

Case report

## Apalutamide as a new option for postponing metastatic disease in hormone-resistant patients with biochemical recurrence in prostate cancer

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**ABSTRACT**

Treatment of non-metastatic castration-resistant prostate cancer is a radically new option for cancer patients. Novel anti-hormonal therapy not only improves metastasis free survival but overall survival times and positively impacts quality of life. This case shows how apalutamide lowered tPSA level and postponed metastatic disease.

**Key words:** non-metastatic castration-resistant prostate cancer, apalutamide

## INTRODUCTION

Prostate cancer ranks as the first globally in the aspect of morbidity and as the second in the aspect of mortality among cancers affecting men in 2022 [1]. Patients with non-metastatic CRPC (nmCRPC) are classified in the subgroup with high risk of progression, and are characterised with PSA doubling time within the last 10 months.

SPARTAN [2], ARAMIS [3] and PROSPER [4] clinical trials on patient treatment who experienced quick PSA doubling time without metastases indicated that the administration of apalutamide, darolutamide, or enzalutamide significantly affected extension of overall survival (OS) and metastasis-free survival (MFS) (both longer by 24 months than in the placebo group).

## CASE STUDY

A patient aged 72 with diagnosed prostate cancer, Gleason 7, at the cT2N0M0 stage, was subjected to radical treatment involving 6 months of hormoneotherapy (from June to December 2019) and sequential radiotherapy, 70.2 Gy, which ended in January 2020. The treatment resulted in decrease of tPSA from the baseline level of 52 ng/mL (March 2019) to 0.01 ng/mL in March 2020. The patient was subject to observation at the oncological outpatients. Gradual tPSA increase to 0.886 ng/mL in April 2021 caused reintroduction of replacement hormoneotherapy. Despite the treatment with analogues and maximum castration, tPSA level increased and exceeded 2.0 ng/mL in January 2022 (tab. 1).

**Table 1.** Patient's treatment results.

Intervention	Date	TPSA (ng/dL)
Diagnosis – cT2N0M0	March 2019	52
Radical radiotherapy 70 Gy	March 2020	0.01
Reactivation of treatment with aLHRH	April 2021	0.886
Treatment resistance	January 2022	2.0
PSADT – apalutamide start	May 2022	5.8
Treatment assessment	July 2022	0.006

aLHRH – luteinising hormone-releasing hormone analogue; PSADT – prostate-specific antigen doubling time.

The patient did not report ailments from the skeletal system, or lymphadenopathy. The patient underwent PSMA PET with 68Ga, which revealed left lymph node on the hip, 9 mm, with pathologic tracer capture. Because, in SPARTAN, ARAMIS, and PROSPER clinical trials, patients were admitted to hormoneotherapy if characterised with N1, the drug programme is a reflection thereof, and allows qualification of such patients. Within the framework of qualification for treatment under the drug programme, the analysed patient underwent standard diagnostics based on CT and bone scintigraphy, which scans did not reveal any new lesions. From January to May 2022, PSA levels gradually increased, and the patient met the criterion of PSA doubling in a period of under 10 months. The patient started the treatment with apalutamide at the dose of 240 mg/24 h in May 2022 with tPSA level of 5.8 ng/mL and castrate testosterone parameters. Following 3 cycles of treatment, tPSA check revealed a decrease to 0.006 ng/mL, while control imaging scans after 6 months of treatment did not reveal features of metastatic disease with maintained tPSA parameters. The patient does not report any ailments related to the disease, or any side effects related to the treatment.

## DISCUSSION

Treatment with state-of-the-art antihormonal therapy at the nmCRPC stage not only significantly improves (by 24 months) OS and MFS, but is also a rather simple solution with a low potential of side effects, and assures high psychological comfort to patients whose next stage will be metastatic disease. Although the patients must undergo treatment with gonadotropin analogues, but the delay of chemotherapy introduction and the onset of metastatic disease significantly improves their quality of life.

The above case also shows contemporary capacity of PSMA PET scan using 68Ga. PSMA PET is a scan with the highest sensitivity and accuracy, allowing detection of metastatic lesions in patients with tPSA at the level of 0.2 ng/mL [5]. In patients experiencing biochemical recurrence, it revealed metastatic lesions in approx. 80% scanned patients [6]. Despite high accuracy, PSMA PET is only recommended to exclude metastatic disease in patients considered for qualification for radical radiotherapy.

## References

1. Siegel RL, Miller KD, Wagle NS et al. Cancer statistics, 2023. *CA Cancer J Clin.* 2023; 73(1): 17-48. <http://doi.org/10.3322/caac.21763>.
2. Smith MR, Saad F, Chowdhury S et al. Apalutamide Treatment and Metastasis-free Survival in Prostate Cancer. *N Engl J Med.* 2018; 378: 1408-18. <http://doi.org/10.1056/NEJMoa1715546>.

3. Hussain M, Fizazi K, Saad F et al. Enzalutamide in Men with Nonmetastatic, Castration-Resistant Prostate Cancer. *N Engl J Med.* 2018; 378: 2465-74.
4. Fizazi K, Shore N, Tammela TL et al. Darolutamide in Nonmetastatic, Castration-Resistant Prostate Cancer. *N Engl J Med.* 2019; 380: 1235-46. <http://doi.org/10.1056/NEJMoa1815671>.
5. Hofman MS, Lawrentschuk N, Francis RJ et al. Prostate-specific membrane antigen PET-CT in patients with high-risk prostate cancer before curative-intent surgery or radiotherapy (proPSMA): A prospective, randomised, multicentre study. *Lancet.* 2020; 395: 1208-16. [http://doi.org/10.1016/S0140-6736\(20\)30314-7](http://doi.org/10.1016/S0140-6736(20)30314-7).
6. Afshar-Oromieh A, Holland-Letz T, Giesel FL et al. Diagnostic performance of (68)Ga-PSMA-11 (HBED-CC) PET/CT in patients with recurrent prostate cancer: Evaluation in 1007 patients. *Eur J Nucl Med Mol Imaging.* 2017; 44: 1258-68. <http://doi.org/10.1007/s00259-017-3711-7>.

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Author declare to have no conflict of interest.

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