

Highly targeted radiation technique minimizes side effects of prostate cancer treatment

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Men with prostate cancer treated with a specialized type of radiation called intensity modulated radiation therapy (IMRT) have fewer gastrointestinal complications compared to patients treated with conventional three-dimensional conformal radiotherapy (3D-CRT), according to a study presented November 1, 2010, at the 52nd Annual Meeting of the American Society for Radiation Oncology (ASTRO).

"With survivors living many years after treatment, it is very important to minimize gastrointestinal and urinary side effects to allow patients to live a full life after treatment," Justin Bekelman, M.D., lead author of the study and a radiation oncologist at the University of Pennsylvania in Philadelphia, said. "We specifically looked at IMRT, given its potential to minimize radiation side effects and its higher cost compared to other treatments. Our study shows there is a benefit for men with [prostate cancer](#) to receive IMRT over conventional treatment in terms of gastrointestinal side effects. But there is no difference between the two treatments in terms of urinary side effects."

The [prostate gland](#) is near both the rectum and the bladder, so doctors must be very careful to spare these healthy tissues to avoid complications when attacking the cancer.

Prostate cancer is the most common cancer in American men, with more than 185,000 men diagnosed with the disease each year. Fortunately, the disease is very manageable and often curable, with 98 percent of patients living at least five years after their diagnosis.

IMRT and 3D-CRT are special types of [external beam radiation](#) therapy where radiation is directed through the skin to the cancer and the immediate surrounding area to destroy the tumor and any

stray cancer cells. Treatments are painless, much like receiving an X-ray.

Policymakers and clinicians have highlighted the need for comparative studies of prostate cancer treatments. However, there is little evidence comparing IMRT to conventional radiation therapy. Three-dimensional conformal radiation therapy, or 3D-CRT, uses computers and special imaging techniques such as CT, MR or PET scans to show the size, shape and location of the tumor and surrounding organs. Because the radiation beams are very precisely directed, nearby normal tissue receives less radiation.

Intensity modulated radiation therapy, or IMRT, is a specialized form of 3D-CRT that better shapes the radiation to the tumor. Using IMRT, it may be possible to further limit the amount of radiation received by healthy tissue near the tumor.

This study used the Surveillance, Epidemiology and End Results (SEER)-Medicare database to compare the gastrointestinal and urinary complications of men 65 years or older with prostate cancer within two years of treatment with IMRT or 3D-CRT. The researchers specifically examined common gastrointestinal side effects like inflammation of the rectum lining (proctitis) and rectal bleeding, along with the urinary side effects like inflammation of the bladder tissue (cystitis) and blood in the urine (hematuria).

The study showed that IMRT was associated with a modest reduction in gastrointestinal complications associated with radiation, including proctitis and rectal bleeding. Urinary complications, such as cystitis and hematuria, did not significantly differ between the groups.

Provided by American Society for Radiation

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