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Comparison of F18-PSMA PET/CT and pelvic MRI for the detection of prostate cancer and metastatic disease.

Introduction:

Metastatic prostate cancer is one of the leading causes of death in men worldwide. Early diagnosis of initial and recurrent prostate cancer is a cornerstone for further management. Although, pelvic MRI is an essential diagnostic modality in detection of prostate cancer and staging, it could not be sufficient in low-and-intermediate risk patients.

Methods:

We have conducted observational, retrospective study on 40 patients with biopsy-proven prostate cancer who undergone F18-PSMA PET/CT and multi parametric MRI in our institution. All MRI images were scored with the Prostate Imaging-Reporting (PI-RADS). F18-PSMA PET/CT scans were reviewed for pathologic lesions and staging by two board-certified radiologists and nuclear medicine physician.

Results:

A total of 40 patients with known prostate adenocarcinoma were analyzed. Of the 40 patients, 28 (70%) patients presented with pathological prostate lesions on MRI, and 32 (80%) patients presented with positive F18-PSMA PET/CTs. Suspicious regional lymph nodes were identified in 4/28 (14,2%) patients on pelvic MRI, and 12/32 (32.5%) patients on F18-PSMA PET/CT imaging. Detection rate was higher when both modalities were performed pelvic MRI and F18-PSMA PET/CT with pathological findings in 38/40 patients (95%; $p < 0.05$) rather than pelvic MRI alone (28/40; 70%) in patients with low-intermediate-and high risk of prostate cancer.

Conclusion:

The study demonstrated that 18F-PSMA-PET/CT showed superiority in detecting prostate lesions than pelvic MRI and seems to be superior to pelvic mpMRI in the detection of locoregional lymph node metastases. F18-PSMA PET/CT and MRI showed significant higher performance when both modalities were performed. Evaluating PSMA PET/CT and pelvic MRI images as well as clinical medical records might prevent a misdiagnosis in clinical settings.

Keywords: prostate cancer, PET/CT, MRI, PSMA, diagnosis

Biography:

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