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Urologic Oncology: Seminars and Original Investigations ▮ (2018) ▮▮▮–▮▮▮

UROLOGIC ONCOLOGY

Original article

Understanding how prostate cancer patients value the current treatment options for metastatic castration resistant prostate cancer

Tarik Benidir, M.D., M.Sc.*, Karen Hersey, M.D., Antonio Finelli, M.D., Rob Hamilton, M.D., Anthony M. Joshua, M.D., Ph.D., Girish Kulkarni, M.D, Ph.D., Alexandre Zlotta, M.D., Neil Fleshner, M.D., M.P.H.

Uro-Oncology Research Unit, Department of Surgery, University Health Network, Princess Margaret Cancer Centre, Toronto, ON, Canada

Abstract

Several new compounds are now available for castration resistant prostate cancer (CRPC). Individual costs range between $40,000 and $93,000 with mean survival extensions from 2.4 to 4.8 months. Currently, it remains unclear how patients with prostate cancer (PCa) value the effect of these therapies in the setting of CRPC.

Objective: To assess patient understanding of core cancer concepts, opinions on the cost and overall benefit of CRPC drugs, whether out-of-pocket costs would change opinions and whether patients would ultimately opt out of CRPC drug treatment for an end-of-life (EOL) premium.

Patients and methods: We conducted a qualitative survey among patients with various PCa states ranging from active surveillance to CRPC and from various familial, financial and educational demographics. Through a series of hypothetical scenarios, we extrapolated opinions on CRPC drug value, efficacy and monetary worth. We assessed patient willingness to accept an EOL ($50,000) premium in lieu of CRPC drug treatment. Statistically, chi-squared analysis and Fisher's exact test were used when appropriate.

Results: In total, 103 patients completed the questionnaire, one-half of whom did not understand "advanced PCa" state and more than one-third of the concept of palliative care despite multiple meetings with Urologists. Patients willingness-to-pay and proposed drug value was higher than that accepted by government when government funded, with costs exceeding $250,000 per person, but lower than that accepted by government when self-funded. A majority (60%) would accept/consider the EOL premium in the setting of CRPC. Patients with higher education were more skeptical about CRPC drug value and more likely to accept the EOL premium ($P = 0.003$.)

Conclusion: Patients have an incomplete understanding of their own disease prognosis and its therapeutic options. This ultimately influences patient decision-making. Education, income and out-of-pocket costs diminished opinion of CRPC drugs considerably. As such, an EOL premium should be considered in subsets of patients.

Keywords: Castration resistant prostate cancer; Cancer costs; Castration resistant therapies; Health economics; Palliative care; Quality of life

1. Introduction

Cancer affects 12 million new people worldwide and accounts for approximately 7.5 million new deaths annually causing both familial grief and loss of social productivity [1]. From an economic viewpoint, cancer care expenditure is estimated to reach 157 billion dollars annually in the United States by 2020 [1]. As the second leading cause of cancer death among North American men, end-of-life (EOL) prostate cancer (PCa) treatments have become increasingly relevant in this discussion. Before the implementation of novel and costly advanced PCa therapies, docetaxel chemotherapy was considered the mainstay of therapy for patients with metastatic castration resistant prostate cancer (mCRPC) [2]. At that time, annual American cancer and PCa costs were 124 and 11.9 billion, respectively [1]. Since then, several new life-prolonging compounds have emerged and are currently used in clinical practice [2]. These compounds, their overall survival extensions as well as costs are listed in Table 1 and include the agents abiraterone acetate (AA), enzalutamide, cabazitaxel, sipuleucel-T and radium-223 [2–12]. Of note, various

* Corresponding author. Tel.: +1-647-936-4454.
E-mail addresses: tbenidir@qmed.ca, Tarik.benidir@mail.utoronto.ca (T. Benidir).

https://doi.org/10.1016/j.urolonc.2018.01.011

Table 1
Currently used therapies for advanced PCa, the trials that demonstrated survival benefits, the overall survival (OS) extensions and the presumed costs

Drug name	Clinical trial	Median OS extension	Estimated costs
Abiraterone acetate (Zytiga)	COU-AA-301	4.6 mo (postdocetaxel)	$40,000–$70,000 (8–14 mo at $5,000 per month)
	COU 302	4.4 mo (predocetaxel)	
Enzalutamide (Xtandi)	AFFIRM	4.8 mo (postdocetaxel)	$59,600$ (8 cycles)
	PREVAIL	2.2 mo (predocetaxel)	
Cabazitaxel (Jevtana)	TROPIC	2.4 mo (postdocetaxel)	$48,000 (6 cycles)
Sipuleucel-T (ProvengeI)	IMPACT	4.1 mo (predocetaxel)	$93,000 (3 infusions)
Radium-223 (Xofigo)	ALSYMPCA	2.8 mo (postdocetaxel)	$69,000 (6 cycles)

guidelines (NCCN, CUOG) have recommended the usage of these drugs sequentially with the hope, still unproven, of additive survival benefits [13,14]. Despite these significant advances, mCRPC remains incurable with each agent extending life only marginally and total costs likely to exceed $3000,000 per patient [3].

When evaluating the effectiveness of these novel treatments in society at large one needs to first understand how patients comprehend both their disease process as well as the costs/benefits of the drugs recommended for them. As virtually all patients in this state will succumb to PCa, patient understanding of palliative care (PalC) also becomes of germane importance.

1.1. Objective

The goals of this study were to determine how patients living with various stages of prostate cancer understood their disease process and its prognosis. In addition, we wanted to assess how they valued the costs/benefits of advanced prostate cancer therapies from both a societal and personal investment standpoint in the setting of advanced disease. We finally sought out to determine whether patients would accept an EOL premium consisting of a one-time payment of $50,000 to not take expensive palliative drugs but to instead receive standard PalC alone and if so, under what circumstances and reasoning. Of note, it must be appreciated that in Canada, all doctor visits and approved drugs are provided free of charge and that OOP expenditures for health care is a rare phenomenon.

2. Material and methods

We formulated a qualitative survey consisting of 19 multiple-choice questions. Those specifically surveyed were men with PCa and the goal of the study was to view their opinions on advanced PCa therapies, willingness-to-pay (WTP) and opinions on whether they would accept (EOL) premium instead of continued advanced therapies. We tested the survey in a small pilot among our research staff for comprehension and language suitability. The reading and education level of the survey was set a grade 8 level of difficulty. Following research ethics board approval, the survey was presented consecutively to patients currently under the care of the Uro-oncology, medical oncology and radiation oncology departments at the Princess Margaret Cancer Centre. The survey was conducted in person through a consistent investigator (T.B.) who was available for patient assistance with any questions they might have about the survey.

The first 5 questions of the survey (Appendix 1) collected patient demographics (age, level of education, annual income, marital status, and children status). Question 6 (“do you have prostate cancer?”) was created in the event that this same survey were to be asked in the future to individuals without a history of prostate cancer for comparison. However, for the purpose of this current study, all respondents answered yes to having prostate cancer. Question 7 determines patient understanding of their PCa status, ranging from active surveillance to mCRPC. Prostate cancer status was determined at the time of the clinical encounter. This was accomplished by accessing the electronic patient records where clinical history, blood work (i.e., PSA values and trends), radiology reports and pathology results are located. Results from survey responders to these questions may be viewed in Table 2. Questions 8 to 9 (Fig. 1) assessed patient understanding of advanced PCa as well as the believed impact PalC held in such a setting. Multiple-choice options included true definitions and intentions as well as common misconceptions. Questions 11 to 15 (Table 3) presented hypothetical scenarios, involving individual CRPC drugs. For each scenario, median survival benefits, side effects and costs were provided. Through this, we determined to what extent patients valued these drugs for personal use and within society at large. Questions 16 to 18 (Table 3) introduced concepts of finance and cost value. We inquired how much patients believed the government should pay for individual and combined drug therapies. These questions were followed by out-of-pocket (OOP) scenarios to assess the presence and degree of opinion change when costs were self-responsible rather than government supported. Question 19 determined if patients would opt out of life-prolonging CRPC medication for a $50,000 EOL premium combined with standard PalC. Potential answers ranged from direct refusal, considerations for family, personal or financial reasons and finally to immediate acceptance of the premium. Survey responses were finally compared to PCa status and overall demographics to determine any influencing parameters.