Use of integrated FDG PET/CT imaging in pulmonary carcinoid tumours.

BACKGROUND: Integrated positron emission tomography (PET)/computed tomography (CT) scanners have been recently introduced in the diagnostic work-up of suspected pulmonary malignancy and demonstrate encouraging results in the staging of nonsmall-cell lung cancer. OBJECTIVE: To evaluate the usefulness of integrated FDG PET/CT in pulmonary carcinoid tumours. SETTING: University hospital. METHODS: We studied 13 patients (mean age +/- 1 SD, 57 +/- 11 years) with pulmonary carcinoid tumours. All patients demonstrated a single pulmonary lesion. Integrated PET/CT scan and surgical resection were performed in all patients. RESULTS: The pulmonary lesion size ranged from 1.1 to 5.0 cm. Final histological diagnosis confirmed 12 typical and one atypical pulmonary carcinoid. Mean proliferation rate of the typical carcinoids was 1.7 +/- 1.4%. None of the patients had recurrent carcinoid disease or died during follow-up (864 +/- 218 days). Mean standardized uptake value (SUV) of (18)F-fluorodeoxyglucose (FDG) in typical carcinoids was 3.0 +/- 1.5 (range 1.2 - 6.6); SUV in the atypical carcinoid was remarkably high with a value of 8.5. The SUV was lower than 2.5 in 6 of 12 patients (50%). Mediastinal lymph node metastases or extrathoracic metastases were not detected in any patient. CONCLUSIONS:
(18)F-fluorodeoxyglucose PET/CT imaging improves accurate localization of metabolic activity and thus the interpretation of pulmonary lesions on CT. FDG uptake in pulmonary carcinoid tumours is often lower than expected for malignant tumours. Therefore, surgical resection or biopsy of lesions suspected to be carcinoids should be mandatory, even if they show no hypermetabolism on FDG PET images.