Poster # MP14-07

Preferences for androgen deprivation therapies by prior hormonal treatment exposure in patients with prostate cancer: A discrete choice experiment

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Objective

- **To quantify patient preferences for key attributes differentiating available oral and injectable androgen deprivation therapies (ADTs), and how factors that may affect treatment (Tx) choice differ between ADT-naïve and ADT-experienced patients**

Conclusions

- **Patients preferred to treat their prostate cancer (PC) by taking one pill daily at home instead of receiving less frequent injections at a doctor's office. Patients also preferred a PC Tx with less impact on sexual interest and faster testosterone (T) recovery following discontinuation of therapy.**
- **Overall, the preferences of ADT-experienced and ADT-naïve patients were closely aligned, suggesting that on average patients prefer a once-daily pill option, irrespective of prior experience with injectable alternatives.**
- **Shared decision-making between healthcare providers and patients, including discussing the benefits, risks, and administration burden of available ADT options, should be encouraged to ensure that patients receive the PC Tx that is best suited for their care and needs.**

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Plain language summary

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References: 1. Lowrance W, et al. *J Urol*. 2023;209(6):1082–1090. **2.** Shore ND, et al. *N Engl J Med*. 2020;382(23):2187–2196. **3.** Crawford ED, et al. *Prostate Cancer Prostatic Dis*. 2019;22(1):24–38. **4.** Sumitomo Pharma America, Inc. ORGOVYX (relugolix) full prescribing information. https://www.accessdata.fda.gov/drugsatfda_docs/label/2020/214621s000lbl.pdf. Accessed February 29, 2024. **5.** Spry NA, et al. *Eur J Cancer*. 2006;42(8):1083–1092. **6.** Kim MS, et al. *Prostate Int*. 2021;9(3):132–139. **7.** Dearnaley DP, et al. *Eur Urol*. 2020;78(2):184–192. **8.** Ferring Pharmaceuticals Inc. FIRMAGON® (degarelix for injection) full prescribing information. https://www.accessdata.fda.gov/drugsatfda_docs/label/2015/022201s009lbl.pdf. Accessed March 13, 2024. **9.** AbbVie Inc. LUPRON DEPOT (leuprolide acetate for depot suspension) full prescribing information. https://www.accessdata.fda.gov/drugsatfda_docs/label/2014/020517s036_019732s041lbl.pdf. Accessed March 13, 2024. **10.** Borrelli, E. and C. G. McGladrigan. *Value Health*. 2021;24(Suppl 1):S34. **11.** Allenby GM, et al. *J Mark Res*. 1995;32(2):152–162. **12.** American Cancer Society. Available at: https://www.cancer.org/cancer/types/prostate-cancer/about/key-statistics.html. Accessed February 17, 2024.

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Introduction

- ADT, which is the recommended standard of care for advanced PC,[1] inhibits the growth of PC by reducing T levels to achieve chemical castration.[2]
- Medical ADT options have expanded for patients with advanced PC. Historically, ADT was primarily available in long-acting injectable gonadotropin-releasing hormone (GnRH) receptor agonists and antagonist formulations.[3] In 2020, the first oral GnRH receptor antagonist was US Food and Drug Administration-approved for adults with advanced PC.[4]
- Currently available ADTs differ in key attributes, such as T surge at initiation of ADT, mode of administration, adverse event profile, and out-of-pocket (OOP) costs, among others.[2-10]
- Given these variations, understanding the preferences of patients with PC for attributes associated with ADTs is fundamental in facilitating shared decision-making between patients and providers.

Limitations

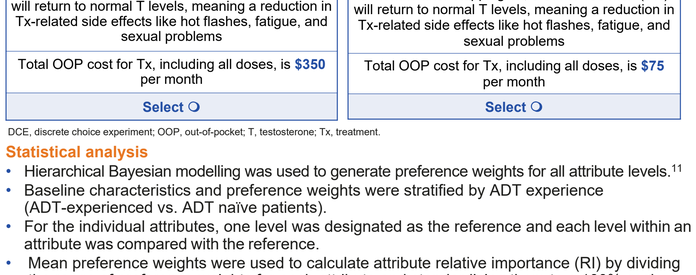
- This DCE could not accommodate all factors that could potentially influence patients' preferences regarding currently available oral and injectable ADTs.
- Our sample tended to be younger than the broader population of patients with PC in the US,[12] potentially limiting generalizability of results.
- ADT Tx experience was self-reported by patients with PC and was not confirmed by medical records; therefore, the misclassification of patients into subgroups was a possibility.

Methods

Study design and sample

- A cross-sectional online survey, including a discrete choice experiment (DCE), was conducted between February 17 and July 25, 2022 among patients with PC.
- Study participants were recruited via healthcare research panels (**Figure 1**).

Figure 1. Study eligibility criteria and respondent attrition



ADT, androgen deprivation therapy; DCE, discrete choice experiment; PC, prostate cancer.

- Quotas were implemented to recruit approximately 150 ADT-experienced and 150 ADT-naïve patients.
- Patients with PC completed a series of 11 DCE choice tasks, each including two hypothetical ADT Tx profiles shown side-by-side (**Figure 2**), Tx profiles consisted of six attributes of potential importance to patients with PC that differ among ADT options with attribute levels that varied independently (**Figure 3**).
- Attributes were identified via the literature and confirmed during cognitive interviews with patients and through consultations with clinicians.

Figure 2. Example DCE choice task with hypothetical Tx profiles

Treatment A	Treatment B
Pill taken daily at home	Injected into the muscle of the arm, thigh, or buttock once every 3–4 months at a doctor's office
The treatment does not cause a T surge, so no additional medication is needed	Additional medication (pill) needs to be taken to prevent T surge from occurring
Decreases interest in sex **moderately**	Decreases interest in sex **a little**
6 out of 100 men (**6%**) taking the Tx have a heart event (such as heart attack or stroke)	**3** out of 100 men (**3%**) taking the Tx have a heart event (such as heart attack or stroke)
3 months after stopping Tx, **54** out of 100 men (**54%**) will return to normal T levels, meaning a reduction in Tx-related side effects like hot flashes, fatigue, and sexual problems	3 months after stopping Tx, **3** out of 100 men (**3%**) will return to normal T levels, meaning a reduction in Tx-related side effects like hot flashes, fatigue, and sexual problems
Total OOP cost for Tx, including all doses, is **$350** per month	Total OOP cost for Tx, including all doses, is **$75** per month
Select	**Select**

DCE, discrete choice experiment; OOP, out-of-pocket; T, testosterone; Tx, treatment.

Statistical analysis

- Hierarchical Bayesian modelling was used to generate preference weights for all attribute levels.[11]
- Baseline characteristics and preference weights were stratified by ADT experience (ADT-experienced vs. ADT naïve patients).
- For the individual attributes, one level was designated as the reference and each level within an attribute was compared with the reference.
- Mean preference weights were used to calculate attribute relative importance (RI) by dividing the range of preference weights for each attribute and standardizing them to a 100% scale.
  - OOP cost was held constant as preferences for this attribute are largely influenced by personal factors (e.g., insurance status).
  - RI estimates were compared between ADT-experienced and ADT-naïve patients using 2-sample t-tests.
- *P*-values <0.05 were considered statistically significant.

Results

Study sample

- Overall, 304 patients completed the survey and were included in the analyses (**Table 1**).
- ADT-naïve patients less often reported receiving nonsteroidal antiandrogens or next-generation hormonal therapies than ADT-experienced patients.
- ADT-naïve patients also had a shorter mean number of years since diagnosis and more often reported localized PC than ADT-experienced patients.

ADT treatment preferences

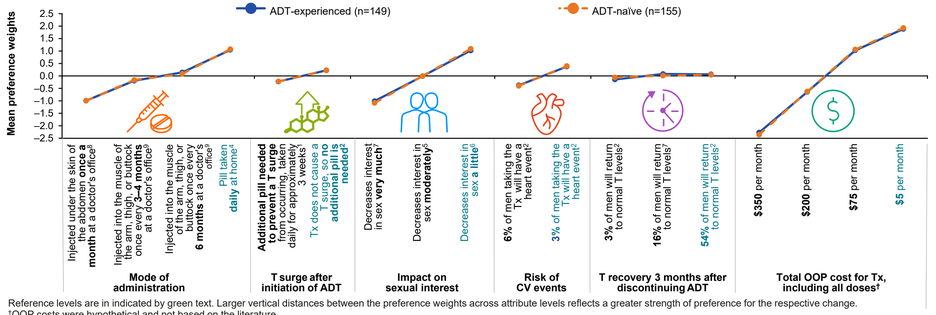
- OOP cost, mode of administration, and impact on sexual interest were the most influential to patients' Tx choices (**Figure 3**).
- Among ADT-experienced and ADT-naïve patients, all within-attribute comparisons were statistically significant, except for T recovery after discontinuation for both groups.
- On average, patients in both groups significantly preferred a once-daily pill when compared with each of the injectable alternatives.
- When OOP cost was held constant, a change in mode of administration from an injectable option to a once-daily pill was the most important attribute overall (**Figure 4**).
- Reducing impact on sexual interest and greater chance of T recovery 3 months after discontinuation were the next highest in importance.
- No statistically significant differences in RI estimates were observed between ADT-experienced and ADT-naïve patients.

Table 1. Patient characteristics by ADT experience

Variables	ADT-experienced (n=149)	ADT-naïve (n=155)
Race/ethnicity, n (%)		
White	100 (67.1)	98 (63.2)
Black/African American	29 (19.5)	22 (14.2)
Hispanic/Latino	8 (5.4)	13 (8.4)
Age, mean (SD)	64.2 (7.2)	64.6 (7.2)
Education college degree or higher, n (%)	73 (49.0)	71 (45.8)
Employment status, n (%)		
Retired	88 (59.1)	90 (58.1)
Employed (full time or part time)	43 (28.9)	48 (31.0)
Unemployed or disabled	17 (11.4)	14 (9.0)
Comorbidities, n (%)†		
Anxiety or depression	27 (18.1)	30 (19.4)
Diabetes	22 (14.8)	27 (17.4)
CV comorbidities‡	21 (14.1)	25 (16.1)
Plan to be sexually active, n (%)	69 (46.3)	83 (53.5)
Cancer location, n (%)§		
Localized PC	**71 (52.6)**	**97 (65.5)**
Metastatic PC	64 (47.4)	51 (34.5)
Time since PC diagnosis (years),¶ mean (SD)	**6.0 (5.3)**	**4.8 (4.2)**
PC Txs ever received, n (%)†		
Chemotherapy	55 (36.9)	59 (38.1)
Nonsteroidal antiandrogens	**74 (49.7)**	**59 (38.1)**
Next-generation hormonal therapies	**59 (39.6)**	**16 (10.3)**
Targeted therapies	13 (8.7)	17 (11.0)
Immunotherapies	17 (11.4)	28 (18.1)

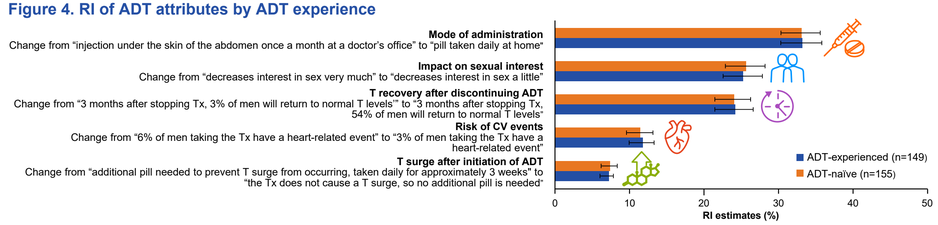
Results with significant differences (*P*<0.05, 2-tailed, for pairwise comparison) are in bold.
†Patients could select >1 option. ‡Includes self-reported diagnosis of ≥1 of the following: congestive heart failure, heart disease, myocardial infarction, and/or stroke. §Localized PC was defined as a patient response of "Cancer is in prostate only." Metastatic PC was defined as a response of "Cancer has spread to lymph nodes" and/or "Cancer has spread to bones and/or other organs." Patients with responses of "don't recall/not sure" (n=21) were excluded from comparisons on this variable. ¶Data on this variable were excluded for n=5 patients (n=3 did not recall and n=2 provided an illogical response for year of diagnosis).
ADT, androgen deprivation therapy; CV, cardiovascular; PC, prostate cancer; SD, standard deviation; Tx, treatment.

Figure 3. Attribute level preference weights by ADT experience



Reference levels are in indicated by green text. Larger vertical distances between the preference weights across attribute levels reflects a greater strength of preference for the respective change.
†OOP costs were hypothetical and not based on the literature.
ADT, androgen deprivation therapy; CV, cardiovascular; OOP, out-of-pocket; T, testosterone; Tx, treatment.

Figure 4. RI of ADT attributes by ADT experience



Error bars depict 95% confidence intervals. Attributes are presented in descending order of importance. Higher RI estimates indicate greater influence on ADT Tx choice.
ADT, androgen deprivation therapy; CV, cardiovascular; RI, relative importance; T, testosterone; Tx, treatment.