

Advances in Colonoscopy Promise Patient Comfort

BY SHERRY BOSCHERT
San Francisco Bureau

LAKE TAHOE, CALIF. — Several new technologies aim to make colon cancer screening easier to perform, Dr. John M. Inadomi said at a meeting on gastroenterology and hepatology sponsored by the University of California, Davis.

"The only test that works is the one you can get your patients to do," said Dr. Inadomi, chief of clinical gastroenterology at San Francisco General Hospital and chair of gastrointestinal medicine at the University of California, San Francisco.

Two of the newer methods (virtual colonoscopy and NeoGuide) are available, and two more are investigational.

► **Virtual colonoscopy.** Using CT or MRI to produce 2- or 3-D images of the colon is less invasive than inserting a scope, but has disadvantages.

The overall sensitivity was 75% and the specificity was 81% in a metaanalysis of 39 studies comparing CT or MR colonography for colonic polyps or cancer with colonoscopy, Dr. Inadomi noted. That means that colonic polyps or cancer are

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missed in 25% of patients who have them, and 19% of patients designated as having polyps or cancer do not have them.

When comparing the incremental cost per year of life saved, virtual colonoscopy would not be preferred over colonoscopy until the former's cost drops to less than \$100 per screen, about a fifth of its cost now.

► **NeoGuide.** This computer-assisted colonoscope avoids pushing on the lumen of the colon, which can cause pain and complications.

In a conventional colonoscopy, a flexible endoscope inserted into the colon is advanced by pressure, pushing against the sides where the bowel turns in order to turn the scope. This force can displace the colon and stretch the surrounding tissue, a process called looping. "We bump into a lot of areas," Dr. Inadomi said.

The NeoGuide's sensor detects the depth of insertion of the scope, helps it turn without relying on force and pressure, and records the angle of the scope tip, creating a 3-D map of the path that the tip travels through the colon. Multiple steerable segments in the scope allow it to bend into appropriate angles at the right locations to avoid pressure. "It's an active rather than a passive scope," he said.

Pilot studies led to approval of the device in February. It has the potential to reduce pain, complications, and the time needed to perform colonoscopy, but no data confirm this yet. Colonoscopy using the NeoGuide could potentially be performed without sedation, which could be a major advantage if true.

► **Aer-O-Scope.** An investigational pneumatic "self-guiding" endoscope uses an air compressor to advance a scanning balloon carrying a camera for imaging. A rectal balloon prevents air from escaping from the colon.

Pilot data in 12 healthy volunteers found that the scope reached the cecum in 10 patients. Four patients reported sweating and bloating during the procedure, and two requested analgesia. No perforations or infections were seen. The procedure av-

eraged 23 minutes, perhaps one-fifth the amount of time needed for a conventional colonoscopy.

The Aer-O-Scope could be used by technicians. It's strictly a diagnostic screening tool, since it does not allow biopsies to be removed.

► **Colon capsule.** The maker of the Pill-Cam Capsule that can be swallowed and performs endoscopy is developing a similar capsule that would tumble through a fluid-filled colon, snapping pictures for screening.

Dr. Inadomi is working with the company, Given Imaging Ltd., to improve the colon capsule, which is not yet approved for use. He has no affiliations with companies that make the other devices he discussed.

This diagnostic test is fairly painless, requires colonic irrigation, and could be performed by nonphysicians with results read by physicians. Orientation in the colon remains a challenge. "The question is, how much of the surface area of the colon can be seen?" he said. ■

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