ADDED VALUE OF 18F-FDG-PET/CT IN ADDITION TO FIBEROPTIC BRONCHOSCOPY IN DIFFERENTIATION OF SOLITARY PULMONARY NODULES

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Aim: to evaluate the diagnostic performance of 18F-FDG-PET/CT (PET) combined with fiberoptic bronchoscopy (FOB) compared to the single techniques in solitary pulmonary nodule (SPN) differentiation.

Materials and Methods: we retrospectively evaluated 42 consecutive patients presenting with SPN (1-3 cm) identified by CT scans who underwent both PET and FOB for lesion differentiation. FOB included Trans-Bronchial Pulmonary Biopsy (TBB), Trans-Bronchial Pulmonary Needle Aspiration (TBNA) and bronchial washing (BW). Findings were considered positive as follows: PET, when maximum Standardized Uptake Value of FDG uptake in the lesion was >= 2.5; FOB, in case either TBB, TBNA or BW was positive for malignancy; PET and FOB combined, when at least one was positive. Results were confirmed through histology after surgery or follow-up, as reference standard. Sensitivity, specificity, accuracy, positive predictive value (PPV) and negative predictive value (NPV) of PET, FOB and the 2 techniques combined were respectively calculated.

Results: out of the 42 patients PET, FOB and the combined procedures respectively resulted true positive (TP) in 33, 23 and 38 cases, true negative (TN) in 1, 4 and 1, false positive (FP) in 3, 0 and 2, false negative (FN) in 5, 15 and 0. PET was FP in 2 TN FOB case (inflammatory lesion), and FN in 4 TP FOB case (2 bronchiolo-alveolar carcinoma, 2 lung adenocarcinoma). FOB was FN in 16 TP PET cases.
The diagnostic performance of PET, FOB and the combined procedures respectively resulted in: sensitivity 87, 61 and 97%; specificity 25, 100 and 33 %; accuracy 81, 64 and 92 %; PPV 95, 100 and 92 %; NPV 16, 21 and 50 %.

Conclusions: PET showed high sensitivity and accuracy playing an important diagnostic role especially in cases of FN FOB. The addition of PET to FOB resulted in an improved diagnostic accuracy that may lead to a better selection of patients with SPN addressed to surgery, and strengthens the value of multimodal patient management.