

One cancer, two ways to look

The Healthwatch series Part 1: If you're 50 and you haven't been screened for colon cancer, it's time to make an appointment. But which test is best? Let's examine the evidence

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Colon cancer is a common and often deadly cancer that claims many Canadians annually. According to the Colorectal Cancer Association of Canada, colorectal cancer - cancer of the colon or rectum - is the second leading cause of cancer deaths overall in men and women in Canada. The disease has near-equal incidence in men and women (slightly lower in women). It may be a surprise to most people that colorectal cancer surpasses both breast and prostate cancer in mortality, and is second only to lung cancer in numbers of cancer deaths.

The statistics are astounding. Even though it is preventable, an estimated 20,800 Canadians (5,400 in Quebec) will be given a diagnosis of colorectal cancer in 2007, and an estimated 8,700 (2,400 in Quebec) will die from it. One in 14 men and one in 16 women are expected to develop colorectal cancer during their lifetime. One in 28 men will die from it and one in 31 women will die from it.

When Jay Monahan, the husband of celebrity television anchor Katie Couric, succumbed to colon cancer in 1998, Couric embarked on a strident and impassioned colon cancer screening campaign, including her own widely televised on-camera colonoscopy. As a result of her efforts, colorectal cancer has now become more top-of-mind and less of an embarrassment to talk about.

Perhaps more than any other malignancy, colon cancer can be prevented. It is curable more than 90 per cent of the time when detected early, making screening extremely important. A new report from the American Cancer Society states deaths from cancer fell more than 2 per cent a year between 2002 and 2004, roughly double the rate they fell in the previous report. The greatest reduction in mortality among all cancers was in colorectal cancer, and new diagnoses were down about 2.5 per cent.

Colonoscopy vs. colonography

Colon cancer evolves from polyps. Early detection of these growths and their removal with colonoscopy can significantly reduce the likelihood of developing cancer.

The gold standard for screening in this condition has traditionally been colonoscopy. Colonoscopy is generally very safe, but still carries a not insignificant risk of perforation (less than one per cent). When the colon is perforated, the patient often requires surgery and a lengthy hospitalization to repair the injury.

Although the Canadian Cancer Society recommends screening in all men and women age 50 or over, most eligible Canadians don't undergo this test. The reasons are not well known but are often attributed to patient squeamishness at what is perceived to be an uncomfortable and unpleasant test. Lack of resources and a shortage of family physicians also might be a factor.

Recent advances in imaging technology have led to the development of a less invasive screening test for colorectal cancer. CT scan colonography, or virtual colonoscopy, has the advantage of being less invasive, less risky and quicker to perform but still requires cleansing of the colon.

Researchers are studying whether the test can detect pre-cancerous lesions as well as does traditional colonoscopy.

Colonography is becoming increasingly available in Quebec and is offered by a limited number of Montreal hospitals and clinics. As with many diagnostics, when performed in hospital, the cost is covered by Quebec medicare. At private clinics, it's about \$800 per procedure.

The study:

CT Colonography vs. Colonoscopy for the Detection of Advanced Neoplasia. *New England Journal of Medicine*, Oct. 4, 2007.

What did it show?

The study was a comparison of CT scan colonography and traditional colonoscopy conducted in more than 6,000 patients who underwent one procedure or the other as the initial screening test. The results suggest the CT scan technique is on par with colonoscopy in that both methods detect the same number of larger, potentially pre-malignant lesions, i.e., greater than one centimetre.

Although the detection rates were the same, there were differences in what happened in the two groups. The study was conducted to measure only the detection of these larger lesions; smaller ones are generally not considered to be as imminently dangerous and can be watched over a period of years for progression. As a result, there were many more polyp removal procedures performed in the colonoscopy group, as that approach was able to detect and, hence, remove all polyps, including small ones.

With many more polyp removals performed in the colonoscopy group, there were also seven cases of perforation noted; as opposed to none in the colonography group. This led the authors to conclude CT colonography was the optimal screening test for colon cancer. Specifically, they view CT colonography as an ideal pre-screening test for deciding which patients, by virtue of a larger polyp size, need to proceed to colonoscopy and polyp removal.

This approach would, of course, miss the smaller, presumably less worrisome lesions, but the long-term impact of this strategy is not definitively known.



Dr.Sylvain Beaulieu at his Centre d'Imagerie Nucleaire with a CT/PET scanner that can find colon cancers, instead of traditional colonoscopy. Being a PET scanner, it can find other cancers as well.

Are there any problems with the study?

Yes: Patients were allowed to select which kind of testing procedure they preferred to undergo. This is unusual for studies of this size, which generally use a randomization technique to ensure the two comparison groups are as equal as possible.

There is some evidence to suggest patients who selected the CT scan technique might have had previous screening tests and, thus, a lower risk of having pre-cancerous lesions, so there is a potential for bias in the way the study was performed.

It is also worth noting the researchers who performed this study received financial support from the companies involved in developing the technology necessary for CT colonography. This has been shown in other contexts to influence the way in which the study findings are interpreted. These issues temper the conclusions but do not negate them.

So, what's the bottom line?

While promising as an up-and-coming technology, CT colonography does not appear to be a slam dunk and is not yet ready to replace colonoscopy as the screening test of choice. This may change in as little as a few months or years, however, as the results of other research in this important area are reported and the technology and training of radiologists improves.

How should patients act in light of this evidence?

The choice of screening technique for colorectal cancer prevention is not nearly as important as the decision to undergo screening of one sort or another. Colorectal cancer can be a devastating disease and while there is as yet no convincing evidence that screening eliminates the disease completely, the nature of this particular cancer make it particularly amenable to early and effective detection and prevention.

CT colonography does, therefore, appear to be a very valid option and would be especially appropriate in patients who might have difficulty undergoing colonoscopy. This would include very elderly patients who might be at higher risk of complications from the procedure or those who are very fearful of undergoing this test.