



Treatment patterns among Canadian men diagnosed with localized low-risk prostate cancer

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ABSTRACT

In general, guideline-recommended treatment options for men with low-risk prostate cancer (pca) include active surveillance, radical prostatectomy, and external-beam radiation therapy or brachytherapy. Because of the concern about overdiagnosis and consequent overtreatment of pca, patients with low-risk disease are increasingly being managed with active surveillance. Using data from six provincial cancer registries, we examined treatment patterns within a year of a diagnosis of localized low-risk pca, and we assessed differences by age.

Of patients diagnosed in 2010 in four of the six reporting provinces, most received surgery or radiation therapy within 1 year of diagnosis. Depending on the province, either surgery or radiation therapy was the most commonly used primary treatment. In the other two provinces, most patients had no record of treatment within a year of diagnosis. Examining treatment patterns by age demonstrated a lesser likelihood of receiving surgery or radiation therapy within 1 year of diagnosis among men more than 75 years of age than among men 75 years of age or younger (no record of treatment in 69.1% and 46.3% respectively).

In conclusion, we observed interprovincial and age-specific variations in the patterns of care for men with low-risk pca. The findings presented in this report are intended to identify opportunities for improvement in clinical practice that could lead to improved care and experience.

Key Words Low-risk prostate cancer, treatment, older men, active surveillance, observation

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INTRODUCTION

Prostate cancer (pca) remains the most common cancer among Canadian men, with more than 24,000 cases expected to be diagnosed in 2015¹. By 2032, that number is expected to rise to 42,000 because of the aging population.

In general, guideline-recommended treatment options for men with low-risk pca include active surveillance, surgery (radical prostatectomy), and external-beam radiation therapy or brachytherapy². Because of the often slow-growing nature of pca and the potential for debilitating physical, emotional, and psychosocial side effects caused by treatment, there is concern about overdiagnosis and consequent overtreatment of pca³. As a result, clinicians are increasingly using active surveillance to manage patients with low-risk pca—closely monitoring

the patient and initiating definitive treatment only when there is evidence of disease progression^{2,4}.

Given the projected rise in incidence and the number of treatment approaches available for pca, it is important to ensure that patients are being managed according to evidence-based treatment guidelines and that management is guided by risk profile, personal preferences of the patient, and quality-of-life considerations. The objectives of the present work were to examine treatment patterns across Canada for men with localized low-risk pca and to assess the extent to which age influences treatment decisions.

METHODS

Provincial cancer agencies and programs provided data from their jurisdictions. Detailed data specifications and

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calculation methodologies were developed and used in the collection and analysis of data at the provincial level to ensure consistency and comparability across provinces.

Men 35 years of age and older who were diagnosed with localized pCa in 2010 were identified in the provincial cancer registries. British Columbia, Alberta, Saskatchewan, Manitoba, Nova Scotia, and Prince Edward Island submitted data; other provinces are not shown because they did not submit data. Depending on the province, patients who were treated with radical prostatectomy or radiation therapy (external-beam radiation therapy or brachytherapy, or both) within 1 year of diagnosis were identified either through coding of the surgical procedure in the registries or by linkage to data in hospital or cancer centre records. Patients receiving radiation therapy within 1 year of diagnosis were identified by linkage with hospital or cancer centre data. Patients who received radiation therapy within 1 year of undergoing radical prostatectomy were identified as having had adjuvant radiation therapy. Patients with no record of radical prostatectomy or radiation within 1 year of diagnosis, or surgery with adjuvant radiation therapy as defined here, were considered to have no record of treatment.

The Canadian consensus definition published by the Genito-Urinary Radiation Oncologists of Canada was used to assign risk profiles to patients with localized pCa. Risk profiles for each patient were derived based on collaborative staging data collected by provincial cancer registries from patient charts, namely: site-specific factor 1 (prostate-specific antigen), site-specific factor 8 (Gleason score), and collaborative staging extension (clinical T stage). Patients were considered low-risk when all of the following criteria were met: prostate-specific antigen 10 ng/mL or less, biopsy Gleason score 6 or less, and clinical stage T1–2a. Patients who could not be assigned to a risk category because of incomplete data for one or more of those prognostic factors were excluded from the analysis^a.

Descriptive statistics for treatment patterns (radical prostatectomy or radiation therapy, or both) for men with localized low-risk pCa are reported by province and overall by age group (≤ 75 years vs. >75 years).

RESULTS

Patterns of primary treatment for men with localized low-risk pCa varied by province (Figure 1). Surgery was the treatment most commonly used in most provinces; the proportion ranged from 10.9% in Prince Edward Island to 37.0% in Nova Scotia. Among men who underwent surgery, only a small proportion received adjuvant radiation therapy. The second most common primary treatment was radiation therapy, ranging from 12.7% in Prince Edward Island to 29.5% in British Columbia. A substantial proportion of the men with low-risk pCa (41.5%–76.4%) had no record of surgical or radiation therapy treatment within 1 year of diagnosis.

^a For details about the specific diagnosis and procedure codes used to identify the pCa cohort and the treatment each patient received, please refer to the Technical Appendix of the report *Prostate Cancer Control in Canada*, available at <http://www.systemperformance.ca/>.

The type of active treatment (surgery or radiation) also varied considerably by age (Figure 2). For men with low-risk pCa who were 75 years of age or younger, surgery was the most common type of active treatment; the most common treatment for men more than 75 years of age was radiation therapy. A substantial proportion of the men more than 75 years of age (69.1%) had no record of treatment. It should be noted that, in the reporting provinces, the number of men more than 75 years of age who were recorded as having low-risk pCa during the period of interest was relatively small.

DISCUSSION AND CONCLUSIONS

Reporting on patterns of care for men with low-risk pCa is intended to further discussion about the complex management of pCa in Canada. Our findings suggest that there are

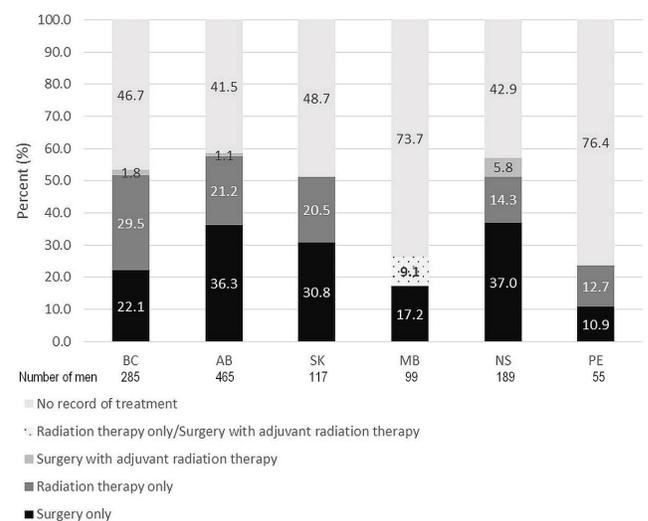


FIGURE 1 Percentage of men with low-risk prostate cancer receiving various types of treatment, by province, 2010 diagnosis year. Data source: Provincial cancer agencies.

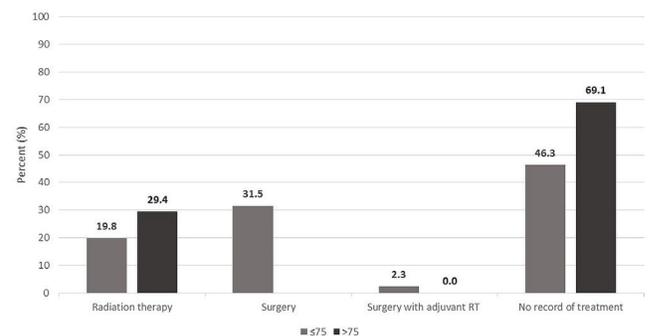


FIGURE 2 Percentage of men with low-risk prostate cancer receiving various types of treatment, by patient age (≤ 75 : $n = 1025$; > 75 years: $n = 68$), all reporting provinces combined (British Columbia, Alberta, Manitoba, Nova Scotia, Prince Edward Island), 2010 diagnosis year. Saskatchewan did not submit data about types of treatment for men in the two age groups. Surgery results for patients more than 75 years of age are suppressed because of small numbers. Data source: Provincial cancer agencies. RT = radiation therapy.

interprovincial variations in patterns of care for men with low-risk pCa. Those variations likely reflect differences in clinical practice between the provinces.

Guideline-recommended treatment options for low-risk pCa include active surveillance, surgery, or radiation therapy². Active surveillance is the preferred management option for many men. The decision to have definitive treatment is influenced by various factors, including clinical reasons and patient preference. Our findings, based on registry data, reflect practice and patient differences. In four of the six reporting provinces, most men received some type of definitive treatment (surgery or radiation therapy, or both) for their low-risk pCa; in the other two provinces, most received no treatment. For those who underwent surgery, observed rates in most provinces were above evidence-based estimates of the appropriate rate of pCa surgery⁵, suggesting potential overuse of radical prostatectomy.

It is likely that many of the patients with no record of treatment within 1 year of diagnosis were under active surveillance. Although we could not accurately capture the number of patients under active surveillance, we can assume that at least a portion of the low-risk pCa patients with no record of treatment were being managed using that strategy. Data about chemotherapy or androgen deprivation therapy were not available, but it is unlikely that patients with low-risk pCa received those treatments, which are not guideline-recommended. However, in the event that this group of patients did receive definitive treatment other than radiation therapy or surgery, then our estimates of patients undergoing active surveillance would be overestimated.

Primary treatment patterns for pCa also varied by age. Treatment was less likely for men more than 75 years of age than for men 75 years of age and younger; a large proportion of men more than 75 years of age had no record of treatment.

Observation is another management option for men with low-risk pCa who have a life expectancy of less than 10 years and comorbidity that is likely to outcompete the mortality risk of pCa; this approach involves monitoring the disease and initiating palliative therapy when there is evidence of disease progression or symptoms². Our findings suggest that pCa management for men more than 75 years of age was largely aligned with evidence-based recommendations, which suggest that men with a life expectancy of less than 10 years be managed with observation².

Research data from other countries suggest that up to two thirds of pCa patients could be safely managed with active surveillance^{6–8}. Recently published findings from a clinical trial in Canada following more than 900 pCa patients on active surveillance suggest that low-risk pCa patients can be managed safely with active surveillance for 15 years⁴.

Examining patterns of care based on actual treatment data in the cancer registries and assessing the data by risk category allows jurisdictions to examine their clinical practices against practices in other jurisdictions and against evidence-based clinical guidelines, where they exist. Such examination is especially important given that complications associated with unnecessary treatments can have lasting effects on the lives of patients. Moreover, given the projected dramatic increase in the number of pCa cases in Canada, unnecessary treatments will place an additional

resource burden on the health care system, which could have an effect on sustainability⁹.

The present report has several limitations. The “patterns of care” measure does not take into account patient preference, the appropriateness of care, or the judgment of the attending physician. Also, risk profiles were not available for all men with pCa; in some patient charts, data for one or more of the three prognostic factors used to calculate risk were incomplete. Those exclusions could have affected the comparability of the patterns-of-care analysis across provinces. In the data submitted by the provinces, only 68 men 75 years of age and older had low-risk pCa; that small number might affect generalizability.

In conclusion, we observed interprovincial and age-specific variations in patterns of care for men with low-risk pCa. The findings presented in this report are intended to identify opportunities for improvement in clinical practice that could lead to improved care and experience.

CONFLICT OF INTEREST DISCLOSURES

We have read and understood *Current Oncology's* policy on disclosing conflicts of interest, and we declare that we have none.

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