRC is sparse. In our study we assessed the knowledge and awareness level of patients about CRC in northern Cyprus.

In Cyprus age standardized incidence rate for CRC was 34.3 and 23.4 per 100,000 men and women respectively. In a 2008 European analysis it is estimated that 333,400 people will be diagnosed with CRC and 148,800 will die of the disease. In the United States 142,570 new CRC cases were reported in 2010, and 51,370 died of the disease (Ferlay et al., 2010).

Our study reflected several parameters of significant importance related directly to the awareness level of our patients. The most important parameter was a FOB testing history (OR=2.90 (95% CI=1.33-6.33)). Most of the patients who had FOBT were women. This difference is partially related to the powerful pre- and postmenopausal control programme ongoing in our Gynecology department. The specialists here routinely screen women for breast, colorectal, endometrial, ovarian and cervical cancer. Gynecologists also liberally use FOBT for the evaluation of anemia. Routine protocols of Urology and General Surgery departments however do not cover screening other cancers beyond their interest.

FOBT is defined as one of the first and important tests in CRC screening. It presents several advantages regarding

cost, applicability and availability. CRC can be detected earlier by three consecutive FOBT after fifth decade when compared to no screening. This may be regarded as the least invasive method of screening although not recommended to be used alone concerning the low sensitivity and specificity (Bond, 1997). Using annual stool tests for primary screening of CRC would allow 100% of the age-appropriate population to be screened in the USA and saved nearly \$10 billion per decade from what was spent to screen only half the targeted population in 2006 (Fisher et al., 2006).

As people reach age 50, they have formed families, raised children and occupy the best chairs of their careers. On the other hand, age 50 also comes with signals of some serious health problems that can threaten and impair survival and quality of life. Increasing evidence suggests that awareness of many of these conditions secures people from being diagnosed with advanced disease. Our data showed patients over 50 years were aware of the CRC significantly more than the younger ones (OR=2.78 (95% CI=1.21-6.40)).

In a previous report education status, marital status and household income predicted breast cancer risk knowledge (Chen and Bakken, 2004). In our study marital status, age and parenthood and history of FOBT predicted CRC awareness significantly in univariate analysis. When these parameters were analyzed with logistic regression, we have seen that FOBT history was the strongest independent predictive factor for high CRC awareness. Also marital status and age come forward as other independent variables for predicting disease awareness (OR=2.78 (95% CI=1.21-6.40) and OR=2.44 (95% CI=1.08-5.51) respectively). This relationship is not surprising as married people shift their focus to other family members and they deal with wide spectrum of medical problems, especially older parents with children reach medical facilities more frequently.

This study may have potential participation bias. Our survey depends on a non-validated questionnaire applied to Turkish Cypriots. These results may not be generalized to larger and complex populations.

Screening guidelines for CRC is lacking. Patients are free to choose recommended screening protocols by themselves. Instructing the patients appropriately is utmost important. Therefore the physician himself has to be equipped with the current knowledge in screening for CRC. Additional effort is needed to eliminate disparities in the level of awareness among physicians and patients. Awareness campaigns for CRC may move public toward appropriate health behaviors and may popularize applications for screening. Public relations through press and media would help community reach a certain level of cancer awareness and knowledge. In this perspective we would like to mention the importance of public awareness for cancer and cancer screening since this has a pivotal role for the success of the fight against cancer.

In conclusion, the success of cancer screening programs depends on the awareness of the population and physicians of any specialty. For colorectal cancer, FOBT is a non-invasive, costless, easy to apply test. Opportunistic screening with FOBT by other specialties such as urology

and gynecology may increase the awareness for CRC by incorporating patients to this process.

References

- Bond JH (1997). Screening for colorectal cancer: confuting the refuters. *Gastrointest Endosc*, **45**, 105-9.
- Boyle P, Levin B (2008). World Cancer Report 2008. International Agency for Research on Cancer, Lyon.
- Chen WT, Bakken S (2004). Breast cancer knowledge assessment in female Chinese immigrants in New York. *Cancer Nurs*, **27**, 407-12.
- Ferlay J, Parkin DM, Steliarova Foucher E (2010). Estimates of cancer incidence and mortality in Europe in 2008. *Eur J Cancer*, **46**, 765-81.
- Fisher JA, Fikry C, Troxel AB (2006). Cutting cost and increasing access to colorectal cancer screening: another approach to following the guidelines. *Cancer Epidemiol Biomarkers Prev*, **15**, 108-13.
- Howlander N NA, Krapcho M, Neyman N, et al (2011). SEER Cancer Statistics Review, 1975-2008, National Cancer Institute. Bethesda, MD, http://seer.cancer.gov/csr/1975_2008/, based on November 2010 SEER data submission, posted to the SEER web site, 2011.
- Ravichandran K, Mohamed G, Al Hamdan NA (2010). Public Knowledge on cancer and its determinants among Saudis in the Riyadh Region of Saudi Arabia. *Asian Pacific J Cancer Prev*, **11**, 1175-80.
- Ray K, Mandal S (2004). Knowledge about cancer in West Bengal - a pilot survey. *Asian Pac J Cancer Prev*, **5**, 205-12