P389  Incidental Detection of 18F-FDG Thyroid Uptake: The Risk of Malignancy


Aim: The widespread use of whole body 18F-FDG PET/CT into clinical practice facilitates the detection of incidental thyroid lesions. It is known that a percentage of these lesions is associated with cancer. The purpose of this study was to determine the prevalence rate and malignancy risk of incidental thyroid FDG uptake revealed on 18F-FDG PET/CT imaging for non-thyroid disease, in patients studied in our department during a 6 years period. Material and Methods: The 7714 18F-FDG PET/CT examinations performed for a non-thyroid disease in our department from January 2004 to January 2010 were retrospectively reviewed. Thyroid incidentalomas were identified. The uptake pattern of 18F-FDG was visually classified as focal or diffuse. Obtained data was correlated with histology and clinical follow up. SUVmax values were obtained for focal lesions and statistically compared between groups (malignant versus benign). Results: Of the 7714 reviewed scans, unexpected thyroid findings were detected in 145 (104 women and 41 men, mean age 62 years) corresponding to a prevalence of incidentalomas of 1.9%. Thyroid focal uptake was seen in 120 of the 145 cases (82.8%) and a diffuse uptake pattern in 25 patients (17.2%). Among the 120 patients with focal thyroid lesions histopathologic information was obtained in 28 patients (23.3%). Malignant involvement of the thyroid was confirmed in 9 patients (mean SUVmax: 16.9±16.0): 5 primary tumors (4 papillary carcinoma and 1 less differentiated cancer) and 4 metastases; the remaining 18 cases corresponded to benign lesions (mean SUV max: 5.2±2.4). The thyroid malignancy risk for the focal FDG uptake pattern was 32.1%. Thyroid functional assays (TSH and auto-antibodies) and/or ultrasound were performed in 10 (40%) of the 25 patients with diffuse uptake pattern, 8 showed chronic thyroiditis and the other two had nodular goiter. The overlap between maximum SUV values of malignant and benign thyroid lesions didn’t allow the definition of a cut-off value for malignancy. Conclusions: In our experience, the prevalence of thyroid 18F-FDG uptake incidentally detected during whole body 18F-FDG PET scan is 1.9%. Malignancy was histologically proven in 32.1% of the patients who underwent fine needle aspiration. A diffuse thyroid uptake pattern was associated with benign conditions. On an individual patient basis SUVmax cannot differentiate benign from malignant lesions. Therefore we suggest that any focal thyroid incidentaloma detected on a 18F-FDG PET/CT should be carefully evaluated because of a significant risk of cancer.