**Prostate cancer** is the most commonly diagnosed cancer and the second leading cause of cancer-related death among men in Brazil: its incidence rates are approximately six times greater in developed countries than in developing countries. In Brazil, the incidence of prostate cancer has increased over the past few decades. The number of men diagnosed with prostate cancer in Brazil has increased from 37,841 in 2000 to 67,028 in 2013, a 76.3% increase over 13 years. Breast cancer, which is the most common cancer in women, is responsible for approximately 10–20% of all prostate cancer cases. Seventy percent of prostate cancer cases are metastatic (mCRPC).5-7

**METHODS**

Data sources and model inputs

- The model utilized the methodology of an indirect comparison through the data provided in the PREVAILA1 and COU-AA-30212 clinical trials for enzalutamide and abiraterone acetate plus prednisone, respectively, under the perspective of the Brazilian public health system in a 1-year horizon.

- The clinically meaningful outcomes were radiographic progression-free survival (rPFS), time to chemotherapy delay and overall survival (OS).1-2

- One-year rates of rPFS, time to chemotherapy delay and OS were obtained from the respective Kaplan-Meier curves associated with each study (Table 1).

- Grade 4 adverse events (AEs) that occurred in at least 1% of the population were used in the enzalutamide or abiraterone acetate plus prednisone arm over their respective clinical trials and AEs described in the warnings and precautions sections of the prescribing information were considered.7

- One-year AE rates were derived by weighting the reported odds ratios observed in the entire trial period.

Cost and healthcare resource use

- The mark-up was based on the Brazilian health system, utilizing a 1-year horizon.

- Costs of drugs were obtained from the official price list for the Brazilian Drug Market Regulation Chamber (CNDE), July 2016 version.3

- Treatment duration, dosing schedule, concomitant use of prednisone and frequency and route of administration were obtained from package inserts of enzalutamide and abiraterone acetate plus prednisone.7

- Compliance rates of 90% for abiraterone acetate plus prednisone were estimated from an analysis of the Clinformatics Data Mart database (OptumInsight, Eden Prairie, MN, USA) and reported in the warnings and precautions sections of the prescribing information.2

- Unit costs for primary care visits, monitoring and tests and hospice care were obtained from the List of Health Care Recognized Procedures (LCHP), National Brazilian Classification of Medical Procedures (CNDB).1

- Unit costs for drugs were obtained from an on-line pharmacy from the official price list (CNDE), July 2016 version.

- Unit costs for monitoring, primary care services, monitoring and tests and hospice care were estimated from the Classificação Brasileira Hierarquizada de Procedimentos Médicos (LCHP), National Brazilian Classification of Medical Procedures (CNDB), 9th edition, updated prices as of 2015.1

- Post-progression treatment costs were based on the PREVAILA1 trial for enzalutamide and the COU-AA-302 trial for abiraterone acetate plus prednisone.4

- Hospice hospitalization costs were calculated based on the external key external (KIE) opinions and priced according to costs from the CNDB. 8th edition, with updated prices as of 2015.1

- Costs for treating AEs were estimated from the CNDB, 9th edition, with updated prices as of 2015.3 and the available literature.1-2

Model assumptions and cost calculations

- Costs of post-treatment patient receiving enzalutamide or abiraterone acetate plus prednisone within 1 year of therapy initiation were estimated from the payer perspective and included the following (Table 1, Table 2):
  - Drug costs were estimated based on the dosing schedule, price, unit cost of patients with concomitant prednisone use, compliance rate and treatment duration within 1 year for each treatment
  - Monitoring costs were estimated based on the monitoring schedule and unit costs
  - All-related costs were estimated using event rates and associated costs.
  - Post-progression costs were estimated based on post-progression treatment standards and proportion of patients receiving each type of treatment based on the clinical trials reports.1-2,8-9
  - AE-related costs were based on the number of patients treated during the post-progression treatment period.8-9
  - End-of-life costs were estimated based on end-of-life hospitalization and hospice costs.
  - The model assumes that deceased patients incurred one end-of-life hospitalization; in addition, a proportion of deceased patients (based on available literature)9 received hospice care before death (Figure 3).

- All costs were expressed in BRL (Brazilian real).

**RESULTS**

In the analysis, the NNT values for the outcomes of 1-year rPFS, time to event, chemotherapy delay and OS were 19, 30 and 51 people treated to avoid an event, respectively, when comparing enzalutamide with abiraterone acetate plus prednisone.

- Monthly treatment costs were slightly lower for enzalutamide compared with abiraterone acetate plus prednisone (BRL 10,293 and BRL 10,397, respectively). However, the duration of treatment was longer with the enzalutamide cohort (8 months for the enzalutamide cohort and 5 months for enzalutamide; source: under the curves of Kaplan-Meier curves from COU-AA-302 and PREVAILA trials).

- End-of-life hospitalization costs were BRL 13,833 and BRL 14,291, respectively.

- The results demonstrate that enzalutamide is dominant compared with abiraterone acetate plus prednisone for treating patients with chemotherapy-naive mCRPC in Brazil. Specifically, enzalutamide, compared with abiraterone acetate plus prednisone, decreases the risk of radiographic progression or death and delays time to chemotherapy in enzalutamide-naive patients with mCRPC. These outcomes were achieved at lower costs, compared with abiraterone acetate plus prednisone.

When evaluating treatment options for patients with mCRPC, it is important to consider aspects beyond the drug acquisition cost to obtain a complete measure of overall costs and clinical benefits.

**CONCLUSIONS**

The difference in total cost per treated patient for enzalutamide (BRL 108,280 versus BRL 111,293) when compared with abiraterone acetate plus prednisone (BRL 111,293).

- The cost reduction of BRL 3,013 was based on the components listed in Table 3 and Figure 1.

**LIMITATIONS**

- The analyses used reported data from the two double-blind, randomized clinical trials to estimate the safety and efficacy profiles of enzalutamide and abiraterone acetate plus prednisone.

- The data were derived from active control arms of the enzalutamide and abiraterone acetate plus prednisone trials versus placebo clinical trial, without adjustment for the comparator arms.1,2

- Patients in the trials might not be representative of the population in real-world clinical practice in Brazil and, after disease progression, may have received treatments other than, or in addition to, one of the following: docetaxel, abiraterone acetate plus prednisone, or cabazitaxel (the available drugs in Brazil in 2015).

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