High-tech prostate scan may boost cancer detection

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Combo of ultrasound and MRI zeroes in on tumors, helping some men avoid biopsy, experts say.

(HealthDay)—An innovative fusion of MRI and ultrasound might be a better way to detect and assess prostate cancer, while helping men avoid unnecessary biopsies, researchers say.

The technology blends real-time imaging from both MRI and ultrasound devices, allowing doctors to more accurately direct the biopsy needle that draws cell samples from suspected tumors.

"This approach does detect cancers that can go missed by standard biopsy," said Dr. Art Rastinehad, assistant professor of urology and radiology and director of Interventional Urologic Oncology at Hofstra University-North Shore LIJ School of Medicine in Hempstead, N.Y.

In particular, the MRI/ultrasound fusion technique can guide physicians

to tumors at normally neglected regions of the prostate gland.

"There are two screens in front of you, and the MRI is capable of pointing out areas that might contain cancer," explained Dr. Scott Eggener, associate professor of surgery and director of translational and outcomes research in the University of Chicago Medical Center's urology section. "Using the two screens, you can more intelligently direct your biopsy needles toward those areas."

The technology is part of an overall approach to first use MRI scans to best determine which men need to undergo prostate biopsy, and then use the MRI/ultrasound fusion to perform the most efficient biopsy possible.

Right now, doctors typically rely on blood tests to look for elevated levels of prostate-specific antigen, or PSA. A man with an elevated PSA is often urged to undergo a biopsy, most often conducted using a needle guided by ultrasound that draws cell samples from the prostate.

However, these biopsies only sample a small portion of the prostate, leaving the rest of the gland unchecked. Such random sampling can easily miss tumors, experts say.

Under the new approach, a man with elevated PSA levels would first undergo an MRI that would provide a visual scan of the entire prostate, Rastinehad explained. If potentially cancerous areas are found on the prostate, then the man would undergo a biopsy.

Studies have found that using an initial MRI scan to figure out who needs a biopsy can reduce the overall number of biopsies by about a third, according to a review of the data published this summer in the journal *European Urology*.

"We are working toward a goal that if you have a PSA that is elevated,

you would instead get an MRI," Rastinehad said. For some patients, that may mean that "you may never need a biopsy," he said.

MRI also would be used during the biopsy itself. In that scenario, an electro-magnetic field generator is placed over the patient's hip, creating real-time MRI images that are combined with ultrasound readings to guide the needle biopsy. Images from the earlier MRI screening can then be overlaid with the real-time images to provide visible "targets" for the doctor to biopsy.

Studies have found that MRI-targeted biopsies are better at both detecting prostate tumors and determining which tumors are more advanced, Rastinehad said.

The technology helped detect advanced prostate cancer in Robert Herr, a Long Island, N.Y., resident who had high PSA levels but underwent a biopsy a couple of years ago that detected no cancer.

"Then the PSA elevated again and my urologist said, 'Why don't you go for this new MRI biopsy and see how it works out for you?'" said Herr, 66.

The fusion biopsy conducted in May ended up detecting high-grade prostate cancer near the top part of the prostate gland, an area normally not sampled in standard biopsy. Herr will begin radiation treatment in August.

"If I had gone for the regular biopsy again, it might not have shown up again and then I'm living with the cancer not knowing anything, and I don't think that's a good idea," Herr said. "To me, I don't think anybody wants to have cancer of any type, but if I have it I want to know about it and do whatever I need to do to treat it. To put your head in the sand, I don't think that's any kind of solution at all."

At this point the technology is both rare and expensive. Only five medical centers in the United States use MRI/ultrasound fusion prostate biopsy, and the devices cost about $180,000, Rastinehad said.

The U.S. Food and Drug Administration approved the device, which was developed in collaboration with the U.S. National Institutes of Health, in April. It is being manufactured by Invivo, a division of Philips Healthcare. Rastinehad said he does not have a financial stake in the company.

While the technology is expensive, Rastinehad believes hospitals will end up saving money because they will be able to cut back on the amount of pathological examinations needed to assess suspected prostate cancer.

For his part, Eggener said the new MRI approach can help doctors meet the overall goal of finding serious cancers in a timely fashion.

"There are some early data to suggest it may be a better way of targeting cancers, finding more cancers and finding more meaningful cancers," Eggener said. "MRI is the best picture we can get of the prostate. It's not perfect, but it is better than what we've had."

More information: For more information on prostate cancer detection, visit the American Cancer Society.