

## Does metastases-direct therapy guided by PSMA PET/CT really improve oncologic outcomes in oligorecurrent prostate cancer patients?

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**Introduction & Objectives:** Accurate staging of biochemical recurrence (BCR) after radical prostatectomy (RP) for prostate cancer (Pca) is crucial to guide salvage therapies, including the promising metastases direct treatments (MDT); thus, PSMA PET/CT has been included in the EAU guidelines for its high diagnostic accuracy. The objective of this study is to evaluate the effect of MDT based on PSMA PET/CT on oncologic outcomes in oligorecurrent PCa patients.

**Materials & Methods:** We retrospectively evaluated 324 recurrent PCa patients after RP performed at three high-volume European centers between January 1998 and January 2021. Patients underwent PSMA PET/CT for restaging proposal after biochemical recurrence (BCR). We selected 176 (54.3%) Pca patients with positive PSMA PET/CT for oligorecurrent disease ( $\leq 3$  lesions), which were stratified in two groups: group 1 (n=126), patients underwent MDT (including salvage lymphadenectomy [sLND], stereotactic body radiotherapy [SBRT] targeted to nodal or skeletal lesions, or a combination of sLND and SBRT); group 2 (n=50), patients underwent observation or androgen deprivation therapy (ADT) or salvage radiotherapy or combined treatment. Kaplan-Meier (KM) curves were plotted to evaluate differences between the two groups in terms of progression-free survival (PFS), radiologic PFS (rPFS), metastases free survival (MFS) and castration resistant prostate cancer free survival (CRPC-FS).

**Results:** Based on PSMA PET/CT results in oligorecurrent Pca patients (n=176), site of recurrence were following: local (12.5%), pelvic lymph-nodes (37.5%), extra-pelvic lymph-nodes (18.8%), axial bones (14.2%), extra axial bones (14.2%) and visceral (14.2%). In group 1 (n=126) including patients referred to MDT, 39,7%, 19,8%, 39,1% and 2,4% of patients underwent sLND, SBRT to lymph nodes, SBRT to skeletal and sLND+SBRT to skeletal lesion, respectively. At median follow-up of 24 months, survival analyses at KM curves depicted comparable PFS (43 vs 46%) and rPFS (63 vs 50%; all  $p \geq 0.5$ ) and significantly higher MFS (82 vs 61%) and CRPC-FS (96 vs 84%) for patients treated with MDT compared to patients underwent observation, ADT or salvage radiotherapy (all  $p \leq 0.02$ ).

**Conclusions:** PSMA-targeted treatments in oligorecurrent PCa after RP is an attractive approach to guide salvage treatments aimed to improve local control of disease. MDT guided by PSMA PET/CT seems to improve metastases progression and reduce the evolution to CRPC.