

Study shows image fusion-guided biopsy improves accuracy of prostate cancer diagnosis

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A recent study by investigators from LIJ Medical Center demonstrated that using magnetic resonance imaging (MRI) in men with an elevated prostate specific antigen (PSA) resulted in a prostate cancer detection rate that was twice as high as data reported in the March 1999 *Prostate* journal that analyzed men undergoing the standard 12-core biopsy with an elevated PSA. Physicians in the recent trial used a targeted approach to evaluate prostate cancer that combines MR imaging and transrectal ultrasound fusion guided prostate biopsy.

Given the limitations of the PSA blood test and the standard 12-core ultrasound biopsies for detecting [prostate cancer](#), researchers evaluated the initial 105 men eligible for the clinical trial using a new targeted prostate fusion biopsy method. The study, which will appear in the June issue of the *Journal of Urology*, showed that prostate cancer was detected in 62 percent of men tested in the latest trial vs. 30 percent in the general population as reported in the 1999 *Prostate* journal.

"The results of the phase III clinical trial show that a target fusion biopsy detects more clinically significant prostate cancer," said Art Rastinehad, DO, principal investigator of the study and director of interventional urologic oncology at North Shore-LIJ's Arthur Smith Institute for Urology, in New Hyde Park, NY. "This is the type of cancer that patients may benefit from treatment compared to other patients with low grade and low volume prostate cancer."

Investigators used the UroNav system, which combines MRI and ultrasound imaging to better identify areas not revealed by the standard, 12-core biopsy procedure. A field generator, similar to a GPS device, is placed over the patient's hip to guide the biopsy. The MRI and ultrasound images

are overlaid in real-time, which provide an evaluation of 100 percent of the prostate gland to get the most accurate diagnosis possible.

"The study also showed that in situations when the 12-core biopsy did not detect cancer, the fusion biopsy detected cancer in 15 percent of cases and in these cases, 85 percent were clinically significant," Dr. Rastinehad said.

Dr. Rastinehad credits the quality of the multiparametric prostate MR imaging as one of the key factors in the outcomes of the study, which resulted in excellent prostate cancer detection rates as compared to data from other institutions using the fusion biopsy technology.

"The MRI creates the road map to target specific areas within the prostate," Dr. Rastinehad said. "Some patients with previous multiple negative [prostate](#) biopsies have cancer outside the usual areas sampled on the standard biopsy so the new technology takes away the mystery of a diagnosis."

Dr. Rastinehad noted the challenge in the study was trying to reproduce the high quality MRI results the National Institutes of Health has established, extending thanks for researches there for assistance in LIJ's research.

"Our study results are very promising," Dr. Rastinehad. "There is no question that a targeted approach will yield more cancer and actually more clinical significant cancer. Our next challenge is to perform a randomized control trial to see if MR imaging for screening combined with a fusion biopsy can be applied to the broader patient population."

More information: "Improving Detection of Clinically Significant Prostate Cancer: Magnetic

Resonance Imaging/Transrectal Ultrasound Fusion
Guided Prostate Biopsy."

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