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Titel des Beitrags: Value of 68Ga-PSMA HBED-CC PET for the assessment of lymph node metastases in prostate cancer patients with biochemical recurrence: comparison with histopathology after salvage lymphadenectomy.

Abstract: To evaluate the accuracy of (68)Ga-PSMA HBED-CC positron-emission tomography (PET) compared to morphological imaging for assessment of lymph node metastases (LNM) in patients with recurrent prostate cancer (PC). 48 patients (median of 71 years; interquartile range (IQR) 66-74 years) with biochemical recurrence (median prostate-specific antigen (PSA) level of 1.31 ng/ml; IQR 0.75-2.55 ng/ml) who underwent (68)Ga-PSMA HBED-CC positron-emission tomography/computed tomography (PET/CT) or positron-emission tomography/magnetic resonance imaging (PET/MR) and salvage lymphadenectomy were retrospectively included. Institutional review board approval and written informed consent was obtained from all patients for the purpose of anonymized evaluation and publication of their data. Standardized predefined lymph node (LN) template fields (n = 10) were evaluated in (68)Ga-PSMA HBED-CC PET and morphological imaging for the presence of LNM using a five-point-scale. Additional, standardized uptake value (SUV) mean/max and size of suspicious lesions were determined. Specificity
of (68)Ga-PSMA HBED-CC PET imaging for PET-positive LN was defined by comparison to histopathology. Diagnostic accuracy of (68)Ga-PSMA HBED-CC PET compared to morphological imaging alone was assessed and areas under the ROC curves are presented. LNMs were found histologically in 68 of 179 resected anatomical LN fields (38.0%). Specificity of (68)Ga-PSMA HBED-CC PET and morphological imaging was 97.3% and 99.1%, respectively. However, (68)Ga-PSMA HBED-CC PET detected LNMs in 53/68 histopathologically proven metastatic LN fields (77.9%) while morphological imaging was positive in only 18/67 (26.9%). (68)Ga-PSMA HBED-CC PET imaging performed significantly superior than morphological imaging for detection of LNMs (difference in the areas under the ROC curves (AUCs): 0.139, 95% CI: 0.063 - 0.214, p<0.001). In (68)Ga-PSMA HBED-CC PET, mean size of PET-positive LN measured by CT or MRI was 8.3 ± 4.3 mm (range 4-25 mm) and LN which were suspicious only in CT or MRI presented with a mean size of 13.0 ± 4.9 mm (range 8-25 mm). (68)Ga-PSMA HBED-CC PET imaging is a promising method for early detection of LNMs in patients with biochemical recurrent PC. It is more accurate compared to morphological imaging and thus might represent a valuable tool for guiding salvage lymphadenectomy.