

Colonoscopy Screening and Surveillance of Colorectal Cancer and Polyps: Physicians' Knowledge

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Abstract

Background: Colonoscopy is the gold standard procedure for screening for colorectal cancer and surveillance after polypectomy or colorectal cancer surgery, for diagnosis in symptomatic patients and patients with fecal occult blood, and for screening in the high risk population. The adherence of referring physicians to the accepted recommendations can prevent long waiting lists for colonoscopy and save lives, costs and resources.

Objectives: To evaluate the knowledge of primary care physicians and gastroenterologists in Israel about current guidelines for colonoscopy screening and surveillance.

Methods: A 10-item questionnaire on proper follow-up colonoscopy for surveillance after polypectomy and screening for colorectal cancer in various clinical and epidemiological situations was administered to 100 expert gastroenterologists and 100 primary care physicians at a professional meeting. Answers were evaluated for each group of physicians and compared using the chi-square test.

Results: The compliance rate was 45% for the gastroenterologists and 80% for the primary care physicians. The rate of correct answers to the specific items ranged from 18.7% to 93.75% for the gastroenterologists and from 6.2% to 58.5% for the primary care physicians ($P < 0.001$ for almost every item).

Conclusions: The knowledge of physicians regarding the screening and surveillance of colorectal cancer needs to be improved.

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Colonoscopy is the main procedure for surveillance of patients after polypectomy or colorectal cancer surgery. It is also the main endoscopy procedure for the diagnosis of polyps and CRC in symptomatic patients or patients with positive findings on other screens, such as sigmoidoscopy, virtual colonoscopy or fecal occult blood test. Furthermore, in the United States and some European countries, colonoscopy is currently also the preferred procedure for CRC screening in the average-risk asymptomatic population [1-3]. However, while the burden of colonoscopies has increased in a linear fashion, resources have not, and the wait for the procedure may be very long.

The most recent guidelines, published in 2006, clearly define the surveillance interval after polypectomy and CRC surgery with a curative intent [1,4]. It is important that clinicians adhere to these guidelines in order to direct people to undergo the procedure at the right time. Studies have shown that by shifting

many colonoscopies performed for inappropriate surveillance to screening, the diagnostic yield of colonoscopy for early-stage CRC and adenomatous polyps would grow substantially [5-9].

The aim of the present study was to evaluate the knowledge of primary care physicians and gastroenterologists in Israel regarding the most recent screening and surveillance guidelines for colonoscopy, which potentially affects referral patterns.

Patients and Methods

We formulated a 10-item questionnaire on the proper timing of colonoscopy for surveillance or screening in various clinical situations according to the recommendations of the American Gastroenterological Association [4,10] [Table 1]. The questionnaire, in Hebrew, was multiple choice, with only one correct answer from the four possible options [Table 1]. Five questions dealt with the proper colonoscopic surveillance after polypectomy, and five questions with the proper time of colonoscopic screening for the average- and high risk populations.

The study was conducted during October 2006. The questionnaires were distributed among 200 physicians, including 100 primary care physicians and 100 certified (senior) gastroenterologists, who were separately attending their annual professional meetings, and completed anonymously. All subjects were informed of the purpose of the questionnaire and all agreed to participate.

The proportion of correct responses to each item was calculated for each physician group, and the results were compared statistically with the chi-square test. A P value of less than 0.05 was considered significant.

Results

All the participants were active practicing physicians from the center of Israel. The compliance rate was 80% for the primary care physicians and 45% for the gastroenterologists. The proportion of correct answers to specific items ranged from 6.2% to 58.5% in the primary care physicians group and 18.7% to 93.75% in the gastroenterologists group ($P < 0.001$ for each item).

Only three items were answered correctly by more than 50% of the primary care physicians, whereas eight were answered correctly by more than 60% of the gastroenterologists. Most of the gastroenterologists erroneously believed that follow-up colonoscopy should be performed earlier than 10 years after

CRC = colorectal cancer

Table 1. Questionnaire on recommended follow-up interval (years) for colonoscopy in patients after removal of polyps or at high risk for CRC

	Family physician group			Gastroenterologist group			
	(%)	[95% CI]	(n) N=80	(%)	[95% CI]	(n) N=48	
1. After removal of a small isolated hyperplastic polyp							
1-3 yrs	42.5	(31.7-53.3)	34	0	(0-0)	0	P=0.0001
5 yrs	25	(15.5-34.5)	20	8.33	(0.5-16.1)	4	
* 10 yrs	10	(3.4-16.6)	8	22.9	(11-34.8)	11	
There is no need for follow-up	22.5	(13.3-31.7)	18	68.75	(55.6-81.9)	33	
2. After removal of a single adenoma less than 1 cm in diameter							
1 yr	15	(7.2-22.8)	12	2.08	(-2-6.1)	1	P=0.0001
1-3 yrs	41.25	(30.5-52)	33	16.67	(6.1-27.2)	8	
* 5-10 yrs	40	(29.3-50.7)	32	81.25	(70.2-92.3)	39	
There is no need for follow-up	3.75	(-0.4-7.9)	3	0	(0-0)	0	
3. After complete removal of an adenoma larger than 1 cm in diameter with a villous component or high grade dysplasia							
1 yr	76.25	(66.9-85.6)	61	27.08	(14.5-39.7)	13	P=0.0001
* 3 yrs	18.75	(10.2-27.3)	15	64.58	(51.0-78.1)	31	
5 yrs	3.75	(-0.4-7.9)	3	8.33	(0.5-16.1)	4	
There is no need for follow-up	1.25	(-1.2-3.7)	1	0	(0-0)	0	
4. After removal of 2 adenomas smaller than 1 cm in diameter without a villous component or high grade dysplasia							
1 yr	32.5	(22.2-42.8)	26	8.33	(0.5-16.1)	4	P=0.001
3 yrs	36.25	(25.7-46.8)	29	31.25	(18.1-44.4)	15	
* 5 yrs	26.25	(16.6-35.9)	21	60.41	(46.6-74.2)	29	
There is no need for follow-up	3.75	(-0.4-7.9)	3	0	(0-0)	0	
5. After complete removal of 3 or more adenomas smaller than 1 cm in diameter without a villous component or high grade dysplasia							
1 yr	72.5	(62.7-82.3)	58	27.08	(14.5-39.7)	13	P=0.0001
* 3 yrs	16.25	(8.2-24.3)	13	70.83	(58-83.7)	34	
5 yrs	10	(3.4-16.6)	8	2.08	(-2-6.1)	1	
There is no need for follow-up	0	(0-0)	0	0	(0-0)	0	
6. For person over 50 years old without any risk factors							
Every 3 yrs if there are no polyps	1.25	(-1.2-3.7)	1	0	(0-0)	0	P=0.0001
Every 5 yrs if there are no polyps	62.25	(51.6-72.9)	21	6.25	(-0.6-13.1)	3	
* Every 10 yrs if there are no polyps	35	(24.5-45.5)	28	85.41	(75.4-95.4)	41	
Once in a lifetime	37.5	(26.9-48.1)	30	8.33	(0.5-16.1)	4	
7. For a first test in a person with a first-degree relative who had CRC at age 45							
Age 55 yrs	5	(0.2-9.8)	4	0	(0-0)	0	P=0.0001
Age 45 yrs	21.25	(12.3-30.2)	17	2.08	(-0.2-6.1)	1	
* Age 35 yrs	58.75	(48.0-69.5)	47	93.75	(86.9-100.6)	45	
Age 40 yrs	11.25	(4.3-18.2)	9	0	(0-0)	0	
8. For a person with a first-degree relative who had CRC at age 45 yrs							
Every 3 yrs if there are no polyps	32.5	(22.2-42.8)	26	33.3	(20-46.6)	16	NS
* Every 5 yrs if there are no polyps	65	(54.5-75.5)	52	64.58	(51-78.1)	31	
Every 10 yrs if there are no polyps	1.25	(-1.2-3.7)	1	0	(0-0)	0	
Once in a lifetime	1.25	(-1.2-3.7)	1	0	(0-0)	0	
9. For a person with a first-degree relative who had CRC at age 60 yrs							
Every 3 yrs if there are no polyps	30	(20-40)	24	0	(0-0)	0	P=0.0001
Every 5 yrs if there are no polyps	61.25	(50.6-71.9)	29	79.16	(67.7-90.7)	38	
* Every 10 yrs if there are no polyps	6.25	(0.9-11.6)	5	18.75	(7.7-29.8)	9	
Once in a lifetime	1.25	(-1.2-3.7)	1	0	(0-0)	0	
10. For a person over age 20 yrs who belongs to a family with HNPCC							
* Every 1-2 yrs	56.25	(45.4-67.1)	45	89.58	(80.9-98.2)	43	P=0.001
Every 3 yrs	28.75	(18.8-38.7)	23	8.33	(0.5-16.1)	4	
Every 5 yrs	12.5	(5.3-19.7)	10	0	(0-0)	0	
Every 10 yrs	2.5	(-0.9-5.9)	2	0	(0-0)	0	

* Correct answer

CRC = colorectal cancer, HNPCC = hereditary non-polyposis colorectal cancer

removal of a small hyperplastic polyp, or after normal findings on colonoscopy in patients with a first-degree relative in whom CRC was diagnosed over the age of 60 years.

For most of the questions, the family physician group preferred a shorter time interval between colonoscopies, and younger age for first colonoscopy in high risk patients, as compared to the guidelines. Although a high percent of gastroenterologists responded correctly to most of the questions, an acceptable number of those sampled preferred a shorter time interval between colonoscopies.

After removal of hyperplastic polyps, 68% (95% confidence interval 55.6–81.9) of gastroenterologists believed that there is no need for a follow-up colonoscopy, in contrast to family physicians among whom 67.5% (95% CI 57.2–77.7) referred for a follow-up colonoscopy within 5 years.

For follow-up after removal of a single adenoma less than 1 cm in diameter, 43.7% (95% CI 32.8–54.6) of family physicians recommended a follow-up colonoscopy within 3 years. After removal of two adenomas smaller than 1 cm in diameter, without a villous component or high grade dysplasia, the guidelines recommend that the patient have a follow-up colonoscopy every 5 years. However, 68.7% (95% CI 58.6–78.9) of family physicians recommended a follow-up colonoscopy within 3 years in comparison with 39.6% (95% CI 25.7–53.4) of the gastroenterologists.

For a first colonoscopy in a person with a first-degree relative who had CRC at age 45, 25% of the family physicians recommended the first colonoscopy at age 45 or older in contrast to 35 years recommended by the guidelines.

Discussion

To minimize the risk of CRC, patients with adenomas are referred to surveillance programs with periodic colonoscopy to remove new metachronous polyps [1]. The increasing efficiency of surveillance colonoscopy is expected to decrease the costs of the procedure and the overuse of resources for unnecessary examinations. Up-to-date knowledge of CRC screening and surveillance protocols among clinicians will reduce the burden of colonoscopies and shorten the waiting list.

The guidelines of the American Cancer Society [1] are currently accepted by the Israeli Association of Gastroenterologists. The present study shows that primary care physicians in Israel have poor knowledge of CRC surveillance and screening. This finding agrees with that of Sharma and colleagues [11,12], who investigated primary care physicians' knowledge about CRC screening. This may be one of the reasons for the low patient compliance with screening in Israel. According to several studies, physician recommendations have a major influence on patient compliance, and there is a positive correlation between physicians' knowledge about cancer and their cancer control activities [13-25].

There is much confusion regarding the proper time for follow-up colonoscopy after polypectomy [1,10]. The important factors to consider are the number of resected polyps and their specific characteristics. If an incomplete colonoscopy or polyp resection is

suspected, or if the polyp was a large sessile adenoma, the next colonoscopy should be performed after one year or within the time frame adopted by the colonoscopist. Colonoscopy should be performed 3 years after removal of an advanced adenoma (adenomatous polyp larger than 1 cm; with a villous component; or with high grade dysplasia) or more than three adenomatous polyps. In the present study, only 10 to 40% of the primary care physicians correctly answered the five questions pertaining to this issue.

Even more worrisome was the very low rate of correct responses to items concerning the screening schedule for the average risk and high risk populations. Only 6.3–58.5% of the primary care physicians correctly answered these five questions. This finding highlights the importance of improving physicians' knowledge of CRC to prevent the predicted increase in CRC incidence.

The high rate of incorrect answers in the gastroenterologists group regarding time of follow-up colonoscopy after removal of a small hyperplastic polyp (item 1) or in patients who have a relative with CRC after age 60 (item 9, Table 1) cannot be explained, since the 2003 and 2006 guidelines included the same recommendations [1,10].

Our study has some limitations: the overall sample size was small (200 physicians), the study was conducted in one day in the setting of a national meeting, and the compliance of the gastroenterologists was low. We cannot exclude the possibility that gastroenterology specialists who are more familiar with gastrointestinal oncology might be more knowledgeable to answer the questionnaire. Nevertheless, our findings provide an excellent basis for a larger, national follow-up study of a random sample of primary care physicians and gastroenterologists in Israel.

Based on this study and reports in the literature, we suggest that physician education be part of any strategy to enhance CRC screening efficacy, with emphasis on reducing improper surveillance. This measure should improve the allocation of resources and facilities. Educational efforts need to be directed at both primary care physicians, who are the first to encounter patients at risk, and gastroenterologists, who have more in-depth knowledge of management strategies. Gastroenterologists are also often exposed to family members of their patients and can thereby encourage compliance particularly in the high risk group. Good screening also has financial implications: CRC occurs predominantly in older people, and with the continuous increase in life expectancy, more and more cases are being detected. Greater awareness of these issues among the health authorities is essential.

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CI = confidence interval

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