

Newer type of radiation for prostate cancer favored in reviews

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A new British review of existing research suggests that while a newer type of radiation for the treatment of prostate cancer does not help patients live longer compared to an older type – at least when similar doses are given – it does appear to reduce gastrointestinal side effects.

The newer type of radiation, known as intensity-modulated radiotherapy, has become common in the United States. However, it costs more than the older type – three-dimensional conformal radiotherapy – and the review authors could not determine if it's cost-effective.

The review is in the latest issue of *Health Technology Assessment*, the international journal series of the Health Technology Assessment program, part of the National Institute for Health Research in the United Kingdom.

There is no question that the new technology offers an improvement and fewer side effects; the question is how much health insurers will be willing to pay for it, said radiation oncologist Dr. Anthony D'Amico, who is not affiliated with the review but is familiar with its findings.

An estimated 217,730 men will develop [prostate cancer](#) in the United States this year and 32,050 will die from it, according to the National Cancer Institute. Several treatments exist, including removal of the walnut-sized prostate – a treatment that often causes impotence and incontinence – and radiation delivered from within the prostate through pellets or from outside the body.

The challenge of sending in radiation from the outside is that the prostate is close to the rectum and bladder, which can be hit by the radiation too, said D'Amico, chief of genitourinary radiation oncology at Brigham and Women's Hospital in Boston.

Three-dimensional conformal radiation was developed several decades ago. Guided by the results of scans, radiologists aim to hit the prostate with radiation from several directions instead of just from front to back as in the past, D'Amico said.

Intensity-modulated [radiation therapy](#) appeared in the 1990s, he said. It allows radiologists to adjust the intensity of radiation beam as it goes through parts of the prostate with different contours, reducing damage to other parts of the body – especially the rectum – that would also get hit by radiation.

In the new review, researchers looked at data from 13 studies mostly done in the United States – eight full studies and five abstracts –comparing the two radiation approaches on 5,768 participants. None was a randomized controlled trial, considered the gold standard of medical research, in which researchers assign patients randomly to receive a certain treatment.

Why so few studies? “Lack of good quality research is not uncommon” when it comes to treatments that don't involve drugs, said lead review author Silvia Hummel, a senior analyst at the University of Sheffield in the United Kingdom. Drug studies must go through “well-defined steps, including a randomized trial, in order to be approved for use in patients, whereas other technologies often evolve and are not tested in the same way,” she said.

Additionally, Hummel said, if clinicians believe that a new treatment is better, even if unproven, they might be reluctant to ask patients to

participate in a trial.

Some studies looked at how long the patients survived after treatment and found no difference except in some cases when some patients lived longer after getting higher doses of intensity-modulated radiation therapy compared to those who got lower doses of three-dimensional conformal radiotherapy.

Most of the studies reported that patients who underwent intensity-modulated radiation therapy suffered from fewer gastrointestinal side effects such as rectal pain, bleeding and uncontrolled defecation. This appeared to be because the treatment does not cause radiation to hit as much of the rest of the body, especially the rectum.

A minority of the studies suggested that higher doses of intensity-modulated radiation therapy caused more side effects in the genitals and urinary system, such as incontinence and blood in the urine.

D'Amico, the U.S. [radiation](#) oncologist, said the review reflects the conclusions of not-yet-published research that supports intensity-modulated radiotherapy.

The British review did not come to any conclusions about whether the more-expensive therapy is cost-effective in terms of providing enough bang for the buck (or pound or euro). A review of U.S. costs in 2005 found that intensity-modulated radiotherapy cost \$42,450 compared with \$10,900 for three-dimensional conformal radiotherapy.

More information: Hummel S, et al. Intensity-modulated radiotherapy for the treatment of prostate cancer: a systematic review and economic evaluation. *Health Technol Assess* 2010; 14(47).

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