

Metastasis-directed Stereotactic Body Radiotherapy (SBRT)-guided by pet-ct 18f-choline versus pet-ct 68ga-psma in castration sensitive oligorecurrent prostate cancer: A comparative effectiveness analysis

European Urology Open Science 2020;21(Suppl 3):S140

Mazzola R.¹, Francolini G.², Triggiani L.³, Napoli G.¹, Cuccia F.¹, Nicosia L.¹, Giaj-Levra N.¹, Figlia V.¹, Ricchetti F.¹, Rigo M.¹, Vitale C.¹, Magrini S.M.³, Livi L.², Salgarello M.¹, Alongi F.¹

¹Sacro Cuore Don Calabria Hospital, Dept. of Advanced Radiation Oncology, Negrar di Valpolicella, Italy, ²AOU Careggi - University of Florence, Dept. of Radiation Oncology, Florence, Italy, ³Spedali Civili Hospital, Dept. of Radiation Oncology, Brescia, Italy

Introduction & Objectives: The role of metastasis directed therapy (MDT) is raising attractiveness in the setting of oligometastatic disease, and especially in the setting of oligorecurrent prostate cancer (PC), new metabolic tracers allow a superior detection of the real disease burden. The present analysis aims to compare the impact of 18F-Choline and 68Ga-PSMA PET-CT guided (MDT) in castration-sensitive oligorecurrent prostate cancer (PC) patients.

Materials & Methods: Inclusion criteria were: i) histologically-proven prostate adenocarcinoma, ii) evidence of biochemical relapse after primary tumor treatment, iii) ≤ 3 hypermetabolic oligorecurrent lesions detected by 18F-Choline or 68Ga-PSMA PET-CT, iv) PET-CT imaging performed in a single Nuclear Medicine Department, v) patients treated with upfront-SBRT without hormone-therapy, vi) SBRT delivered with a dose per fraction ≥ 5 Gy. In the case of oligoprogression (≤ 3 lesions outside the previous RT field) after MTD, further SBRT course was proposed; otherwise, androgen deprivation therapy (ADT) was administered.

Results: 118 lesions in 88 patients were analyzed. Forty-four (50%) patients underwent 68Ga-PSMA PET-guided SBRT, and the remaining underwent Choline PET-based SBRT. The median follow-up was 25 months (range, 5-87), for the entire cohort. Overall Survival and Local Control were both 100%. Distant progression occurred in 48 patients (54.5%), for a median DPFS of 22.8 months (14.4-28.8). Median pre-SBRT PSA was 2.04 ng/ml in the Choline PET cohort and 0.58 ng/ml in the PSMA-PET arm. Disease-free survival rates were respectively 63.6% and 34% in the 68Ga-PSMA and Choline PET group ($p=0.06$). The ADT administration rate was higher after Choline-PET guided SBRT ($p=0.00$) due to the higher incidence of polymetastatic disease after first-course SBRT compared to 68Ga-PSMA-based SBRT.

Conclusions: In the setting of oligorecurrent castration-sensitive PC, PSMA-PET-guided SBRT produced a higher rate of ADT-free patients when compared to the 18F-Choline-PET cohort. Randomized trials are advocated.