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Guidelines for Colonoscopy Surveillance After Screening and Polypectomy: A Consensus Update by the US Multi-Society Task Force on Colorectal Cancer

DAVID A. LIEBERMAN,* DOUGLAS K. REX,‡ SIDNEY J. WINAWER,§ FRANCIS M. GIARDIELLO,‖ DAVID A. JOHNSON,¶ and THEODORE R. LEVIN#

*Oregon Health and Science University, Portland, Oregon; ‡Indiana University School of Medicine, Indianapolis, Indiana; §Memorial Sloan-Kettering Cancer Center, New York, New York; ‖Johns Hopkins University School of Medicine, Baltimore, Maryland; ¶Eastern Virginia Medical School, Norfolk, Virginia; and #Kaiser Permanente Medical Center, Walnut Creek, California

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Screening for colorectal cancer (CRC) in asymptomatic patients can reduce the incidence and mortality of CRC. In the United States, colonoscopy has become the most commonly used screening test. Adenomatous polyps are the most common neoplasm found during CRC screening. There is evidence that detection and removal of these cancer precursor lesions may prevent many cancers and reduce mortality.[1] However, patients who have adenomas are at increased risk for developing metachronous adenomas or cancer compared with patients without adenomas. There is new evidence that some patients may develop cancer within 3–5 years of colonoscopy and polypectomy—so-called interval cancers.

Ideally, screening and surveillance intervals should be based on evidence showing that interval examinations prevent interval cancers and cancer-related mortality. We have focused on the interval diagnosis of advanced adenomas as a surrogate marker for the more serious end point of cancer incidence or mortality. In 2006, the United States Multi-Society Task Force (MSTF) on CRC issued a guideline on postpolypectomy surveillance,[2] which updated a prior 1997 guideline. A key principle of the 2006 guideline was risk stratification of patients based on the findings at the baseline colonoscopy. The surveillance schema identified 2 major risk groups based on the likelihood of developing advanced neoplasia during surveillance: (1) low-risk adenomas (LRAs), defined as 1–2 tubular adenomas <10 mm, and (2) high-risk adenomas (HRAs), defined as adenoma with villous histology, high-grade dysplasia (HGD), ≥10 mm, or 3 or more adenomas. The task force also published recommendations for follow-up after resection of CRC.[3]

More recently, the British Society of Gastroenterology updated their 2002 surveillance guideline in 2010.[4] Their risk stratification differs from the US guideline, dividing patients into 3 groups: low risk (1–2 adenomas <10 mm), intermediate risk (3–4 small adenomas or one ≥10 mm), and high risk (>5 small adenomas or ≥3 with at least one ≥10 mm). They recommend that the high-risk group undergo surveillance at 1 year because of concerns about missed lesions at baseline. US guidelines place emphasis on performing a high-quality baseline examination. In 2008, the MSTF published screening guidelines for CRC, which included recommendations for the interval for repeat colonoscopy after negative findings on baseline examination.[5]

New issues have emerged since the 2006 guideline, including risk of interval CRC, proximal CRC, and the role of serrated polyps in colon carcinogenesis. New evidence suggests that adherence to prior guidelines is poor. The task force now issues an updated set of surveillance recommendations. During the past 6 years, new evidence has emerged that endorses and strengthens the 2006 recommendations. We believe that a stronger evidence base will improve adherence to the guidelines. The 2012 guidelines are summarized in Table 1 and are based on risk stratification principles used in the 2006 guideline. The ensuing discussion reviews the new evidence that supports these guidelines. This guideline does not address surveillance after colonoscopic or surgical resection of a malignant polyp.

Methodology

Literature Review

We performed a MEDLINE search of the postpolypectomy literature under the subject headings of colonoscopy, adenoma, polypectomy surveillance, and adenoma surveillance, limited to English language articles from 2005 to 2011. Subsequently, additional articles were gleaned from references of the reviewed articles. Relevant studies include those in which outcomes addressed the relationship between baseline examination

Abbreviations used in this paper: CI, confidence interval; CIMP, CpG island methylator phenotype; CRC, colorectal cancer; CT, computed tomography; FDR, first-degree relative; FOBT, fecal occult blood test; HGD, high-grade dysplasia; HP, hyperplastic polyp; HR, hazard ratio; HRA, high-risk adenoma; LRA, low-risk adenoma; MSTF, Multi-Society Task Force; NCI, National Cancer Institute; OR, odds ratio; PPT, Polyp Prevention Trial; RR, relative risk; TVA, tubulovillous adenoma; USPSTF, United States Preventive Services Task Force.

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Table 1. 2012 Recommendations for Surveillance and Screening Intervals in Individuals With Baseline Average Risk

Baseline colonoscopy: most advanced finding(s)	Recommended surveillance interval (*y*)	Quality of evidence supporting the recommendation	New evidence stronger than 2006
No polyps	10	Moderate	Yes
Small (<10 mm) hyperplastic polyps in rectum or sigmoid	10	Moderate	No
1–2 small (<10 mm) tubular adenomas	5–10	Moderate	Yes
3–10 tubular adenomas	3	Moderate	Yes
>10 adenomas	<3	Moderate	No
One or more tubular adenomas ≥10 mm	3	High	Yes
One or more villous adenomas	3	Moderate	Yes
Adenoma with HGD	3	Moderate	No
Serrated lesions			
Sessile serrated polyp(s) <10 mm with no dysplasia	5	Low	NA
Sessile serrated polyp(s) ≥10 mm OR Sessile serrated polyp with dysplasia OR Traditional serrated adenoma	3	Low	NA
Serrated polyposis syndrome[a]	1	Moderate	NA

NOTE. The recommendations assume that the baseline colonoscopy was complete and adequate and that all visible polyps were completely removed.

NA, not applicable.

[a]Based on the World Health Organization definition of serrated polyposis syndrome, with one of the following criteria: (1) at least 5 serrated polyps proximal to sigmoid, with 2 or more ≥10 mm; (2) any serrated polyps proximal to sigmoid with family history of serrated polyposis syndrome; and (3) >20 serrated polyps of any size throughout the colon.

findings and the detection of CRC, advanced adenoma, or any adenoma during the follow-up period. Studies used in the final analysis are summarized in Table 2 by specific category. We also reviewed studies with results of more than one surveillance examination to determine the downstream risk that may be associated with the baseline findings. A key goal was to determine if the risk of subsequent neoplasia was reduced once a patient had negative findings on colonoscopy or had low-risk adenomas. We excluded studies that included patients with inflammatory bowel disease or prior history of CRC. This review applies to average-risk individuals and excluded patients with hereditary syndromes associated with CRC.

Table 2. New Papers Since 2005 With Surveillance Outcomes After Baseline Colonoscopy

Category: baseline colonoscopy finding	No. of papers meeting criteria (reference no.)
Exposure to colonoscopy: 1. Risk of CRC 2. Risk of proximal vs distal CRC	6 (18–22, 52)
Exposure to colonoscopy: rate of CRC within 10 y	4 (18, 20, 21, 52)
No polyps at baseline: rates of advanced neoplasia	6 (14, 47–51)
HPs	1 (61)
Small adenomas <10 mm	7 (7, 14, 51, 64–67)
Advanced adenomas	3 (7, 14, 66)
Adenoma with HGD	3 (7, 14, 71)
Serrated polyps	2 (72, 73)
Family history of CRC or polyps	1 (59)
Multiple rounds of surveillance	3 (67, 77, 78)
Poor bowel preparation	2 (68, 82)
Surveillance after FOBT	2 (84, 85)
Miscellaneous risk factors	
Smoking	1 (58)
Aspirin/nonsteroidal anti-inflammatory drugs	4 (54–57)

Levels of Evidence

There are no high-quality randomized controlled trials of polyp surveillance performed in the past 6 years. All studies are either retrospective or prospective observational, cohort, population-based, or case-control studies. We have adopted a well-accepted rating of evidence[6] that relies on expert consensus about whether new research is likely to change the confidence level of the recommendation (Table 3).

Process

The task force is composed of gastroenterology specialists with a special interest in CRC, representing the 3 major gastroenterology professional organizations: American College of Gastroenterology, American Gastroenterological Association Institute, and American Society for Gastrointestinal Endoscopy. We recognize that inherent bias can be introduced when a group of experts in the field review evidence and provide recommendations. In addition to the task force, the practice committees of the American Gastroenterological Association Institute and the

Table 3. Rating Evidence

Rating of evidence	Impact of potential further research
High quality	Very unlikely to change confidence in the estimate of effect
Moderate quality	Likely to have an important impact on confidence and may change estimate of effect
Low quality	Very likely to have an important impact on confidence in the estimate of effect and is likely to change the estimate
Very low quality	Any estimate of effect is very uncertain