

# HIGH-INTENSITY FOCUSED ULTRASOUND (HIFU) FOCAL THERAPY TO PRIMARY TREATMENT OF LOCALIZED PROSTATE CANCER (PCA) USING 68GA-PSMA PET/RM AS MAIN GUIDANCE: INNOVATIVE EXPERIENCE OF 16 PATIENTS.

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## INTRODUCTION

HIFU is an alternative to radical surgery or radiotherapy with fewer complications and similar oncological outcomes.

The proposal is a focal ablative therapy. A non-invasive, radiation-free treatment using a robotic arm, with real time magnetic resonance image (MRI) trans-rectal ultrasound image fusion. It consists in a single-shot, but if needed can be repeated with non-cumulative effect. HIFU uses focused beam of ultrasound waves that thermally ablate a selected portion of prostate gland.

## OBJECTIVE

To identify candidates to HIFU focal therapy (FT) for localized PCa uses inclusion criteria such as Serum PSA (<15 ng/ml), Gleason score (ISUP 1-3), mpMRI with no extracapsular extension, no seminal vesicle invasion or pelvic lymph node disease and negative bone scintigraphy.

## METHODS

A single-center prospective analysis of initial 16 patients candidates for FT (hemigland or super-focal ablation) as the primary treatment option from August 2018 to March 2019. All patients were re-evaluated by MRI and fusion prostate biopsy and following 68Ga-PSMA PET/RM to better understand the indication of HIFU before the procedure.

## RESULTS

The mean prostate volume, age, PSA and region of interest volume were: 44.7cc, 65.1 years, 6.09 ng/dl and 0.97cm; respectively. Pre-procedure MRI showed 5.2% of PIRADS 2, 15.78% of PIRADS 3, 68.42% of PIRADS 4 and 10.52% of PIRADS 5. The biopsy showed 6 patients unilateral ISUP 1, 16 patients unilateral ISUP 2 and 6 patients ISUP 3. 10 patients (62.5%) had concordant between the mpMRI pre-procedure and the biopsy with mpMRI-TRUS fusion with the 68Ga-PSMA PET/RM pre-procedure. 4 patients (25%) had discordant results, altering the planning or contraindicating the procedure, according to: 2 patients had greater unilateral multifocal disease on 68Ga-PSMA PET/RM than on MRI or TRI-MRI fusion biopsy, allowing a greater extension of the treatment area; 1 patient presented lower disease in 68Ga-PSMA PET/RM than in MRI or MRI-TRUS fusion biopsy, allowing a reduction of the expected area of treatment; 1 patient had extensive bilateral disease in 68Ga-PSMA PET/RM that was not suspected by MRI, confirmed by biopsy, contraindicating the procedure.

## CONCLUSION

68Ga-PSMA PET/RM play a crucial role in the indication and planning of a focal ablative prostatic therapy and should be introduced in the inclusion criteria for cases indicated for HIFU.

### Palavras Chave

HIFU; Localized Prostate Cancer;  
Focal Ablative Prostatic Therapy.