

Awareness and attitudes of Greek medical students on colorectal cancer screening

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Abstract

AIM: To prospectively assess the knowledge and attitudes of medical students (MS), as tomorrow's physicians, about colorectal cancer (CRC) and its screening modalities.

METHODS: Three hundred fourth year MS of the University of Athens were enrolled in this survey. Their selection was random, based on student identification card number. All participants completed an anonymous written questionnaire over a 4 month period. The questionnaire was divided into 4 sections and included

queries about CRC-related symptoms, screening with colonoscopy and MS awareness and attitudes in this field. Following collection and analysis of the data, the results are presented as percentages of answers for each separate question.

RESULTS: Two hundred and sixty-five students answered the questionnaire over a 4 mo period. Interestingly, only 69% of the study population considered CRC to be a high-risk condition for public health. However, the vast majority of participants identified CRC-related symptoms and acknowledged its screening to be of great value in reducing CRC incidence and mortality. A very small proportion (38%) had received information material regarding CRC screening (either during their medical training or as a part of information provided to the general public) and only 60% of the participants declared willingness to receive further information. Regarding colonoscopy, 85% would prefer an alternative to colonoscopy methods for CRC screening. Moreover, 53% considered it to be a painful method and 68% would appreciate more information about the examination.

CONCLUSION: MS in Greece need to be better informed about CRC screening and screening colonoscopy.

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Key words: Screening; Medical students; Colorectal cancer; Attitudes

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INTRODUCTION

Colorectal cancer (CRC) is the second leading cause of cancer death in the United States and Western Europe. Lately, both the incidence and mortality rates of CRC seem to be declining in the United States, a fact that has been associated with the increased understanding of its pathogenesis, recent advances in medical and surgical care and the widespread implementation of screening programs^[1,2]. Screening for CRC can identify premalignant lesions and detect asymptomatic early stage malignancy, thus decreasing its incidence and mortality^[3,4]. Tests available for screening include stool-based tests (guaiac-based or immunochemical fecal tests, as well as stool DNA sampling), radiological methods (computed tomography colonography, double-contrast barium enema) and endoscopic examinations (colonoscopy, flexible sigmoidoscopy, capsule endoscopy). Screening colonoscopy aimed at early detection and removal of precancerous polyps seems to reduce the incidence of CRC^[4]. Even flexible sigmoidoscopy can lead to a 60% decrease of CRC-associated deaths, provided screening was done before development of symptoms^[5]. However, compliance of the asymptomatic population, as well as that of individuals with a high risk for CRC, with screening programs remains low^[6-8]. Physician's beliefs on CRC screening has been shown to have a significant influence on whether or not their patients participate in CRC screening programs^[9-11].

The objective of this survey was to prospectively assess the knowledge and specific attitudes of a series of fourth year medical students (MS) from the University of Athens about CRC and its screening programs, with an emphasis on colonoscopy.

MATERIALS AND METHODS

Three hundred MS from the University of Athens were enrolled in this survey. All students were in the fourth year and selection was based on student identification card number. The participants anonymously completed a written questionnaire between March and June, 2010. This was divided into 4 sections (Table 1). The first section included questions about CRC-related symptoms. In the second part, the survey asked questions regarding MS beliefs about CRC and its screening with colonoscopy. The third part provided questions pertaining to the availability and source of student's information on this

subject. The questionnaire concluded with inquires addressing MS pre- and post-study attitudes towards CRC and its screening. MS willingness to enrich their knowledge in this area and subsequently inform their relatives and friends was also investigated. The results of this survey are presented as percentages of answers for each separate question.

RESULTS

Two hundred and sixty-five students (88.3%) answered the questionnaire. Respondents' mean age was 22.8 years (range 21-25 years) and 53% were male. Most (85%-99%) of the participants could identify CRC-related symptoms and 95% was aware of the fact that CRC screening significantly reduces its incidence and mortality. A significant proportion of MS (83%) was informed about the recommended age to start screening in average-risk population. However, only 69% viewed CRC as a major public health issue. Additionally, an even smaller proportion (38%) had received information material regarding CRC screening (either within their study curriculum or as a part of information directed to the general public); most interestingly, only 60% of the study group declared an interest to obtain further information. Regarding colonoscopy as a screening tool, 85% would prefer an alternative method and 53% considered it painful. Finally, 68% of the students would appreciate more information about colonoscopy and 78% agreed to subsequently inform their families and friends about the importance of CRC screening. The results of our survey are summarized in Table 1.

DISCUSSION

We ran the present survey in order to evaluate the awareness of a series of MS of CRC and its screening modalities, especially focusing on colonoscopy. The rationale behind the study population selection was that it is tomorrow's physicians who will be recruited from today's MS who will refer patients or who can influence the public to participate in CRC screening. Therefore, their attitude and information about CRC screening modalities, especially colonoscopy, may have a great impact on the public's compliance^[12]. As the participants' parents belong to the age group primarily targeted to start CRC screening, their children's motivation to undergo colonoscopy would also be an immediate benefit.

It is encouraging that a remarkably high percentage (85%-99%) of the participants identified the alarm symptoms suggestive of CRC. This finding possibly reflects their medical education, since clear gaps in knowledge about CRC symptoms were recently reported by Ramos *et al*^[13] in 625 primary healthcare patients. The vast majority of respondents (95%) admitted that screening for CRC leads to a decline in its incidence and mortality. This result is consistent with that of a recent

Table 1 Greek fourth year medical student responses to a 4 item questionnaire about colorectal cancer and colorectal cancer screening (%)

	Yes	No
Which of the following may be a CRC-related symptom?		
Rectal bleeding	99	1
Altered bowel habits	92	8
Constipation	95	5
Diarrhea	85	5
Which of the following is true about CRC and its screening?		
Screening begins at the age of 50 in average risk individuals	83	17
Screening reduces CRC mortality	95	5
CRC is a major public health problem	69	31
Is colonoscopy painful?	57	43
Would you prefer an alternative to colonoscopy for CRC screening	85	15
Polyps removal and lesional tissue sampling are feasible during colonoscopy	87	13
Information about CRC screening		
Have you ever received any information material regarding CRC screening	38	62
Would you like to receive more information material?	60	40
Your knowledge about CRC and colonoscopy originates from medical school or elsewhere (e.g. family, media, internet)	Medical school: 80	
	Elsewhere: 20	
Pre- and post-study attitude regarding CRC and its screening		
Have you ever encouraged anyone to undergo colonoscopy?	73	27
Are you willing to increase your knowledge in this area?	68	32
Are you planning to inform your family/friends about the benefits of CRC screening?	78	22

CRC: Colorectal cancer.

survey among MS in two American schools assessing knowledge and attitudes regarding CRC screening. In terms of the age to start screening tests for CRC in average risk individuals, a higher proportion of Greek than American MS gave the correct answer. However, differences in the setting of the relevant question may be responsible for this discrepancy^[14].

Interestingly, only 69% of MS in our study considered CRC to be a major public health issue. This may have an unfavorable impact on their future role as healthcare providers and may most probably be attributed to the restricted information they have received so far on this topic (38%). An argument could be made that fourth year MS in the University of Athens have just started their clinical education; therefore, their perception of the value of cancer prevention strategies is limited. In accordance with this argument, it has been observed that the mean knowledge scores on CRC increase directly with level of training^[15]. However, Zack *et al*^[16] reported a significant discrepancy between the perceived, offered and actually implemented CRC screening by internal medicine residents in an Irish institution, despite

their advanced medical education.

Numerous studies have been conducted in healthcare professionals to evaluate awareness and attitudes about CRC screening. According to our results, only 15% of the questioned MS would prefer colonoscopy as a personal screening tool. This percentage is markedly low, compared to the reported 97% and 27% among gastrointestinal specialists and general practitioners respectively, in the Netherlands^[17]. Greek MS perception about colonoscopy being painful (57%), possibly reflecting their little information and clinical experience, may account for this finding. 78% of MS were planning to inform their family and friends about the benefits of CRC screening, whereas only 51% of the general practitioners in the above mentioned study favored population screening. On the other hand, 87.2% of obstetricians/gynecologists and 61.7% of nurse practitioners include CRC screening in their routine preventive practice^[18]. These percentages lag far behind those of other common malignancies, such as breast and cervical cancer^[19,20]. Similarly, a survey of internists' and surgeons' knowledge regarding CRC screening disclosed plenty of deficits^[21].

Population adherence to CRC screening guidelines is disappointingly poor. In a survey carried out by Stock *et al*^[8] in 11 European countries, the proportion of respondents aged 50 years and older who reported ever having undergone lower gastrointestinal endoscopy ranged from 8.2% in Greece to 35.7% in Austria. Several patient-related factors may contribute to the low adherence rate, including inappropriate perception of risk, burdensome enteric preparation, pain, discomfort and embarrassment related especially to colonoscopy^[7]. Furthermore, CRC screening underutilization possibly represents the absence of information provided by the media and medical associations. Another factor that may contribute to these extremely low levels of compliance is the lack of knowledge in general practitioners or other medical specialties about the benefits of participation in CRC screening programs. This results in reduced referrals, especially for screening colonoscopy, which is generally considered a "difficult" or sometimes ineffective examination^[22,23]; the latter seems to be an important factor, especially in light of recent cuts in spending for public health, as well as reductions in funding for health education, screening programs and investments to improve screening modalities^[24,25].

To our best knowledge, this is the first report investigating MS awareness and attitudes towards CRC and its screening in Europe. However, it bears some limitations; it is restricted to fourth year MS, who actually have limited clinical experience and therefore their awareness and attitudes towards CRC screening may not be significantly different from the general population, although they have completed their preclinical education and started their clinical training. It may be reasonable to state that sixth year MS would perform significantly better. Furthermore, the inclusion of MS from only one of seven

Greek medical schools may have partly undermined the ability to generalize our conclusions. However, despite these limitations, we believe that our results are interesting and could possibly be enriched in the future by a similar survey in more advanced level MS attending medical schools all over Greece. Comparison with European MS attitudes would also be helpful since results might shed more light into the significantly different population's adherence rates observed in these countries and could serve as a "control group" to our MS in order to make interesting comparisons.

Collectively, our results highlight the need to better inform MS about CRC as a major public health problem and the available methods for its screening and surveillance. In this context, modifying medical schools' curricula to promote students' knowledge about preventive methods against CRC merits special consideration^[26]. MS, as the future healthcare providers, through education in this area, are a crucial parameter in order to achieve maximum adherence of the general population in CRC screening programs aiming to decrease CRC-related deaths.

COMMENTS

Background

Colorectal cancer (CRC) is a common and potentially lethal disease. CRC screening tests can help identify cancers at an early and treatable stage. Colonoscopy in particular can also prevent the development of CRC by detecting precancerous lesions called adenomas, which can be removed before they become malignant. However, adherence to screening programs is relatively low, possibly reflecting the physician's awareness and attitudes towards this subject.

Research frontiers

Aiming to increase participation to CRC screening programs, an important hot-spot is to assess and improve healthcare providers' knowledge in this field.

Innovations and breakthroughs

This study aims to assess the knowledge and attitudes of medical students (MS) about CRC and its screening methods, primarily colonoscopy. This is definitely of interest since MS are future physicians and should play a major role in public health system.

Applications

The results of the present study underline the need to better educate MS about CRC and its screening, in order to achieve higher adherence to screening programs and decrease CRC-related deaths.

Terminology

CRC: cancer that develops in the large intestine (colon) or rectum; Screening tests: methods that help identify cancer at an early stage or even detect precancerous lesions that can be removed, resulting in cancer prevention.

Peer review

The reviewers commented that the present study evaluates the awareness and attitudes of MS towards CRC and its screening by questionnaire given to Greek MS. They agree with the authors that Greek MS need to be better informed regarding this subject.

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