Dokumenttyp: journal article

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Titel des Beitrags:
Performance of integrated FDG-PET/CT for differentiating benign and malignant lung lesions--results from a large prospective clinical trial.

Abstract:
PURPOSE: The purpose of the study was to evaluate prospectively whether integrated 2-deoxy-2-[(18)F]fluoro-D-glucose positron emission tomography/computed tomography (FDG-PET/CT) is more accurate for determination of malignancy in newly diagnosed pulmonary lesions compared to separate interpretation of CT and FDG-PET. PROCEDURES: Two hundred and seventy-six patients with newly diagnosed lung lesions underwent FDG-PET/CT. Helical CT, FDG-PET, and FDG-PET/CT were interpreted separately to determine the performance of each imaging modality. Histopathology served as reference in all patients, and in further 60 patients, a benign lesion was verified at follow-up (mean follow-up of 1,040 days). RESULTS: Histology revealed malignant lung tumors in 216 of 276 patients. With PET and PET/CT, a significantly lower number of lesions were classified as equivocal compared to CT alone (p< 0.001). Assuming that equivocal lesions are benign, performance of diagnostic tests was as follows: sensitivity, specificity, and accuracy for CT was 94, 75, and 90%, for PET 97, 83, and 94% (p = 0.021), and for PET/CT 96, 87, and 94% (p = 0.010). Assuming that equivocal lesions are malignant, sensitivity, specificity, and accuracy for CT was 99, 37, and 86%, for PET
99, 77, and 94% (p < 0.001), and for PET/CT 98, 68, and 92% (p = 0.002). PET and PET/CT showed the highest concordance (K = 0.912; confidence interval 0.866-0.958). In lesions less than or equal to 3 cm, there was a significant difference in the performance of PET alone and multidetector row CT as well as PET/CT and multidetector row CT (p = 0.007), irrespective if equivocal findings were judged as malignant or benign. CONCLUSION: For differentiation of benign from malignant lung lesions, integrated FDG-PET/CT imaging was significantly more accurate than CT but not FDG-PET. The addition of metabolic imaging (FDG-PET) to morphological imaging (CT) leads to an increase in specificity and significantly reduced equivocal findings and is therefore recommended to further specify newly diagnosed lung lesions.