Room: Hall Z

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

J. Correia, P. Lapa, A. Albuquerque, R. Macedo, R. Silva, H. Fernandes, G. Costa, J. Pedroso de Lima;

Aim: Thewidespread use of whole body ^{18}F-FDG PET/CT into clinical practicefacilitates the detection of incidental thyroid lesions. It is known that apercentage of these lesions is associated with cancer. The purpose of thisstudy was to determine the prevalence rate and malignancy risk of incidentalthyroid FDG uptake revealed on ^{18}F-FDG PET/CT imaging fornon-thyroid disease, in patients studied in our department during a 6 yearsperiod. Material and Methods: The 7714 ^{18}F-FDG PET/CT examinationsperformed for a non-thyroid disease in our department from January 2004 toJanuary 2010 were retrospectively reviewed. Thyroid incidentalomas wereidentified. The uptake pattern of ^{18}F-FDG was visually classified asfocal or diffuse. Obtained data was correlated with histology and clinicalfollow up. SUVmax values were obtained for focal lesions and statisticallycompared between groups (malignant versus benign). Results: Of the 7714reviewed scans, unexpected thyroid findings were detected in 145 (104 women and41 men, mean age 62 years) corresponding to a prevalence of incidentalomas of1.9%. Thyroid focal uptake was seen in 120 of the 145 cases (82.8%) and adiffuse uptake pattern in 25 patients (17.2%). Among the 120 patients withfocal thyroid lesions histopathologic information was obtained in 28 patients(23.3%). Malignant involvement of the thyroid was confirmed in 9 patients (meanSUVmax: 16.9±16.0): 5 primary tumors (4 pappilary carcinoma and 1 lessdifferentiated cancer) and 4 metastases; the remaining 18 cases corresponded tobenign lesions (mean SUV max: 5.2±2.4). The thyroid malignancy risk for thefocal FDG uptake pattern was 32.1%. Thyroid functional assays (TSH andauto-antibodies) and/or ultrasound were performed in 10 (40%) of the 25patients with diffuse uptake pattern, 8 showed chronic thyroiditis and theother two had nodular goiter. The overlap between maximum SUV values ofmalignant and benign thyroid lesions didn´t allow the definition of a cut-offvalue for malignancy. Conclusions: In our experience, the prevalence of thyroid^{18}F-FDG uptake incidentally detected during whole body ^{18}F-FDGPET scan is 1.9%. Malignancy was histologically proven in 32.1% of the patientswho underwent fine needle aspiration. A diffuse thyroid uptake pattern wasassociated with benign conditions. On an individual patient basis SUVmax cannotdifferentiate benign from malignant lesions. Therefore we suggest that anyfocal thyroid incidentaloma detected on a ^{18}F-FDG PET/CT should becarefully evaluated because of a significant risk of cancer.