
RSNA Press Release

MRI Findings Help Forecast Prostate Cancer Prognosis

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OAK BROOK, Ill. - Magnetic resonance imaging (MRI) findings in patients about to undergo radiation therapy for prostate cancer can help predict the likelihood that the cancer will return and spread post-treatment, according to a new study published in the April issue of the journal *Radiology*.

"This is the first study to show that MRI detection and measurement of the spread of prostate cancer outside the capsule of the prostate is an important factor in determining outcome for men scheduled to undergo radiation therapy," said study co-author Fergus V. Coakley, M.D., professor of radiology and urology, vice chair for clinical services and section chief of abdominal imaging in the Department of Radiology at University of California, San Francisco.

Prostate cancer forms in tissues of the prostate, a gland in the male reproductive system. The National Cancer Institute estimates 186,320 new cases of prostate cancer will be diagnosed in the U.S. in 2008, mostly in men over age 65. When diagnosed and treated early, the five-year survival rate for patients with prostate cancer is nearly 100 percent. However, once the cancer spreads or recurs beyond the prostate, the chance of survival drops significantly.

One common treatment for prostate cancer is external beam radiation therapy. Dr. Coakley and colleagues sought to determine if MRI findings prior to radiation therapy were an indicator of possible recurrence and spread.

The researchers retrospectively reviewed the MR images of 80 men with prostate cancer who had undergone MRI of the prostate prior to external beam radiation therapy. Details of tumor characteristics, treatment and outcome were recorded. Using a Cox regression analysis—a technique that correlates the relationship between survival of a patient and several contributing variables, the researchers determined that the presence and degree of extracapsular extension (spread of cancer beyond the membrane that surrounds the prostate

At A Glance

- MRI findings prior to prostate cancer treatment may predict likelihood of tumor recurrence and spread.
- Cancers that have spread 5 mm or more beyond the membrane surrounding the prostate before therapy are more likely to recur and spread post-treatment.
- Approximately 186,320 cases of prostate cancer will be diagnosed in the U.S. in 2008.

gland) seen on the pre-treatment MR images was an important predictor of post-treatment recurrence and spread. Specifically, patients with extracapsular extension greater than 5 millimeters (about the diameter of a pencil eraser) were more likely to experience recurrence and spread of their cancers.

"Patients with substantial extracapsular spread of prostate cancer may wish to discuss options for more aggressive therapy with their treating physicians," Dr. Coakley said.

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"Prostate Cancer: Role of Pretreatment MR in Predicting Outcome after External-Beam Radiation Therapy-Initial Experience." Collaborating with Dr. Coakley were David A. McKenna, M.B., B.Ch., Antonio C. Westphalen, M.D., Shoujun Zhao, Ph.D., Ying Lu, Ph.D., Emily M. Webb, M.D., Barby Pickett, M.Sc., Mack Roach III, M.D., and John Kurhanewicz, Ph.D. Journal attribution requested.

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