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Title: (18)F-FDG positron emission tomography/computed tomography and pulmonary function in sarcoidosis

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Body: Introduction: (18)F-fluorodeoxyglucose PET has recently been proposed as marker of active disease in Sarcoidosis, although we do not know if it could add value to pulmonary lung function tests and chest radiography. Objectives: a retrospective analysis to assess whether metabolic activity imaged by (18)F-FDG PET can reflect impairment of lung function or gas exchange in patients with sarcoidosis. Methods: 44 newly diagnosed pulmonary sarcoidosis patients underwent pulmonary function tests (FVC, FEV1, DLCO) and (18)F-FDG PET. Based on (18)F-FDG PET, patients were diagnosed with exclusively mediastinal/hilar activity (group A), with activity in the lung parenchyma (group B) and without signs of activity (group C). Per group, pulmonary function tests results were compared with the extent of metabolic activity expressed as the maximum standardized uptake value (SUV-max). Results: PET revealed exclusively mediastinal/hilar activity in 16 patients (36,4 %), activity in the lung parenchyma in 18 patients (40,9 %) and no signs of activity in 10 patients (22,7 %). When considered together, SUV(max) did not correlate with the considered pulmonary function tests; overall, in group A, a significant negative correlation between SUV (max) of the mediastinum/hila and FVC and FEV1 was found, while SUV(max) of the mediastinum/hila did not correlate with DLCO. In group B, SUV (max) of lung parenchyma did not correlate with FVC, FEV1 and DLCO. Conclusions: these results suggest that PET scanning could be considered in the multidisciplinary evaluation of pulmonary disease in sarcoidosis as it could add value to the pulmonary lung function tests.