Effectiveness and Medical Costs of Abiraterone Acetate Versus Docetaxel in First-Line Treatment of Metastatic Castration-Resistant Prostate Cancer from the French Nationwide Claims Database (SNDS): CAMERRA Study

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BACKGROUND & OBJECTIVES

Background

- **Prostate cancer**: most common cancer among men with 53 913 new cases in 2011 in France according to French National Cancer Institute
- Slow-progressing cancer with possible development of resistance and / or metastases
- In 2012, introduction of **abiraterone acetate** in association with prednisone/prednisolone as **1st-line treatment for metastatic castration resistant prostate cancer (mCRPC)**

Objectives

- To **compare** the **effectiveness** and **medical costs** of **abiraterone acetate versus docetaxel** as 1st-line treatment for patients with mCRPC in real-life setting

METHODS

- **mCRPC patients** were identified in the French National Healthcare System database (SNDS) using a validated algorithm

- **SNDS** covers the French population from birth to death and includes out and inpatients informations (e.g. drug dispensings, hospital discharge summaries, date of death, etc.)

- To be included, patients had:
    - To be aged ≥40 and covered by the **Régime Général** health insurance (86% of the French population)
    - To have initiated docetaxel or abiraterone acetate as mCRPC 1st-line treatment in 2014, all drugs presumed to be used according to the Summary of Product Characteristics
    - To have 5-year history with no gap > 1 year and 3-year follow-up

- A **high dimensional propensity score (hdPS)**, was calculated for each patient (estimation of the probability for a patient to be treated by abiraterone acetate **versus** docetaxel)

- **Patients were 1:1 matched** on hdPS +/ 0.01, disease stage before mCRPC and delay from initial diagnosis of prostate cancer

- After matching, 367 variables were analyzed to check for potential residual confusion bias, and those significantly linked to the outcome were used for adjustment in survival analyses

- Cox proportional hazards risk model were used to compare
    - The **36-month overall survival**
    - The **36-month discontinuation-free survival** (i.e. survival time until treatment switch or death)

- **Costs** were calculated according to the **national health insurance perspective**

STUDY POPULATION & SURVIVAL OUTCOMES

Definition and baseline characteristics of study population

- 12 951 prevalent mCRPC in 86% of the French population in 2014
  - 1 213 docetaxel 1st-line initiators
  - 2 442 abiraterone acetate 1st-line initiators

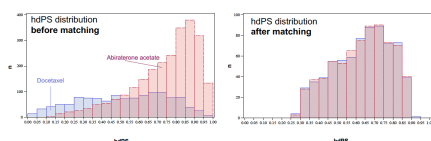- After trimming and matching: **716 patients per group** (Cstatistic= 0.603)

Figure 1. hdPS distribution before and after matching

Table 1. Baseline characteristics at index date before and after matching

	All patients after trimming		Matched patients after trimming		Standardized difference %		
	Abiraterone acetate n = 1936	Docetaxel n = 939	Abiraterone acetate n = 716	Docetaxel n = 716	Crude	Adjusted	Matched
Median age at index date in years *	77.0	73.0	75.0	74.0	42.8	3.0	5.7
Previous stage of prostate cancer *, %							
mHSPC NDx	12.2	18.8	18.3	18.3	-18.5	-0.8	0.0
Progressive mHSPC	15.7	15.8	12.3	12.3	-0.3	-0.3	0.0
nmCRPC	18.4	12.6	12.3	12.3	16.1	4.9	0.0
nmHSPC	53.8	52.8	57.1	57.1	1.9	-2.7	0.0
Score de Charlson *					27.8	-0.2	5.0
Median [p25% - p75%]	14.0 [14.0;15.0]	14.0 [13.0;15.0]	14.0 [14.0;15.0]	14.0 [14.0;15.0]			
Time since PC diagnosis > 4 years, %	58.2	47.5	48.0	48.7	21.6	-2.3	-1.4
Region of residence of patient, %							
Paris region	17.1	15.4	18.3	14.9	4.5	3.5	9.0
North-west	21.6	21.7	22.3	22.2	-0.2	-0.7	0.3
North-east	19.3	25.5	17.7	26.0	-14.9	-13.1	-20.0
South-east	25.7	23.7	24.3	23.0	4.5	5.1	3.0
South-west	13.8	11.1	14.4	11.2	8.4	6.8	9.6
Overseas territories	2.1	2.4	2.4	2.5	-	-	-

* included in hdPS ; PC = Prostate cancer

Duration of 1st-line treatment

- The median duration of docetaxel, defined as the time between the first and the last infusion, was 7.3 months with a median of 6 infusions.

- The median duration of abiraterone acetate corresponding to the period covered by the dispensed drug was 9.1 months.

Survival outcomes

- The 3-year **overall survival and discontinuation-free survival** were signicantly higher with abiraterone acetate than docetaxel (Table 2 and Figure 2)

Table 2. (Adjusted) overall survival and discontinuationfree survival probability according to 1st-line treatment after trimming matching (Cox model)

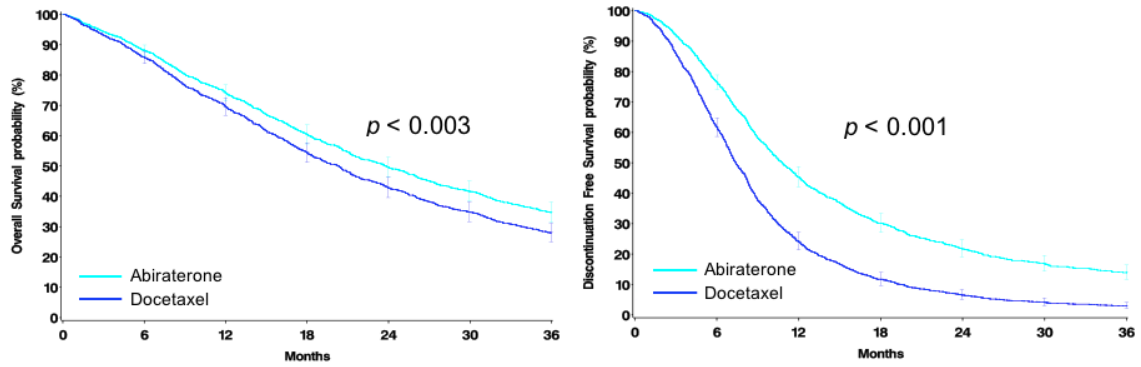|	Docetaxel n=716	Abiraterone acetate n=716	*p-value*
Overall Survival			
36-month survival probability, % [95%CI]	27.9 [25.0 – 31.2]	34.6 [31.5 – 38.1]	<0.003
Median survival, months [95%CI]	20.3 [18.4 – 21.6]	23.8 [21.5 – 26.0]	
Discontinuation-Free Survival			
36-month survival probability, % [95%CI]	2.9 [2.1 – 4.1]	13.8 [11.7 – 16.4]	<0.001
Median survival, months [95%CI]	7.4 [7.0 – 8.0]	10.8 [10.1 – 11.7]	

Figure 2. Adjusted overall survival (left) and discontinuation-free survival (right) probability according to 1st-line treatment after trimming matching (Cox model)

MEDICAL COSTS

Total cost

- According to the national health insurance perspective, the mean monthly total cost (outpatient, inpatient and allowances costs) per patient during 1st-line treatment was **€5 856** for abiraterone acetate versus **€4 017** for docetaxel

Prostate cancer specific cost

- According to the national health insurance perspective, the mean monthly prostate cancer specific cost per patient during 1st-line treatment was **€4 671** for abiraterone acetate versus **€2 213** for docetaxel, with a different distribution of costs between the expenditure areas, in outpatient and inpatient costs (Figure 3).

- The main expenditure area in 1st-line mCRPC treatment line was the **drug itself €3 575** for **abiraterone acetate versus hospital and day hospital stays €1 807 including docetaxel cost** for docetaxel 1st-line.
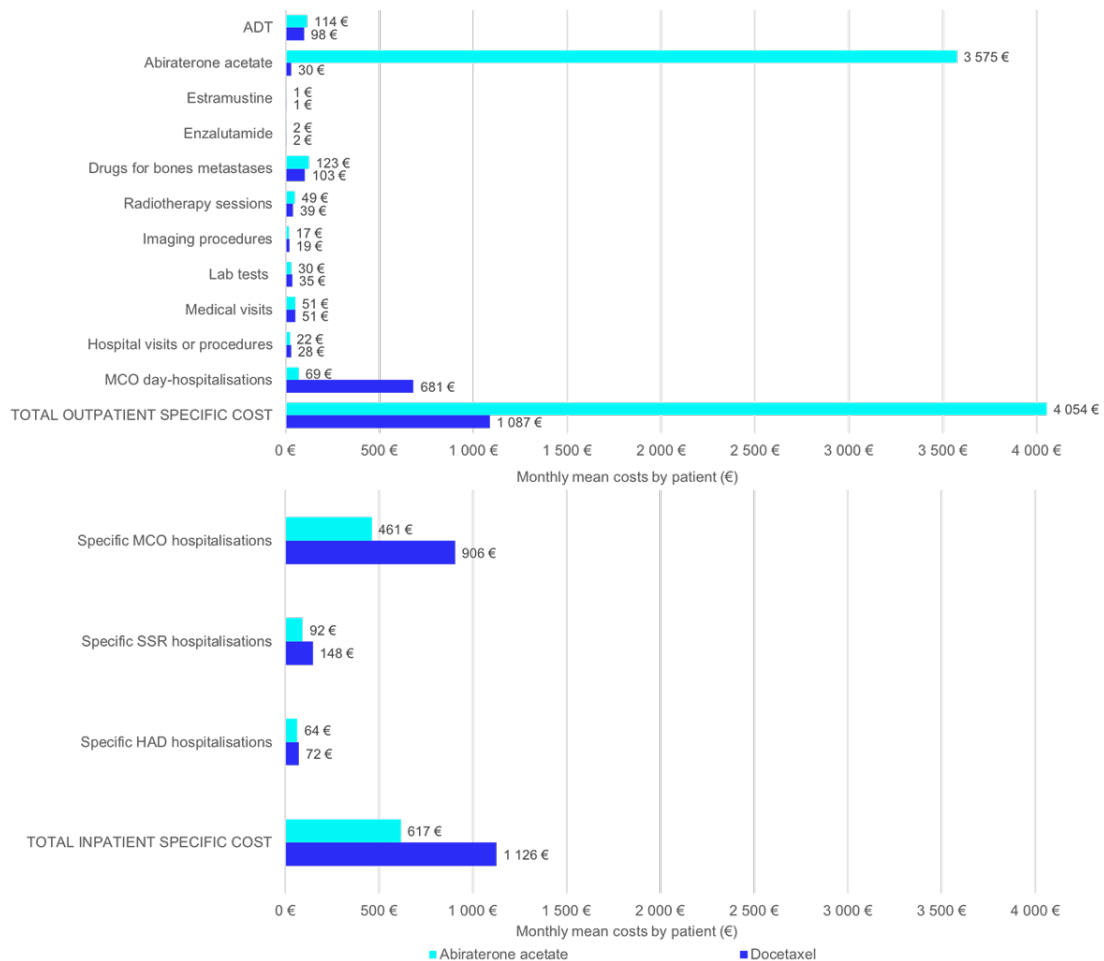

Figure 3. Distribution of monthly outpatient (upper) or inpatient (bottom) healthcare resources costs of the abiraterone acetate or docetaxel 1st-line treatment, national health insurance perspective for mCRPC patients in 2014 after trimming matching

CONCLUSION

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This study shows that, in mCRPC patients, first-line treatments initiated in 2014 with **abiraterone acetate** results in a **better 3-year overall survival** and **discontinuation-free survival** compared to docetaxel in real-life setting, with a **higher cost** from the French health insurance perspective.

DECLARATION OF INTEREST & AFFILIATIONS

The **CAMERRA study** is carried out by the Bordeaux PharmacoEpi platform in collaboration with Janssen® company and supervised by a Scientific Committee

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