Time to treatment of prostate cancer through the Calgary Prostate Institute rapid access clinic

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Purpose: *To determine the wait time between initial referral, biopsy, diagnosis and individual treatment modalities of prostate cancer treatment through the Calgary Prostate Institute rapid access clinic (RAC) and compare to historical data estimates in Alberta and to suggested standards. Biopsy rate, rate of confirmed prostate cancer and the distribution of treatment modality for patients seen through the RAC is included.*

Materials and methods: *A non-consented, retrospective chart review of 1103 patients from the Calgary Health Region referred to the RAC between September 2005 and August 2006 was completed.*

Results: *Patients experienced a median wait time of 21 days between referral from their family doctor and prostate biopsy. A total of 31.4% of patients referred to the clinic were requested to have a prostate biopsy performed and 50.8% of biopsies resulted in confirmed prostate cancer requiring treatment. Median wait time between diagnosis and treatment for all treatment types was 52.0 days with a 90th percentile of 146.2 days. Median wait time between referral and treatment for all treatment modalities was 101 days with a 90th percentile of 187.2 days.*

Conclusion: *Calgary rapid access clinic reduces wait time between referral and biopsy by 78%. Stratifying across treatment type indicates that watchful waiting is the shortest time duration and radiation with hormone therapy is the longest.*

Key Words: prostate cancer, wait time, rapid access clinic

Introduction

Prostate cancer is the leading form of cancer diagnosed in Canadian men, with an estimated 20500 newly diagnosed patients per year. It represents the third leading cause of Canadian cancer mortality with 4300 deaths attributed to the disease in 2005.[1] Options for treatment include radical prostatectomy, radiation therapy, brachytherapy, cryoablation, hormone treatment and watchful waiting. The appropriate treatment modality is dependent on clinical presentation, staging and grading of the disease, and patient preference. Once the appropriate treatment is determined patients are commonly placed on a wait list until appropriate resources become available.

Concrete guidelines for acceptable wait times for prostate cancer intervention in Canada have not been established; however, the Canadian Society of Surgical Oncology (CSSO) recommends a delay between conclusion of preoperative tests to treatment of no longer than 2 weeks.[2] The Canadian surgical wait time initiative (SWAT) recently published wait time recommendations stratified to risk of patient presentation. Patients with a prostate specific antigen (PSA) greater than 20 or Gleason biopsy score greater than 7 (highest risk) are recommended to wait no longer than 28 days from conclusion of preoperative tests to treatment. Patients with a PSA between 10 and 20 (intermediate risk) are recommended to wait no longer than 60 days; and those

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with a Gleason biopsy score less than 7 and PSA less than 10 (lowest risk) are recommended to wait no longer than 90 days.[3] The current Alberta health and wellness initiative is a 90th percentile wait time less than 3 months between diagnosis and treatment for radiation therapy.[4]

The impact of delayed treatment of prostate cancer is divided into biological and psychological domains. Biological considerations are typically quantified by measuring the association between treatment delay and progression free survival, however, there is currently no consensus on the issue. Moul et al[5] determined that a delay of greater than 3 months between diagnosis and surgery of high risk patients is associated with a statistically significant increase in hazard ratio. In contrast, Kahn et al[16] found that wait times of up to 5 months do not negatively impact PSA recurrence free survival at 10 years follow up. Psychological morbidity has been quantified based on health related quality of life determinants among patients awaiting treatment. Widespread agreement exists in the literature that treatment delay has significant effects on psychological well being, and reduced wait times result in a decrease in stress and psychological morbidity.[7]

The Calgary rapid access clinic (RAC) was initiated in September 2005 with the goal of reducing the time from referral to biopsy for patients at a high risk for prostate cancer. Ultimately, the clinic may also reduce the delay between referral and treatment of prostate cancer and help establish the Alberta Health and Wellness target of 90th percentile of 3-month wait time between referral and treatment. The RAC reduces lengthy wait times to see a urologist by expediting patients with an elevated PSA and/or abnormal digital rectal examination (DRE) and reducing the initial delay between general practitioner (GP) referral and biopsy. Patients are seen at the RAC by a urologist and follow-up is done by the original urologist. The clinic runs between 1-3 times per week based on demand and has a patient load of approximately 1200 patients per year.

The purpose of this study is to determine the wait time between initial referral, biopsy, diagnosis and treatment for all modalities of prostate cancer treatment through the RAC and compare to historical data estimates in Alberta and to suggested standards. We will also quantify the biopsy rate, rate of confirmed prostate cancer and the distribution of treatment modality for patients seen through the RAC.

Methods

This study was completed as a non-consented, retrospective chart review with the approval of the office of medical bioethics at the University of Calgary.

The study group consisted of 1103 patients from the Calgary Health Region that were referred by GPs to the RAC between the period of September 2005 and August 2006. Patient charts were obtained from the private offices of 11 Calgary urologists and the following data points were retrieved: original referral date from GP; RAC date; biopsy date; biopsy result; follow-up consultation with a urologist; treatment date. Patients that received radiation therapy were followed at the Tom Baker Cancer Center (TBCC) until completion of their treatment regime. Patients were excluded from analysis if they opted to cancel either biopsy or treatment appointments and not reschedule; if they moved outside of Alberta during the course of their treatment or investigation; or if their patient chart was unattainable from either the Tom Baker Cancer Center or the urologist's office.

Statistical analysis was completed with Microsoft Excel® and mean, median, standard deviation and 90th percentile wait time were calculated between initial GP referral, and RAC date, biopsy, diagnosis, and treatment. Diagnosis was defined as the date of a consultation with a urologist after a biopsy had already been performed. Mean, median and standard deviation was also determined for the biopsy rate, and distribution of treatment modalities.

Results

Of the original 1103 patients, 106 were removed based on the exclusion criterion. The remaining 997 patients were reviewed until completion of the treatment course. A total of 313 biopsies were completed leading to a biopsy rate of 31.4%. Of the biopsies completed, 159 (50.8%) resulted in confirmed prostate cancer requiring follow up with a urologist. The remaining 154 patients were instructed to continue regular follow up with their family doctor. Table 1 illustrates the

TABLE 1. **Distribution of treatment modalities of patients treated through the rapid access clinic**

Treatment modality	**Number of cases (%)**
Radical prostatectomy	72 (45.3)
Hormone and radiation therapy	31 (19.5)
Watchful waiting	22 (13.8)
Hormone therapy only	13 (8.2)
Cryoablation	10 (6.3)
Brachytherapy	9 (5.7)
Other (alternative medicine etc)	2 (1.3)

TABLE 2. **Wait times between family doctor referral and RAC, biopsy, positive biopsy review and treatment**

Duration from referral	Mean (days)	Standard deviation (days)	Median (days)	90th percentile (days)
Referral to rapid access clinic	8.7	6.2	7.0	15.0
Referral to biopsy	21.4	10.3	21.0	34.0
Referral to diagnosis	46.6	19.6	43.0	66.2
Referral to treatment (all modalities)	112.3	61.9	101.0	187.2
Referral to treatment (by treatment type)				
Watchful waiting	49.8	29.4	44.0	87.3
Hormone therapy only	96.1	62.8	77.0	198.6
Radical prostatectomy	98.6	43.0	91.0	151.8
Cryoablation	104.2	27.9	107.0	131.9
Brachytherapy	156.6	57.0	145.0	222.8
Radiation and hormone therapy	169.3	77.4	168.0	263.0

treatment distribution of the 159 cases of confirmed prostate cancer.

Wait times between referral from family doctor to RAC, biopsy, positive biopsy review with a urologist and treatment are provided in Table 2. Note that a scheduled biopsy review with a urologist is not always completed with a negative biopsy result, thus results are only provided for those biopsies that require further follow-up and treatment.

Wait times between diagnosis to treatment for specific treatment modalities are provided in Table 3.

Discussion

Calgary rapid access clinic patients experienced a median wait time of 21 days between referral from their family doctor and prostate biopsy. This represents a reduction of 78% from the 95.4 day wait time measured in the Calgary Health Region prior to introduction of the RAC during 2004.[8,9] A total of 31.4% of patients referred to the clinic were requested to have a prostate biopsy performed and 50.8% of biopsies resulted in confirmed prostate cancer requiring treatment. The positive biopsy value of 50.8% is consistent with previously published values in Canada, Nam et al found a positive biopsy rate of 46.4%.[10] Similar values have been published internationally, Latchamsetty et al found a positive biopsy rate of 37% in Seattle. Similarly, Porter et al found a positive biopsy rate of 40.8% in Washington.[11,12]

The median duration between diagnosis and treatment for all treatment types was 52.0 days with a 90th percentile of 146.2 days. This wait clearly exceeds the CSSO recommended wait time of 2 weeks between

TABLE 3. **Wait times between diagnosis and treatment**

Duration from diagnosis	Mean (days)	Standard deviation (days)	Median (days)	90th percentile (days)
Diagnosis to treatment (all modalities)	65.8	60.5	52.0	146.2
Diagnosis to treatment (by treatment type)				
Hormone therapy only	47.6	58.8	33.0	142.8
Radical prostatectomy	57.1	32.8	53.0	90.8
Cryoablation	57.1	21.5	52.5	81.4
Brachytherapy	105.3	38.2	103.0	150.4
Radiation and hormone therapy	131.2	79.9	136.0	223.0

diagnosis and treatment. Wait time was not stratified based on PSA or Gleason biopsy scores, thus it is not possible to compare to the SWAT recommended wait times.

Radical prostatectomy has a median wait time between diagnosis and treatment of 53.0 days and a 90th percentile of 90.8 days. These values are consistent with data published by Alberta health and wellness which indicates a median diagnosis to surgery wait of 36.3 days and 90th percentile of 89.9 days.[4] Esmail et al found a median surgical wait time in Alberta of 49 days over the same period and similar wait times in other provinces across Canada (mean 45.5 days, minimum 35 days, maximum 56 days).[13] Comparable delays between diagnosis and surgical intervention exist internationally (United States median delay between diagnosis and treatment 65 days, United Kingdom median delay between diagnosis and treatment 76 days), but wait times in Canada appear to be increasing where as they are dropping internationally.[14.15] Siemens et al observed a 65% increase in Canadian wait times for radical prostatectomy between 1980-1995 and 1996-2000 whereas Moul et al demonstrates a reduction of 47% over a similar period in the United States.[5.16]

Radiation therapy has a median wait time between diagnosis and treatment of 136.0 days and a 90th percentile of 223.0 days. Alberta health and wellness indicates a median wait time of 56 days between oncology appointment and radiation treatment in 2007[4] and this discrepancy may be due to an added appointment between original diagnosis date by the urologist and a second consultation appointment to discuss final treatment decisions. Regardless, the 90th percentile wait of 223.0 days clearly exceeds the Alberta health and wellness target of 90 days between diagnosis and treatment.

The median wait time between referral and treatment for all treatment modalities was 101 days with a 90th percentile of 187.2 days. Stratifying across treatment type indicates that watchful waiting is the shortest time duration and radiation with hormone therapy is the longest. The increased wait-time observed in both radiation therapy and brachytherapy may be reflective of the need for additional consultations required prior to treatment in both cases. Siemens et al suggest that wait times may also be dependent on disease severity at presentation, socioeconomic status of the patient, and seeking treatment at high volume or acute care teaching hospitals.[14]

Conclusion

We determined that the Calgary rapid access clinic reduces wait time between referral and biopsy by 78% and it is likely that this reduction had a positive impact on psychological morbidity and patient quality of life. The time to treatment continues to exceed the target goal established by Alberta health and wellness and suggested CSSO standards. It is not possible to determine if suggested SWAT wait time standards are exceeded based on a lack of PSA stratified data, however this may be a suitable comparison to be made in future studies.

On major strength of our study is stratification across treatment modalities for prostate cancer over the introduction of the rapid access clinic. One area for future development would be correlation between severity of disease at presentation using PSA, Gleason grade and stage of disease and wait time. It would also be valuable to determine the impact of reduced referral to biopsy wait time on patient quality of life and other psychological comorbidity. □

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