Abstract 21.

Prospective evaluation of extent of disease in prostate cancer biochemical relapse by [68Ga]PSMA-HBED-CC PET/CT

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Abstract

Purpose: Accurately determining the extent of disease on biochemical relapse of prostate cancer (PCa) can have important therapeutic implications. The lesion detection rate of [68Ga]PSMA-HBED-CC-PET/CT and its relation to prostate-specific antigen (PSA) level and Gleason score is evaluated.

Methods and Materials: All patients subjected to [68Ga]PSMA-HBED-CC-PET/CT with PCa biochemical relapse, from November 2014 to December 2016 were included. Laboratory exams performed prior to PSMA-PET-CT were retrieved from electronic medical records, and histopathology results were extracted from surgical specimens. All high-uptake regions were identified by two experienced readers. Regional involvement was defined as urethrovesical anastomosis lesions or pelvic lymphadenopathies.

Results: 102 patients were recruited. Mean age was 70.3 years (SD: 9.2), and median PSA Score was 2.52 ng/ml (IQR: 7.1), with a minimum value of 0.04 ng/ml, and 35% of PSA values under 1 ng/ml. PSMA-PET/CT was positive for 70% of patients. Among PSMA-PET/CT positive cases, 55% had regional involvement and 2.5% had suprapelvic lymphadenopathies without regional involvement. PSMA-PET/CT was positive in 43% of studies with PSA levels of <1 ng/ml. The lowest PSA level related to a positive finding was 0.11 ng/ml. 16% of lymphadenopathies detected were under 0.5 cm, and 69% were under 1 cm. 28% of studies showed bone metastases. A high Gleason score (9-10) was non-significantly associated with a higher number of pelvic metastases.

Conclusion: [68Ga]PSMA-HBED-CC-PET/CT can identify secondary lesions in PCa biochemical relapse even in patients with very low PSA levels and can accurately identify small intra- and extra-pelvic lymphadenopathies, which can substantially influence treatment planning.