frontal lobes. In this case, the neurological manifestations include epilepsy, ataxia with aspects of stiff-person syndrome, behavior and sensitive alterations. Most of the clinical manifestations mentioned has also been observed in patients with NMDA antibodies, who expressed cingulate gyri, precuneus, parietal lobes and basal ganglia hypermetabolism, and cingulate hypermetabolism, with cerebellar hemispheres hypometabolism, characterizing an anteroposterior gradient of FDG uptake. LGI1 antibodies resulted in hypermetabolism in the basal ganglia and temporal mesial lobe, with frontal hypometabolism. For most of the groups of patients, epilepsy was a common manifestation, followed by behavior and sensitive alterations. The exception is the aquaporin-4 antibody for which muscular disorders are the main symptom, also highlighted in GAD patients. **Conclusion:** PET/CT FDG is able to detect metabolic alterations in brain images with a high sensitivity. Different anti-bodies can show different patterns of hypermetabolism and hypometabolism. More studies with higher casuistic are necessary to better identify each pattern. Moreover, PET/CT FDG with whole body studies is able to detect neoplasm or suspicious neoplasm lesions.

Keywords: Autoimmune encephalitis, FDG-PET/CT images, Paraneoplastic syndromes.

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DIRECT COMPARISON BETWEEN 18F-FDG PET/CT AND 18F-PSMA PET/CT IN RADIOIODINE-REFRACTORY DIFFERENTIATED THYROID CARCINOMA PATIENTS

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A B S T R A C T

Introduction/Justification: Differentiated thyroid carcinoma (DTC) is the most common endocrine malignancy and generally has a good prognosis when properly treated. However, approximately 5-15% of cases become refractory to radioiodine therapy (rRIT), limiting diagnostic and therapeutic options and significantly impacting patient survival. Recent studies have demonstrated prostate-specific membrane antigen (PSMA) uptake in positron emission tomography/computed tomography (PET/CT) scans of advanced DTC, suggesting its potential as a diagnostic imaging target and possibly opening new avenues for theranostic approaches. **Objectives:** To compare 18F-PSMA and 18F-fluorodeoxyglucose (18F-FDG) PET/CT scans of patients with rRIT DTC. **Materials and Methods:** This cross-sectional study included 21 patients with rRIT DTC and locoregional or distant metastases. All patients underwent both 18F-FDG PET/CT and 18F-PSMA PET/CT scans. Uptake intensity was assessed using the maximum standardized uptake value (SUVmax), and lesion location was categorized as thyroid bed, cervical, thoracic, and abdominal lymph nodes, lungs, liver, and bones. The median SUVmax (range) was calculated for both radiotracers. **Results:** Both radiotracers detected lesions in all patients. The number of patients with active disease identified by 18F-FDG PET/CT and 18F-PSMA PET/CT, respectively, in each region was: thyroid bed (6 vs. 5), cervical lymph nodes (15 vs. 15), thoracic lymph nodes (11 vs. 11), abdominal lymph nodes (3 vs. 0), lungs (16 vs. 15), bones (4 vs. 6), and liver (1 vs. 1). In five patients, 18F-FDG identified more affected regions than 18F-PSMA, while in three patients, the opposite was observed. The median SUVmax was 24.2 (5.6–80.9) for 18F-FDG and 17.3 (4.1–73.3) for 18F-PSMA. In 12 patients (57.14%), the SUVmax of 18F-PSMA was higher than that of 18F-FDG. **Conclusion:** Both radiotracers demonstrated uptake in at least some lesions in all rRIT DTC patients. Uptake intensity varied among lesions, with some showing higher 18F-FDG uptake and others higher 18F-PSMA uptake, suggesting a potential complementary role for these tracers in this disease. 18F-PSMA demonstrated a higher SUVmax than 18F-FDG in more than half of the patients, indicating that, in selected cases, PSMA-labeled theranostic approaches may be a viable option.

Keywords: 18F-FDG PET/CT, 18F-PSMA PET/CT, Differentiated thyroid carcinoma, Radioiodine-refractory.

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BRAIN-TO-LIVER RATIO FROM 18F-FDG-PET/CT AS A PROGNOSTIC MARKER IN MULTIPLE MYELOMA

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