

PE09 Diagnostic accuracy of ^{18}F -Fluciclovine PET/CT in primary lymph node staging of prostate cancer

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Introduction & Objectives: To determine preoperative diagnostic accuracy of ^{18}F -Fluciclovine PET/CT-scan in detection (or exclusion) of lymph node metastases (LNM) in men with prostate cancer (PCa) in comparison to the histopathological results of the extended pelvic lymph node dissection (e-PLND).

Materials & Methods: A retrospective medical records-based cohort study including 47 men with primary PCa who received ^{18}F -Fluciclovine PET/CT and subsequent e-PLND for lymph node staging. Incidence and number of visualized LNM, their locations and diameters on ^{18}F -Fluciclovine PET/CT were recorded in comparison to the histopathological results of the e-PLND as reference. Positive predictive value (PPV), negative predictive value (NPV), sensitivity, specificity and diagnostic accuracy of ^{18}F -Fluciclovine PET/CT were calculated based on histopathology results after e-PLND.

Results: Forty-seven men were eligible for analysis. Median lymph node yield was 19 (range 10-70). A total of 996 lymph nodes (LN) were removed, and 59 metastases were found in 21 cases (45%). Preoperative PET was issued 'positive' in 11 men and in 9 of them (82%) this was histopathological confirmed resulting in a PPV of 82% (95% CI 51-96). On the contrary, PET was issued 'negative' in 36 cases but in 12 of them (33%) metastases were detected in the e-PLND specimen, resulting in a NPV of 67% (95% CI 50-80). The patient based sensitivity was 43% (95% CI 24-64) and the patient based specificity rate was 92% (95% CI 75-99) whereas overall diagnostic accuracy was established to be 70% in the present cohort.

Conclusions: ^{18}F -Fluciclovine PET/CT has a high specificity and positive predicted value for the presence of lymph node metastases in men with prostate cancer. However, the sensitivity and negative predictive value seem to be limited to exclude the absence of lymph node metastases at a clinically acceptable level. Prospective evaluation is necessary to define patients who may benefit from ^{18}F -Fluciclovine PET/CT as a triage test for the indication for e-PLND.