(68)Ga-PSMA-11 PET/CT: a new technique with high potential for the radiotherapeutic management of prostate cancer patients.

Abstract:
Radiotherapy is the main therapeutic approach besides surgery of localized prostate cancer. It relies on risk stratification and exact staging. This report analyses the potential of [(68)Ga]Glu-urea-Lys(Ahx)-HBED-CC ((68)Ga-PSMA-11), a new positron emission tomography (PET) tracer targeting prostate-specific membrane antigen (PSMA) for prostate cancer staging and individualized radiotherapy planning. A cohort of 57 patients with prostate cancer scanned with (68)Ga-PSMA-11 PET/CT for radiotherapy planning was retrospectively reviewed; 15 patients were at initial diagnosis and 42 patients at time of biochemical recurrence. Staging results of conventional imaging, including bone scintigraphy, CT or MRI, were compared with (68)Ga-PSMA ligand PET/CT results and the influence on radiotherapeutic management was quantified. (68)Ga-PSMA ligand PET/CT had a dramatic impact on radiotherapy application in the presented cohort. In 50.8% of the cases therapy was changed. The presented imaging technique of (68)Ga-PSMA PET/CT could be a key technology for individualized radiotherapy management in prostate cancer.