Format: Abstract

J Urol. 2019 Jun 24:101097JU0000000000000417. doi: 10.1097/JU.0000000000000417. [Epub ahead of print]

^{68}Ga-PSMA-11 PET Detects Residual Prostate Cancer after Prostatectomy in a Multicenter Retrospective Study.

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PURPOSE: PSA persistence after radical prostatectomy is associated with adverse outcome in patients with prostate cancer. We aimed to define regions at risk for residual disease as well as the accuracy of PSMA-ligand PET in patients with PSA persistence.

MATERIALS AND METHODS: From 6 participating centers, 191 patients with ^{68}Ga-PSMA-11 PET scan (PET/CT or PET/MRI) for persistently elevated post-operative PSA levels (≥0.1 ng/mL) were retrospectively included. Detection rate and positive-predictive value were determined. In patients with additional PSMA-ligand PET before prostatectomy (n=33), rate of PET-based persistence and recurrence was determined.

RESULTS: PSMA-ligand PET localized PCa-lesions in 68% (130 of 191) patients with PSA persistence at a median PSA level of 1.1 ng/mL. Detection rate significantly increased with the PSA ($p<0.001$). Regarding PSMA PET/CT only, 35% (61 of 173) patients had disease confined to the pelvis while 33% (57 of 173) of patients had distant lesions. Most frequently affected nodal regions were obturator (42%) and presacral/mesorectal (40%). In 45% (15 of 33) of patients with PSMA-ligand PET before and after surgery at least one lesion was already detected at baseline (PET persistence), 24% (8 of 33) had new lesions (PET recurrence), and 30% (10 of 33) were PET negative. PSMA-ligand PET positive predictive value was 91%. Initiation of systemic therapy was significantly associated with presence of distant lesions on PSMA-ligand PET.

CONCLUSIONS: PSMA-ligand PET localizes prostate cancer in more than two thirds of patients with high risk features and PSA persistence after prostatectomy. Obturator and presacral/mesorectal nodes are at high risk for persistent metastases.

KEYWORDS: Glu-NH-CO-NH-Lys-(Ahx)-((68)Ga(HBED-CC)); Molecular Imaging; Positron Emission Tomography; prostate cancer

PMID: 31233369 DOI: 10.1097/JU.0000000000000417