Value of Detecting More Colon Polyps Uncertain

BY SHERRY BOSCHERT

SAN DIEGO — Colonoscopists are finding more polyps thanks to advances in technology, but it's not yet clear that detection of these additional lesions will change patient outcomes.

The initial impact of new techniques—such as high-definition colonoscopy, narrow-band imaging, chromocolonoscopy, and adjunctive viewing with the Third Eye Retroscope—may be felt mainly as rising health care costs and increasing numbers of patients who are advised to get their next screening colonoscopy in 5 years instead of 10.

A panel of expert endoscopists at the annual meeting of the American College of Gastroenterology agreed that although there's no hard evidence on the benefit of removing polyps smaller than 6 mm, they take them out if they see them.

"We haven't shown yet that finding small 4-mm and 5-mm polyps makes a difference in preventing colon cancer," said Dr. Walter J. Coyle of the Scripps Clinic, La Jolla, Calif., who comoderated the session. But with increased detection, "we're going to be screening these people more frequently."

Smaller lesions predict larger ones, and the "adenoma to cancer" sequence suggests that getting any adenoma out is a good thing, Dr. Kenneth R. DeVault suggested. Although no randomized trials have shown that removing smaller lesions reduces mortality, "we believe it does, and it makes sense that it does, but it's not been unequivocally proven that finding a 3-mm adenoma changes things."

And it may never be proven, because people are unlikely to tolerate randomization to watch-and-wait management of a 5-mm polyp, said Dr. DeVault of the Mayo Clinic, Jacksonville, Fla. However, studies of virtual colonoscopy may yield useful information on the natural history of small polyps.

High-Def Detection Rates

Dr. DeVault and his associates reported on a study showing that high-definition white light colonoscopy increased adenoma detection, compared with standard-definition white light colonoscopy.

Unexpectedly, increased detection of some adenomas using high-definition white light colonoscopy did not produce a "learning effect" leading to increased detection using standard-definition white light colonoscopy, as suggested by at least one previous study (Gut 2008;57:59-64).

In the current comparison, the adenoma detection rate for standard-definition white light colonoscopy did not increase over the course of the study and remained significantly lower than detection with high-definition equipment, Dr. Anna M. Buchner reported at the meeting.

The investigators conducted a "natural experiment" from October 2006 to March 2007 at their institution, the Mayo Clinic in Jacksonville, when the clinic wanted to upgrade to high-definition equipment but lacked the funds to replace all their colonoscopes at once, Dr. DeVault said. They randomized patients and physicians to one of three rooms with high-definition white light colonoscopes or one of three rooms with standard equipment.

High-definition white light colonoscopy used for 1,204 patients showed significantly better detection rates for all polyps (42%), hyperplastic polyps (20%), and adenomas (29%), compared with detection rates using standard-definition white light colonoscopy in 1,226 patients (38% for all polyps, 17% for hyperplastic polyps, and 24% for adenomas), reported Dr. Buchner, who is now with the University of Pennsylvania, Radnor.

Small or moderate-sized adenomas were significantly more likely to be detected by high-definition colonoscopy than with standard-definition imaging: Detection rates for adenomas sized 0-5 mm were about 21% with high-definition colonoscopy and 17% with standard-definition equipment. Detection rates for adenomas sized 6-9 mm were about 8% with high-definition colonoscopy and 6% with standard-definition technology. High-definition colonoscopy also was more likely to detect polyps on the left side of the colon, she added.

The findings do not support routine use of high-definition chromocolonoscopy for screening.

DR. KAHI

For adenomas larger than 10 mm, detection rates were similar with the two techniques. Over the course of the study, detection of polyps overall increased, but adenoma detection did not.

Detecting Polyps and Adenomas

Dr. Lianne K. Cavell and her associates reported in a poster presentation that high-definition colonoscopy significantly increased detection of all polyps, compared with standard-definition colonoscopy, but did not improve detection of adenomas.

Her study compared charts for 345 patients who underwent standard-definition colonoscopy with data on 375 patients examined after the introduction of high-resolution colonoscopy. Polyps were detected in 36% of patients with high-definition colonoscopy and 29% of patients with standard-definition colonoscopy. Adenomas were detected in 53% and 47%, respectively, but that difference was not statistically significant, said Dr. Cavell of New York–Presbyterian Hospital.

The potential downside of new imaging technology is that resection of potentially insignificant polyps may increase pathology costs, procedure times, and risks related to colonoscopy, she noted.

In a study presented by panelist Dr. Charles J. Kahi, high-definition chromocolonoscopy did not significantly increase detection of adenomas, compared with high-definition white light colonoscopy. Chromocolonoscopy did, however, significantly increase detection of flat lesions, reported Dr. Kahi of Indiana University, Bloomington.

Flat lesions seem to present earlier and develop more aggressively, Dr. DeVault noted, and the new technologies have helped him find such lesions.

In a randomized, multicenter study of 660 average-risk patients aged 50 years or older undergoing first-time screening colonoscopy, Dr. Kahi and his associates detected at least one adenoma in 55.5% of 321 patients using chromocolonoscopy and in 48.4% of 339 patients using white light colonoscopy. The 7.1 percentage point increase in the detection rate did not reach statistical significance, he reported.

Chromocolonoscopy detected an average of 1.3 adenomas per patient, and white light colonoscopy detected an average of 1.1 adenomas per patient, a difference that again was not significant.

There was a modest and significant increase in detection of small (less than 5 mm) or flat adenomas and detection of non-neoplastic lesions using chromocolonoscopy. High-definition chromocolonoscopy detected an average of 0.6 flat adenomas per patient, 0.8 small adenomas per patient, and 1.8 non-neoplastic lesions per patient, compared with 0.4 flat adenomas, 0.7 small adenomas, and 1.0 non-neoplastic lesions per patient with high-definition white light colonoscopy.

The two techniques did not differ significantly in detection of advanced adenomas or detection of advanced adenomas smaller than 10 mm in size.

Overall, the findings do not support routine use of high-definition chromocolonoscopy for colorectal cancer screening in average-risk patients, Dr. Kahi said.

In general, flat and depressed colon neoplasms are easy to miss on colonoscopy, he noted, but awareness is increasing that they are precursors for colorectal cancer. Flat or depressed lesions are more difficult to visualize than polypoid lesions with conventional colonoscopy and are more likely to contain high-grade dysplasia or invasive carcinoma.

Looking Back to the Future

The panelists agreed that one of the new technologies that could improve detection of larger lesions is the Third Eye Retroscope, which helps colonoscopists see lesions hidden behind folds.

Preliminary data from two studies presented at the meeting suggest that the Third Eye Retroscope may improve polyp detection during colonoscopy by 15%-20%. The Third Eye Retroscope is a disposable device inserted through the instrument channel of a conventional colonoscope after intubation to the cecum. The tip of the Retroscope bends 180 degrees so that the camera and an integrated light source can be directed back toward the tip of the colonoscope.

During the withdrawal phase of colonoscopy, a split-screen display provides both a conventional camera view and a continuous retrograde view from the Retroscope camera. The device can help find lesions located on the proximal aspect of flexures or haustral folds, panelist Dr. Daniel C. DeMarco said.

In a nonrandomized, subjective study of 340 colonoscopies, 17 endoscopists estimated that use of the Third Eye Retroscope increased detection of adenomas by 16%, reported Dr. DeMarco of Baylor University Medical Center, Dallas.

"We're finding lesions between 6 and 10 mm," he noted. "Polyps that size that are adenomas are clinically significant."

Of the 209 polyps found, the researchers estimated that 182 could have been detected with a conventional colonoscope, and the Third Eye yielded an additional 27—a 15% increase. Of the 116 adenomas found, an estimated 100 would have been seen by conventional colonoscopy and 16 (16%) only by the Third Eye, Dr. DeMarco said.

In a poster, A.M. Leufkens, Ph.D., and associates reported preliminary data from an ongoing prospective study that randomizes patients to get two exams by the same colonoscopist during one period of sedation—either a standard colonoscopy followed by one with the Third Eye, or an exam with the Third Eye first, followed by regular colonoscopy.

Data on 126 of a planned 410 subjects show that endoscopists missed 2.6 times more polyps using the colonoscope alone than they did with the Third Eye as an adjunct to the colonoscope, reported Dr. Leufkens of University Medical Center, Utrecht, the Netherlands.

In 63 patients who had regular colonoscopy first, 55 polyps were found on the first exam; the second exam with the Third Eye yielded 18 more polyps for an "additional detection rate" of 32.7%. In 63 patients who were examined first with the Third Eye, 56 polyps were found initially; the second exam by colonoscopy alone yielded 7 more polyps for an additional detection rate of 12.5%.

Comoderator Dr. Samuel A. Giday of Johns Hopkins Bayview Medical Center, Baltimore, commented that "it's important that the differences we're seeing are small between the Third Eye, chromocolonoscopy, and narrow-band imaging." More data are needed, he cautioned.

Guidelines from the American College of Gastroenterology and the American Society of Gastrointestinal Endoscopy state that high-quality screening colonoscopies are the result of four factors: an experienced colonoscopist, excellent bowel preparation, slow scope withdrawal time, and monitoring how often adenomas are being detected in screening colonoscopies, he said.

"A good gastroenterologist can use a regular scope, high definition or not, and do a very good screening test," Dr. Giday said.

Dr. DeMarco's study was funded by the company that makes the Third Eye Retroscope, Avantis Medical Systems. Dr. Leufkens' study was also funded by Avantis, and one of Dr. Leufkens' associates is on the company's advisory board. The other physicians said they had no conflicts of interest related to these topics. ■