Evaluation of pulmonary tumors with PET/CT
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BACKGROUND: F18-FDG PET/CT provides morphologic and metabolic information for diagnosis of malignant disease; however, increased glucose uptake is not exclusive of cancer. We analyzed PET/CT capacity to study pulmonary tumors in Chilean population.

METHODS: 204 patients with solitary pulmonary tumors were prospectively included in the study, 91 males, mean age 63.2 years (27-96). Exams were performed in a PET-CT Scanner Siemens Biograph 6. We studied the group with biopsy and/or follow up longer than 6 months, 153 of the 204 fulfilled this requirements. 66 patients had nodules of less than 30 mm and 87 had masses between 31 and 120 mm. Based on radiological appearance and metabolic activity in PET/CT, lesions were classified in malignant (112), benign (30) and indeterminate (11).

RESULTS: Malignancy was demonstrated in 106 of 112 lesions categorized as malignant by PET/CT (94.6%); 6 false positive results were due to 4 infectious/inflammatory lesions and 2 benign carcinoid tumors. In the group considered as benign, 3 malignant lesions were demonstrated by biopsy (10%, 2 metastasis of colorrectal cancer, 1 of thyroid cancer). In the indeterminate lesions group, 4 of 11 resulted malignant (36.3%, 2 lung cancer, 1 metastasis of kidney cancer and 1 of colic cancer). Median SUV Max was 10.5 (1.8-35.9) in the malignant group, 1.0 (0.3-15.3) in the benign group, and 2.0 g/ml (0.7-5.3) in the indeterminate group. Difference on SUV of malignant and benign lesions was significant. Positive predictive value (PPV) for malignancy in the malignant group was 94.6%. Malignant lesions were found in the 36.3% of the indeterminated group and in the 10% of the benign group.

CONCLUSION: F18-FDG PET/CT is a reliable method for the study of pulmonary lesions, with a 94.6% positive predictive value for malignancy and 90% of negative predictive value. In the indeterminated cases histological study is necessary a (33.6% of malignancy).