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^{177}Lu-PSMA-617 IN THE TREATMENT OF CASTRATION-RESISTANT PROSTATE CANCER: FIRST 5 YEARS OF EXPERIENCE IN URUGUAY

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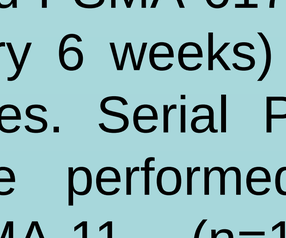
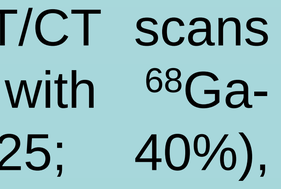
AIM

Prostate cancer is the most frequent solid tumour in the world and the second leading cause of cancer death in our country. The aim of this study was to assess the therapeutic response and safety profile of ^{177}Lu-PSMA in the treatment of patients with metastatic castration-resistant prostate cancer (mCRPC) in Uruguay.

MATERIAL & METHODS

We retrospectively analyzed 25 patients (who received at least one new androgen-axis drug and 1 or 2 taxane regimens) with mCRPC at CUDIM in the period June 2017-June 2023. All underwent radiotargeted therapy receiving doses of ^{177}Lu-PSMA-617 (7.4GBq every 6 weeks) for at least 3 cycles. Serial PET/CT scans were performed with ^{68}Ga-PSMA-11 (n=10/25; 40%), [^{18}F]AIF-PSMA-11 (n=12/25; 48%), or ^{18}F-PSMA-1007 (n=3/25; 12%) to confirm PSMA expression in metastatic lesions and evaluate response. Four patients underwent an additional ^{18}F-FDG PET/CT scan, excluding FDG+/PSMA- patients.





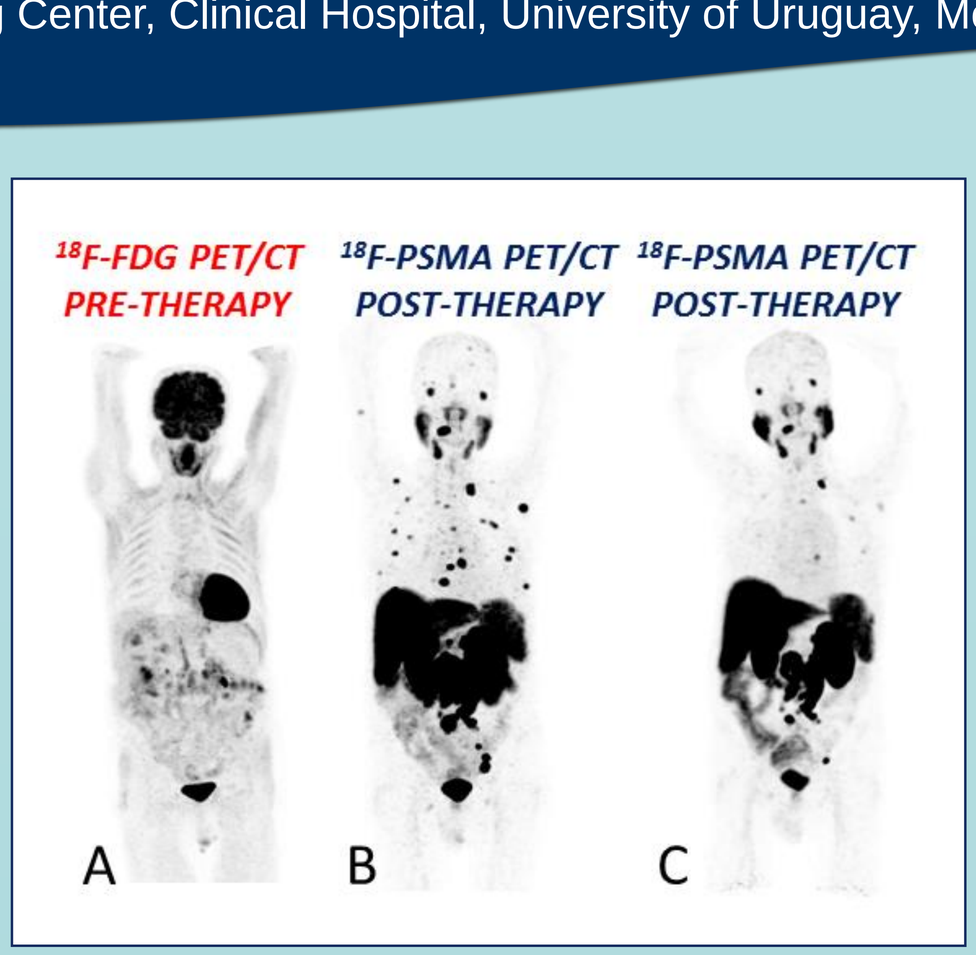


Fig. 1. Patient number 20. PET/CT with ^{18}F-FDG (A; negative) and ^{18}F-PSMA (B; positive), without discordant uptake. Significant response after 3 doses of ^{177}Lutetium-PSMA (C).

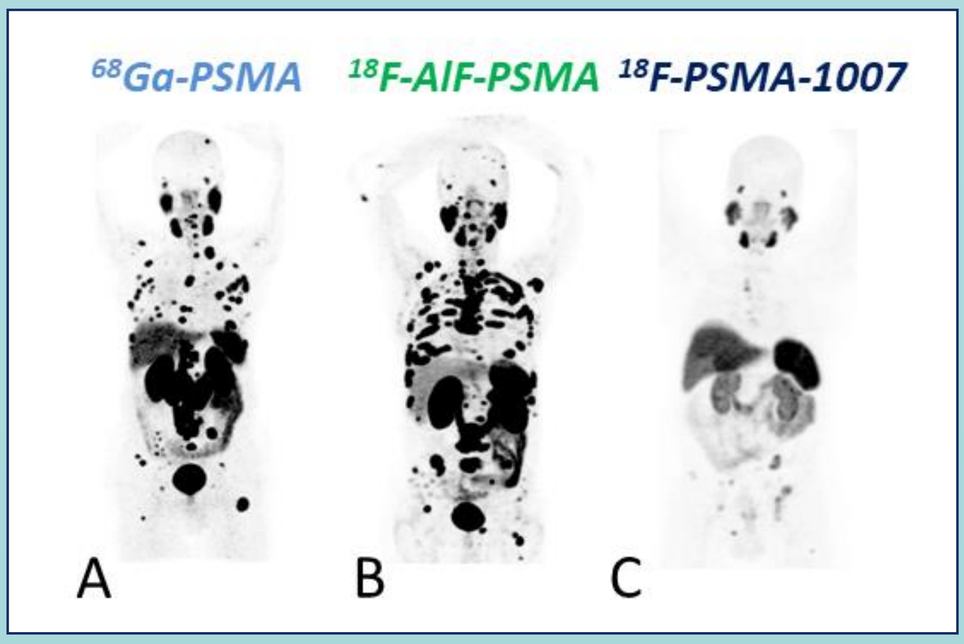
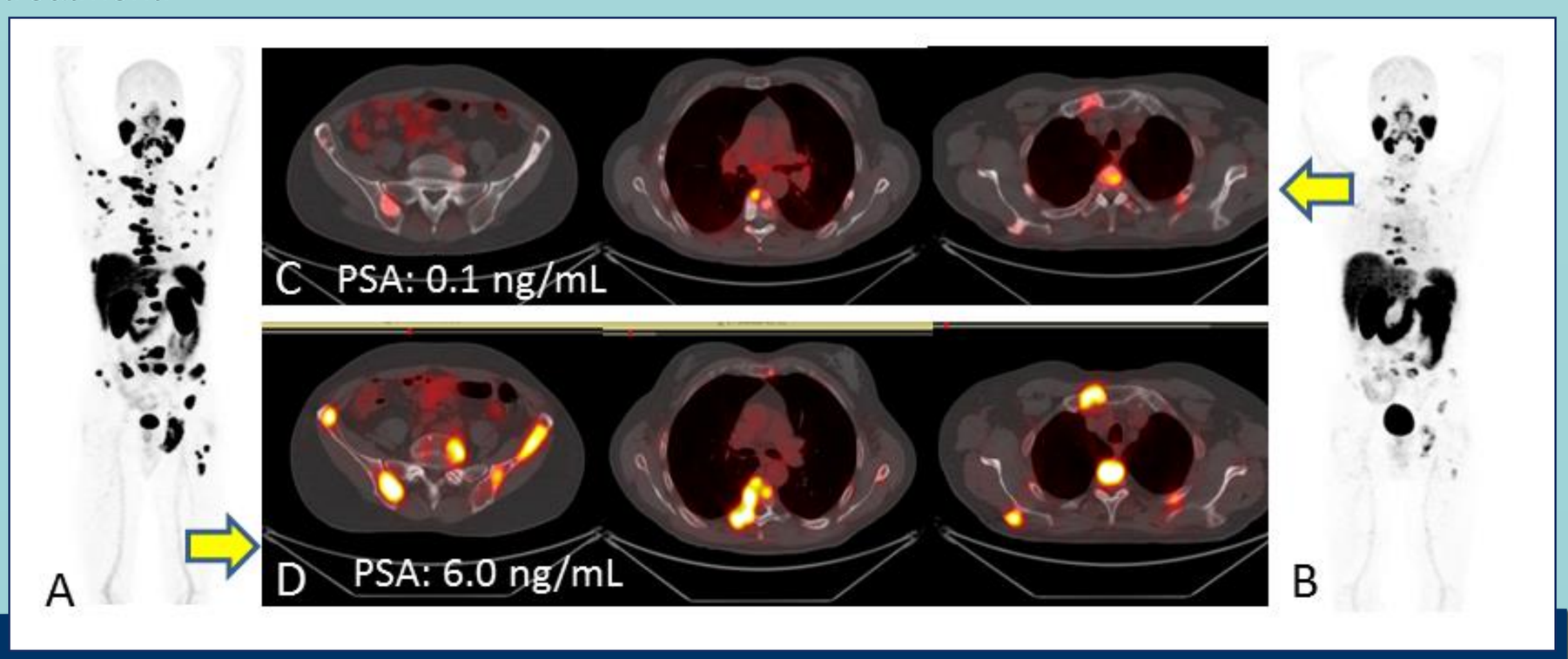


Fig. 2. Pre therapy PET/CT of three different patients scanned with ^{68}Ga-PSMA (A), ^{18}F-AlF-PSMA (B) and ^{18}F-PSMA-1007 (C), which allows an effective assessment, regardless of the tracer

Figure 3. MIP and axial images of a patient with metastatic prostate cancer before treatment (A and D) and after five cycles of ^{177}Lutetium-PSMA (B and C). Note the decrease in PSA and in the number and intensity of metastases with PSMA expression, which demonstrates a response to treatment.



RESULTS

The uptake of PET PSMA tracers and ^{177}Lu-PSMA-617 was similar in PET and SPECT images. All four ^{18}F-FDG PET/CT scans were negative (PSMA positive), thus suitable for treatment. Eighteen patients (72%) had lesion regression by PET-PSMA control imaging (positive response). The average overall survival was 14.7 months. 63% of patients showed biochemical response (PSA decrease). In some cases, there was a decrease of 90%. None of the patients had serious adverse effects (xerostomia, nausea, fatigue or thrombocytopenia) or had to discontinue treatment due to toxicity. 68% reported sustained pain relief after treatment.

CONCLUSION

^{177}Lu-PSMA therapy is a promising option in the treatment of patients with mCRPC, whose survival and quality of life have not been improved despite the myriad treatments available. ^{68}Ga-PSMA-11, [^{18}F]AIF-PSMA-11 and ^{18}F-PSMA-1007 vs ^{177}Lu-PSMA prove to be similar diagnostic-Tandems. Experience in our environment shows a benefit in overall survival, lesions progression and pain relief. Data was consistent with scientific evidence which determined the approval of this therapeutic line in our country.