

Advanced imaging techniques improve prostate cancer care



About half of the men diagnosed with prostate cancer have low-risk tumors that make them good candidates for active surveillance: regular monitoring of prostate-specific antigen (PSA); annual biopsies; and a Gleason score, which grades cancer cells by how they look compared to normal cells. Active surveillance allows men with small, confined and nonaggressive tumors to avoid surgery or radiation treatments that expose them to the risk of incontinence and erectile dysfunction. However, in three out of 10 cases, standard active surveillance techniques fail to identify the aggressiveness of prostate tumors.

Since 2004, UCLA has been using multiparametric MRI (mpMRI) to try to increase the accuracy of predicting tumor aggressiveness. While standard MRIs define tumors by size and location, multiparametric imaging provides important additional information about a tumor's chemical composition, cellular density and disorder, and blood flow.

UCLA treats BPH with GreenLight Laser Surgery

Benign prostatic hyperplasia (BPH), also known as enlarged prostate, affects more than half of men over the age of 60 and causes a range of symptoms from difficulty urinating and decreased force of stream to bladder stones and incontinence.

The condition, which is related to hormonal changes in older men, is commonly treated with a surgical procedure called transurethral resection of the prostate (TURP). This involves opening a channel in the prostate to allow urine to pass through the urethra. For more than a decade, UCLA has also offered GreenLight Laser Therapy, a more advanced treatment that vaporizes prostate tissue with fewer side effects and shorter recovery times than traditional TURP.

“For men who don't like taking medications and want a surgical fix for BPH, GreenLight Laser Therapy is an excellent option,” says Robert Reiter, M.D., director of UCLA's prostate cancer program. “The laser does everything TURP does without bleeding and with shorter catheterization. It also doesn't require a hospital stay. Because it is more powerful and faster than earlier generation lasers, it also can treat larger prostates.”

A UCLA study looked retrospectively at the outcomes of about 200 patients who were candidates for active surveillance using standard criteria. The study found that multiparametric MRI imaging could accurately predict a tumor's aggressiveness 95 percent of the time — a significant improvement over the 70 percent accuracy of standard screening techniques.

MRIs help spare nerves and improve surgical outcomes

Magnetic resonance imaging (MRI) can also be used to improve robotically assisted surgery outcomes. Men with aggressive prostate tumors are increasingly choosing robotically assisted laparoscopic radical prostatectomy — a minimally invasive surgical technique — to treat their cancer. Men who undergo the surgery are less likely to experience sexual dysfunction if nerves on either side of the prostate gland are not damaged. Surgeons must weigh the value of preserving the nerves against the need to remove all the tumor tissue.

A UCLA study has found that MRIs are useful preoperative tools in helping surgeons decide when it is appropriate to attempt to spare nerves in men with prostate cancer who undergo robotically assisted laparoscopic radical prostatectomy. The study found that when surgeons reviewed preoperative MRIs, the additional information persuaded them to alter their original surgical plans in over a quarter of the cases.

The study also found that surgeries had better outcomes when surgeons reviewed preoperative MRIs. The incidence of positive margins, or remaining cancer cells after a tumor was removed, fell from 12 percent to 6 percent when surgeons took advantage of preoperative MRIs.

The Prostate Cancer Program at UCLA is one of 11 centers in the United States designated as a Specialized Program of Research Excellence (SPORE) by the National Cancer Institute in 2002. The UCLA Department of Urology won a \$50 million grant in 2001 to administer a statewide prostate cancer awareness and treatment program targeting uninsured men.

Participating Physicians

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