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VIRTUAL COLONOSCOPY

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A procedure that lets doctors find abnormal growths in the colon through 3-D computer-generated images is at least as accurate as a more invasive conventional colonoscopy, suggests research that was presented Monday. Margaret Warner speaks with the study's lead author, Dr. Perry Pickhardt.

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MARGARET WARNER: Colon cancer is the second deadliest form of cancer, killing 57,000 Americans each year. But only a small percentage of people undergo the unpleasant screening test to catch it soon enough to be treated.

Now a new study done at military medical centers finds that a CT scan known as a virtual colonoscopy detects cancerous growth as well as the conventional colonoscopy. With us is the co-director of the study, Dr. Perry Pickhardt, a radiologist at the University of Wisconsin Medical School.

Dr. Pickhardt, welcome.

DR. PERRY PICKHARDT: Thank you. It's a pleasure to be here.

MARGARET WARNER: First, explain to us the technology of this virtual colonoscopy. How does it differ in the way it looks at the colon from a traditional one?

DR. PERRY PICKHARDT: A virtual colonoscopy uses CT images to generate both two-dimensional and three-dimensional views of the inside of the colon. This can be done in a relatively noninvasive manner, which -- the degree of invasiveness is similar to that of a digital rectal exam, with air then to distend the colon.

Using a CT scan then, we can fly through the colon in this 3-D virtual fly-through reality view, and we've found that this method is greatly superior to previous attempts at using CT scans for detecting polyps.

MARGARET WARNER: So in other words, you found that just using these images taken from outside the body actually were as good at -- they picked up every polyp just as clearly

as the traditional one where the tube goes all the way through the colon?

DR. PERRY PICKHARDT: That's right. We were able to directly compare both virtual -- that is, using CT technology -- and conventional colonoscopy by patients undergoing both tests on the same day. And the sensitivity was virtually identical for significant lesions -- that is, polyps 8 millimeters and greater.

MARGARET WARNER: Meaning that that really did detect them just as well?

DR. PERRY PICKHARDT: Yes. In fact, the sensitivity of virtual colonoscopy was slightly greater for that size polyp. And with polyp size, it really does matter. What we've found ... what we know is that polyps greater than a centimeter or 10 millimeters really need to come out due to their potential for becoming cancer, whereas polyps that are quite small, 5 millimeters and less, have really no significance. There's still some controversy for those polyps that are between 6 and 9 millimeters.

However, we know that the majority of these will actually regress or stay the same in size, and therefore really don't need to come out. A small fraction, however, will continue to slowly grow. We could continue to non-invasively follow up these patients with the virtual colonoscopy. And that small fraction of patients could eventually have a polyp removed if it were to continue growth beyond a centimeter.

MARGARET WARNER: All right, well, go into more detail now for us about the advantages to the patient. You said it's noninvasive, meaning what? They don't have to be sedated? Go through some of the advantages of that.

DR. PERRY PICKHARDT: Sure. Sure. With our -- the CT virtual colonoscopy, the patient doesn't require intravenous sedation or pain control; there's no recovery room time -- all of which are necessary with the conventional procedure.

There is some mild discomfort associated with the air distension of the colon, and that's really because we don't -- we don't give any pain control. The mild discomfort is usually quite tolerable. In fact, we have patients control both the rate and degree that the colon is distended with air. We found that really leads to a more comfortable exam.

MARGARET WARNER: Also in a conventional one, isn't there some small but -- but there is a risk of perforation?

DR. PERRY PICKHARDT: Yes. With conventional colonoscopy, there's a small but finite risk of both bleeding from polyp removal and perforation, both of which require either emergent surgery, hospitalization, or both, in many cases.

MARGARET WARNER: Now the other things that patients find unappealing about having a colonoscopy is having to drink stuff to clean out their digestive track. That, they would still have to do, is that right?

DR. PERRY PICKHARDT: That's correct. And the reason for that is whether you evaluate the colon by either virtual or physical methods, you need a clean colon to accurately detect polyps. The good news is, even though patients undergo a similar prep, if we do find a large polyp, which in our population would have been less than 10 percent of cases, those few patients could go on for polyp removal either the same day or next day since they already have undergone the prep. So it avoids the need for re-prepping.

MARGARET WARNER: But it would mean then that essentially they would be having both procedures on the same day.

DR. PERRY PICKHARDT: That is correct. But the -- I think the more -- an important point to keep in mind is that over 90 percent of patients can then be given a clean bill of health without the need for the more invasive test. Either way, I think it's an important message that patients need to be screened, whether it's by virtual or conventional colonoscopy. We know that we can prevent colon cancer through this routine screening, and these should serve as complimentary tests, and patients now have a choice.

MARGARET WARNER: Talk about that choice. What is the choice, cost-wise, between the two?

DR. PERRY PICKHARDT: Because virtual colonoscopy for screening is not currently reimbursed by Medicare and other third-party payers, it's difficult to really compare charges per se. But I would say that conventional colonoscopy, if you include all the related costs of the intravenous sedation and monitoring, the recovery room time, the lost productivity from missing a day's work, the second person needed to drive that patient home, and also the cost of removing many tiny little polyps which often don't need to be removed, when you combine that altogether, conventional colonoscopy is certainly a more costly procedure, but is certainly the necessary one in high-risk patients or patients with a significant family history.

The ideal population for virtual colonoscopy is actually the healthiest patients who are asymptomatic and therefore have the least likelihood of having a large polyp. It does detect those unsuspected polyps in the small minority, but we're able to really give the patient, like I said, a clean bill of health in over 90 percent of cases without the need for a more invasive test.

MARGARET WARNER: So where are these virtual colonoscopies available, and are people just paying out of pocket to have them?

DR. PERRY PICKHARDT: They're currently paying out of pocket, but I would warn that all virtual colonoscopies are not currently created equal. We've used a novel 3-D approach that was not previously available. And that's perhaps the major reason why our results are so much better than previous studies.

By using this 3-D virtual fly-through to actually find the polyps, which I believe is a more effective search pattern, we're able to match conventional colonoscopy in performance. So I

would just warn that this will not be widely available overnight.

There are some centers using this very technology right now, including where I'm located at the University of Wisconsin -- we are currently setting up a program -- and at the National Naval Medical Center, as well as the Walter Reed Army Medical Center and San Diego Naval Medical Center.

MARGARET WARNER: Dr. Pickhardt, thank you so much.

DR. PERRY PICKHARDT: My pleasure.