

## PROSTATE CANCER

# Post-treatment complications of radiotherapy and prostatectomy

A population-based retrospective cohort study of 32,465 men with localized prostate cancer has quantified the incidence of a number of postoperative complications after treatment by radiotherapy or radical prostatectomy. The study excluded consideration of urinary incontinence and erectile dysfunction, and focused on other frequently encountered complications, finding that their incidence varies according to treatment type. Compared with radical prostatectomy, radiotherapy was associated with higher levels of hospital admissions (HR 10.8 at 5 years post-treatment), rectal or anal procedures (HR 2.72), open surgical procedures (HR 3.68) and secondary malignancies (HR 2.08), and with lower levels of minimally invasive urological procedures (HR 0.66).

The study included men undergoing treatment for prostate cancer between 1 January 2002 and 31 December 2009, in Ontario, Canada. Patients were excluded if they underwent laparoscopic or robotic prostatectomy, or a combination of radiotherapy and prostatectomy, and no comparison was made with men who received active surveillance rather than direct intervention. Age and comorbidity were evidently factors affecting the choice of treatment, as both were significantly higher at the time of treatment in the 16,595 men receiving radiotherapy than in the 15,870 treated with prostatectomy. Notably, both age and comorbidity were positively associated with all complications except for open surgical procedures.

The five classes of complications were further analysed, giving the 5-year cumulative incidence for 34 specific complications, with the risk of each, in person-years, calculated from Kaplan–Meier survival analysis. For instance, among the surgical procedures, a risk of 0.2 per 1,000 person-years was demonstrated for cystectomy following radiotherapy compared with no observed incidence following prostatectomy, whereas, in urological procedures, prostatectomy was associated with a greater risk of cystoscopy (66.3 versus 48.0 per 1,000 person-years). The development of a second malignancy was considered between 5 and 9 years post-treatment to allow for a 5-year lag period, resulting in overall risks of 113 (prostatectomy) and 309 (radiotherapy) per 100,000 person-years.

The choice of treatment for localized prostate cancer depends on patient age, comorbidity, and tumour stage and grade (which were not analysed in this study), but also on the availability of different treatments, and the informed choice of the patient. When the treatment decision is between prostatectomy and radiotherapy, the information from this study

will add to the available knowledge on erectile dysfunction and urinary incontinence. The question might now be, how best to present this mass of data to patients and clinicians so it can enable them to make clear decisions, rather than muddying the waters further.

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