

European Association of Urology - Media Release

Analysis shows survival rates for patients with localised prostate cancer better with surgery compared to radiotherapy.

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A rigorous evaluation of survival rates has shown that cancer patients with localised prostate cancer - the most common form of prostate cancer - have a better chance of survival if treated by surgery than by radiotherapy. These findings hold true even after accounting for type of radiation and the aggressiveness of cancer. This is the most robust analysis (meta-analysis) to date of published literature comparing surgery and radiotherapy for localised prostate cancer. The study is published in the peer-reviewed journal, *European Urology*¹.

According to senior author, Dr Robert Nam (Odette Cancer Centre, Sunnybrook Research Institute, University of Toronto, Canada):

“In the past, studies that have compared the success rates of surgery or radiation have been confusing because of their methods. We have evaluated all the good-quality data comparing surgery and radiotherapy, and the results are pretty conclusive; in general, surgery results in better mortality rates than radiotherapy. Nevertheless, there are times when radiotherapy may be more appropriate than surgery, so it is important that a patient discusses treatment options with his clinician”.

Localised prostate cancer – where the cancer is confined to the prostate- accounts for around 80% of prostate cancers. Around 400,000 men are diagnosed with prostate cancer each year in Europe, meaning that around 320,000 will suffer from localised prostate cancer². The most common way of treating localised prostate cancers are either with radiotherapy, or with surgery. The choice of radiotherapy or surgery varies according to country. For example, in England and Wales, radiotherapy is used more often than surgery³.

The researchers conducted a meta-analysis (a ‘study of studies’) which compared 19 studies including up to 118,830 patients who had undergone treatment with either surgery or radiation.

The analysis had to consider a variety of studies which compared different parameters (such as duration of the study). Fifteen of the studies compared patients who died of prostate cancer after surgery or radiation; they found that over the duration of the studies, patients were twice as likely to die from prostate cancer after being treated with radiation, compared to surgery, (Hazard Ratio 2.08, 95% confidence interval 1.76–2.47, $p < 0.00001$).

Ten of the studies also looked at overall mortality (where the cause of death was not necessarily from prostate cancer), and found that patients treated with radiation were about one and half times more likely to die sooner than patients who had surgery (HR 1.63, 95% confidence interval 1.54–1.73, $p < 0.00001$)

“Both treatment approaches should be discussed with patients prior to the start of therapy,” says Dr Robert Nam, “the important thing about this research is that it gives physicians and patients additional, information to consider when making the decision about how to treat localised prostate cancer.

Commenting Professor Nicolas Mottet (St Étienne, France) Chairman of the European Association of Urology Prostate Guideline Panel said:

“This systematic review suggests that survival is better after surgery compared to various forms of radiotherapy. It deserves attention, as it is based on the best available data. However, definitive proof needs a large well-conducted randomized control trial, such as the upcoming PROTECT trial which is due to report next year. So we certainly need to take this analysis into account, but it doesn’t yet give us a definitive answer as to the best treatment. Although this paper should not change clinical practice, I agree with the authors, this analysis gives us important, additional information”.

Notes

- 1 This article is in press in the journal *European Urology*
<http://www.sciencedirect.com/science/journal/aip/03022838>
- 2 See <http://eco.iarc.fr/eucan/CancerOne.aspx?Cancer=29&Gender=1> In North America, there are 220,800 cases of prostate cancer diagnosed each year, meaning that approximately 176,000 are localised
<http://seer.cancer.gov/statfacts/html/prost.html>
- 3 For UK statistics, see <http://www.ncin.org.uk/view?rid=1260>

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Notes for editors

Please mention European Urology in any story from this press release.

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More than 12,000 visitors are expected to attend the 31st Annual EAU Congress (EAU16) in Munich 11-15 March 2016, <http://uroweb.org/>

Abstract

Surgery Versus Radiotherapy for Clinically-localized Prostate Cancer: A Systematic Review and Meta-analysis

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Context: To date, there is no Level 1 evidence comparing the efficacy of radical prostatectomy and radiotherapy for patients with clinically-localized prostate cancer. **Objective:** To conduct a meta-analysis assessing the overall and prostate cancer-specific mortality among patients treated with radical prostatectomy or radiotherapy for clinically-localized prostate cancer.

Evidence acquisition: We searched Medline, EMBASE, and the Cochrane Library through June 2015 without year or language restriction, supplemented with hand search, using Preferred Reporting Items for Systematic Reviews and Meta-Analysis and Meta-analysis of Observational **Manuscript 2** Studies in Epidemiology guidelines. We used multivariable adjusted hazard ratios (aHRs) to assess each endpoint. Risk of bias was assessed using the Newcastle-Ottawa scale.

Evidence synthesis: Nineteen studies of low to moderate risk of bias were selected and up to 118 830 patients were pooled. Inclusion criteria and follow-up length varied between studies. Most studies assessed patients treated with external beam radiotherapy, although some included those treated with brachytherapy separately or with the external beam radiation therapy group. The risk of overall (10 studies, aHR 1.63, 95% confidence interval 1.54–1.73, $p < 0.00001$; $I^2 = 0\%$) and prostate cancer-specific (15 studies, aHR 2.08, 95% confidence interval 1.76–2.47, $p < 0.00001$; $I^2 = 48\%$) mortality were higher for patients treated with radiotherapy compared with those treated with surgery. Subgroup analyses by risk group, radiation regimen, time period, and follow-up length did not alter the direction of results.

Conclusions: Radiotherapy for prostate cancer is associated with an increased risk of overall and prostate cancer-specific mortality compared with surgery based on observational data with low to moderate risk of bias. These data, combined with the forthcoming randomized data, may aid clinical decision making.

Patient summary: We reviewed available studies assessing mortality after prostate cancer treatment with surgery or radiotherapy. While the studies used have a potential for bias due to their observational design, we demonstrated consistently higher mortality for patients treated with radiotherapy rather than surgery.