

The hot -- and cold -- interventional radiology treatments for recurrent prostate cancer

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The first known patient cases using magnetic resonance-guided heat (laser interstitial thermal therapy) or cold (cryoablation) to treat prostate cancer recurrence after surgical removal of the prostate gland were presented by physicians at the Society of Interventional Radiology's 35th Annual Scientific Meeting in Tampa. Many of these patients have also failed salvage radiation treatment and are often presented with limited therapeutic options. MR-guided focal therapy offers a new treatment choice for patients because of the improved detection of early prostate cancer recurrences best seen with MR imaging.

"Magnetic resonance-guided ablation may prove to be a promising new treatment for prostate cancer recurrences; it tailors treatment modality (imaging) and duration to lesion size and location and provides a less invasive and minimally traumatic alternative for men," said David A. Woodrum, M.D., Ph.D., an interventional radiologist at the Mayo Clinic in Rochester, Minn. "The safe completion of four clinical cases using MR-guided ablation therapy to treat prostate cancer in patients who had failed surgery demonstrates this technology's potential," he said, stressing, however, that the application for using ablation therapy in treating prostate cancer is relatively new. In the study—a major collaboration of physicians from Mayo Clinic radiology and urology departments—the four patients with recurrent prostate cancer had previously been treated with [radical prostatectomy](#), an operation to remove the entire prostate gland and adjacent structures. The men underwent salvage therapy treated with either MR-guided laser interstitial thermal therapy, which uses high temperatures generated by

local absorption of [laser energy](#), or cryoablation, generating freezing with extremely cold gas destroying cancerous tissue. By using [MR imaging](#) with temperature mapping and/or ice ball growth monitoring, clinicians tailored treatments to lesion size and location. "Immediately after treatment, we found no definite residual tumor. The treatment preserved the patients' baseline sexual and urinary function and had no major complications," added Woodrum.

Prostate cancer is the third most common cause of death from cancer in men and accounted for 27,360 deaths last year. Most of the 192,280 men diagnosed with cancer of the prostate (adenocarcinoma) in 2009 were older than 50 years of age. Prostate cancer management decisions often depend on the degree of spread or stage of the cancer. Treatment alternatives may include surgery, radiation therapy, cryosurgery, chemotherapy, active surveillance or manipulation of hormones that affect the cancer. Cancer recurrence rates after surgical resection can be as high as 15-20 percent, leaving a significant number of men who require salvage therapy with radiation therapy or hormones; however, each has drawbacks. Some men continue to have detectable residual prostate cancer even after surgical removal and [radiation treatment](#); for these individuals this potential new therapy with imaging guidance presents an innovative method to target and treat the cancer when all others have failed.

In this retrospective review, each of the four men was found to have post surgical recurrent [prostate cancer](#) detected by MR imaging. Two were treated with MR-guided laser interstitial thermal therapy; the other two were treated with cryoablation. Biopsy-proven cancer lesions ranged in size from 6-10 millimeters and were located in the prostate bed just inferior to the bladder and anterior to the rectum, where the prostate gland had previously resided. The men had no detectable metastases at the time of treatment. For both ablation methods, two to three probes or applicators were used in each case. Intermittent MR imaging was

employed during the procedures for placement of the probes/applicators and to actively monitor ablation size during treatment to completely cover the lesion.

While stressing that this treatment was in the formative stages, additional work is needed to see which patients will be best suited for the ablation procedure and to examine middle- and long-term results for efficacy, noted Lance A. Mynderse, M.D., a Mayo Clinic urologist.

Provided by Society of Interventional Radiology

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