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SHORT COMMUNICATION

Adherence to abiraterone among the first 86 recipients after release in Saskatchewan

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ABSTRACT

Metastatic castration-resistant prostate cancer is now commonly treated with abiraterone, an orally administered chronic medication. Although abiraterone has certain advantages over docetaxel-based therapy, patients are now responsible for ensuring optimal adherence to their medication. To our knowledge, adherence to abiraterone in a real-world setting has never been described. The objective of the present study was to measure adherence to abiraterone among the first patients to receive the drug in Saskatchewan.

Electronic pharmacy claims were obtained from the Saskatchewan Cancer Agency after removal of patient names and identifiers. All patients with at least 1 dispensation for abiraterone between August 2011 and October 2013 were eligible. The primary endpoint was the percentage of patients achieving optimal adherence at 6 months, defined as a medication possession ratio (MPR) of 80% or better.

During the study period, 141 patients received abiraterone, among whom 86 could be followed for at least 6 months. Optimal adherence was achieved in 82.6% of patients (71 of 86) at 6 months, with 79.1% achieving a MPR of at least 90%. Of patients with available follow-up to 1 year, 81.6% (31 of 38) maintained optimal adherence during the entire period.

KEY WORDS

Abiraterone, adherence, prostate cancer

1. INTRODUCTION

Prostate cancer is the most common neoplasm and the third most common cause of cancer-related mortality in Canadian men[1]. In the province of Saskatchewan, the preferred therapy for patients with metastatic castration-resistant prostate cancer (mCRPC) for whom androgen deprivation therapy had failed was a docetaxel-based regimen[2]. However, docetaxel is associated with toxic side effects (for example, infusion reactions, myelosuppression, neuropathy, and alopecia) and requires intravenous (IV) administration[3,4]. Recent advances have produced alternative therapeutic options[2].

Abiraterone is an oral inhibitor of cytochrome P17, a key enzyme in the production of androgenic steroids such as testosterone[5]. In mCRPC patients in whom docetaxel-based chemotherapy has failed, abiraterone in combination with prednisone (compared with prednisone monotherapy) demonstrated improved overall survival[6]. More recently, abiraterone in combination with prednisone demonstrated improved radiographic progression-free survival in patients who had not previously received chemotherapy[7]. Abiraterone is therefore now considered an efficacious and convenient treatment option in the first- or second-line metastatic setting[2,8].

Compared with traditional IV therapies, orally administered abiraterone offers improved patient convenience and ease of administration[9]. However, responsibility for ensuring ongoing treatment falls to the patient[10,11]. Although abiraterone is associated with fewer toxic side effects, it offers more opportunities to miss doses and might not be perceived to have the same importance as IV chemotherapy[9]. To maximize abiraterone treatment success, adherence in real-world scenarios must be ensured. The aim of the present study was to describe patient adherence to abiraterone therapy in the province of Saskatchewan.

2. METHODS

2.1 Data Source

Electronic pharmacy claims data were obtained from the Saskatchewan Cancer Agency (SCA) after removal of patient names and encryption of health identification numbers. The SCA is a publicly funded health care organization providing oncology care to all residents of Saskatchewan (approximately 1 million population). The SCA operates two oncology pharmacy dispensaries (in Saskatoon and Regina)

that dispense oncology prescriptions per provincial formulary guidelines at no charge to patients. For each dispensation, the patient identifier, drug, dosage, quantity dispensed, date dispensed, and institutional cost are captured. Additional patient demographic or clinical information were able to be obtained from internal medical charts by SCA staff who ensured confidentiality.

2.2 Patients and Follow-Up

Eligible patients received at least 1 dispensation of abiraterone from a SCA pharmacy between August 4, 2011, and October 30, 2013. An agency pharmacist confirmed each patient's diagnosis and an ongoing indication for abiraterone in the electronic medical record. Also, for patients whose refills ceased before April 2014, the pharmacist determined whether the patient had died, emigrated, or been switched to an alternative therapy. If one of those conditions was satisfied, a corresponding study exit date was provided to the analyst without disclosure of the actual exit reason. For all other patients, a fixed exit date of April 30, 2014, was applied.

Abiraterone is typically prescribed at 1000 mg daily taken orally[8]. It is pre-packaged by the manufacturer in 30-day supplies and is provided in that quantity by SCA pharmacies. However, all prescription dispensations are coordinated with oncology follow-up appointments; if patients required additional supply to bridge therapy to the next appointment, a smaller supply (that is, fewer than 30 days) was provided. Adherence was calculated using the medication possession ratio (MPR). The MPR is the sum of all days of abiraterone supplied within a given period, divided by the total number of days in that period.

The primary endpoint of our study was the percentage of new abiraterone users who achieved optimal adherence, defined as a MPR of 80% or better, during the 6 months after the first dispensation. The percentage of subjects achieving optimal adherence over a 1-year period was captured as a secondary endpoint. Finally, the percentage of overall nonadherence because of abiraterone discontinuation (that is, non-persistence) was calculated. Discontinuation was defined by two criteria:

- The individual's MPR must have been below 80% (that is, they were nonadherent).
- The individual must have received no abiraterone dispensations during the final 3 months of the assessment period (that is, either the 6- or the 12-month assessment of adherence).

Data were analyzed using the SAS statistical software application (version 9.3: SAS Institute, Cary, NC, U.S.A.). Ethics approval was granted by the University of Saskatchewan Biomedical Research Ethics Board.

3. RESULTS

Excluding clinical trial use, abiraterone was first dispensed in Saskatchewan on August 4, 2011. By April 30, 2014, 141 mCRPC patients had been initiated on therapy. Of those 141 patients, 6 were excluded because they received abiraterone as part of a clinical trial, and 49 were excluded because their exit date occurred within 6 months of starting abiraterone. Thus, 86 patients were included in the analysis of adherence at 6 months (Figure 1). A secondary analysis of 1-year adherence was performed for 38 patients who received abiraterone for at least 1 year.

During the first 6 months of therapy, 82.6% of patients (71 of 86) maintained optimal adherence (that is, 80% or better), with 79.1% of patients achieving a MPR of 90% or better (Table I). Mean adherence during that period was 89.6% ± 21.2%, and median adherence was 100% (Table I). Of the patients who continued therapy for 1 year, 81.6% (31 of 38) achieved optimal adherence. Early non-persistence occurred infrequently: it was responsible for only 14.0% of all nonadherence at 6 months and 18.4% at 1 year.

4. DISCUSSION

We assessed adherence to abiraterone therapy among the first 86 mCRPC patients to receive this new therapy in Saskatchewan between 2011 and 2013. After 6 months, 83% of patients maintained optimal adherence (that is, MPR ≥ 80%); the rate observed at 1 year was similar. Of patients displaying suboptimal adherence,

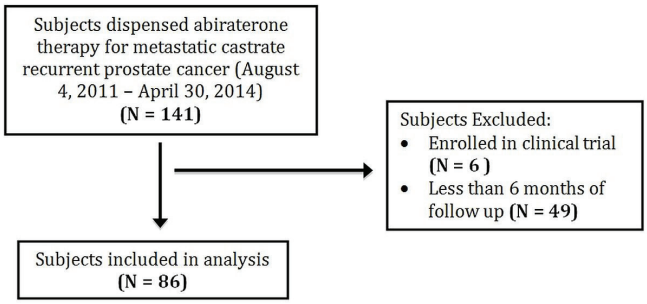

FIGURE 1 Patients eligible for the adherence analysis at 6 months.

TABLE I Adherence to abiraterone by patients treated at the Saskatchewan Cancer Agency

Treatment duration (months)	*Users (n)*	*Medication possession ratio (%)*		*Optimal adherence*[a] *(%)*
		Mean	*Median*	
6	86	89.6	100	82.6
12	38	86.6	99.5	81.6

[a] Medication possession ratio ≥ 80%.

non-persistence (that is, complete discontinuation of medication with no fills in the final 3 months of the 6- and 12-month observation periods) was infrequently observed. To our knowledge, our analysis is the first of abiraterone adherence in a real-world setting.

Cancer treatments are evolving. The traditional approach of intermittent IV chemotherapy is frequently being replaced with chronic oral medication. Chronic oral administration transfers responsibility from the practitioner to the patient, making adherence an important parameter in reducing the risk of treatment failure. The favourable adherence rates observed among our patients with mCRPC suggest that nonadherence might not be a major threat to treatment success in this patient population, at least not in Saskatchewan. In other chronic diseases, the first year of treatment has been associated with the highest risk for nonadherence[12].

The reported adherence levels were derived from an objective assessment of all patients receiving abiraterone in Saskatchewan, with few exclusions. However, several limitations should still be recognized. Our study was restricted to a small number of patients receiving a new therapy. We previously demonstrated that newly marketed antihypertensive medications are associated with higher levels of adherence[13]; however, the extent to which observations in an antihypertensive population relate to mCRPC patients cannot be known. Moreover, oncology medications in Saskatchewan are dispensed, at no charge to patients, from specialized pharmacies located in interdisciplinary cancer centres. It is possible that adherence rates could be lower in areas that do not offer the same level of support[14].

5. CONCLUSIONS

Based on our initial experience with abiraterone in Saskatchewan, medication nonadherence does not seem to present a threat to the successful treatment of patients with mCRPC. However, with the increasing delivery of cancer therapies as chronic oral medications, nonadherence should become an important quality indicator for both patient- and clinic-level evaluations.

6. ACKNOWLEDGMENTS

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7. CONFLICT OF INTEREST DISCLOSURES

We have read and understood *Current Oncology*'s policy on disclosing conflicts of interest and declare the following interests: DFB is Chair in Patient Adherence to Drug Therapy within the College of Pharmacy and Nutrition, University of Saskatchewan. That position was created through unrestricted financial support from AstraZeneca Canada, Merck Canada, Pfizer Canada, and the Province of Saskatchewan's Ministry of Health. None of the sponsors were involved in developing the present study or in writing the manuscript.

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