DIAGNOSTIC UTILITY OF 18F-FDG PET/CT IN INFECTIOUS AND INFLAMMATORY DISEASE. CASE REPORTS

FUNDACIÓN VALLE DEL LILI
Excelencia en Salud al servicio de la comunidad

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Background

Positron emission tomography (PET) with ^{18}F-FDG is mainly used in oncology. However, in the last years, some publications have shown the potential role in diagnosing infectious or inflammatory diseases and in monitoring response to therapy.

Objetives

The aim of this study is to evaluate the contribution of ^{18}F-FDG PET/CT in the diagnosis of patients with infectious and inflammatory disease in our population.

Methods

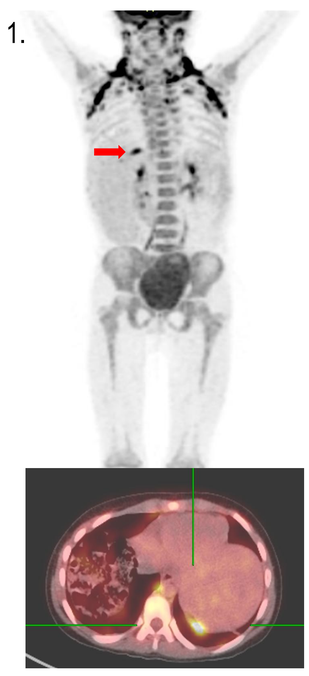
Within 1360 ^{18}F-FDG PET/CT scan performed between June 2012 to February 2015, a total 28 cases were submited by infectious and inflammatory disease, mainly patients with fever of unknown origin (53%). The PET/CT studies were performed in a hybrid computer - biograph mct128 siemens (Siemens , Germany) previous intravenous administration of ^{18}F-FDG. We describe the most relevant cases in this group of patients (7 patients).

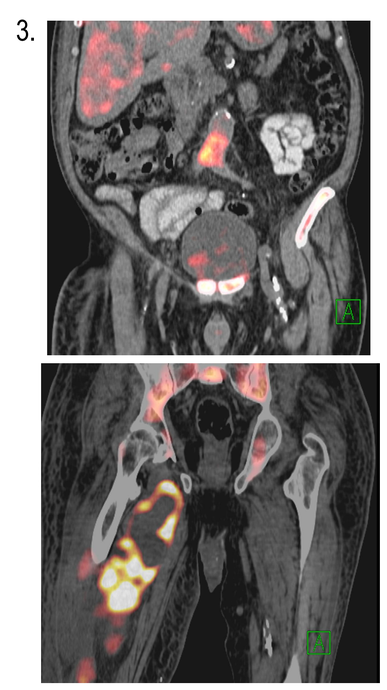
Results

In four patients with fever of unknown origin a final diagnosis was established by ^{18}F-FDG PET/CT scan as follows: prosthetic vascular graft infection, endocarditis, sarcoidosis (muscle involvement confirmed by biopsy) and subdiaphragmatic abscess in a patient with liver transplantation (these results were not detected in others imaging tests performed).

One patient with invasive aspergillosis and intracranial lesions with a long medical treatment, with a brain MRI image non-conclusive for differenciation between active infection and residual post-treatment lesion. In this patient, ^{18}F-FDG PET/CT showed hypometabolism in brain lesions, suggesting residual post-treatment.

In the last two patients with diagnoses of Takayasu arteritis, the ^{18}F-FDG PET/CT allowed to evaluate disease extension and response to treatment.





1. ***Fever of unknown origin*** in a 8 years old patient with a previous liver transplant. Visualization of brown adipose tissue FDG uptake in the neck and chest. Increased focal uptake in the left subdiaphragmatic region suggested an abscess and was confirmed at surgery.

2.A. Early stage of Takayasu´s arteritis. Top row is PET images and the lower row is PET and CT fused display. Coronal images shows increase glucose metabolism in the walls vessels of the supra-aortic arteries and thoracoabdominal aorta.
2.B. Late scar phase of Takayasu´s arteritis. Whole body PET image showing not metabolic activity in arterial wall vessels.

3. ***Suspicion of vascular prosthetic graft infection.*** PET and CT fused display confirmed infecto-inflamatory in the vascular graft disease close to aortic bifurcation. An additional hypermetabolic focal uptake was found in the right thigh at the posterior muscle compartment with a photopenic central area and peripheral intense metabolic activity suggested an abscess

Conclusion

^{18}F-FDG PET/CT scan is a non-invasive and useful technique for diagnosis in patients with fever of unknown origin to identify infecto/inflamatory disease, as well it allow to differentiate between residual post-therapy lesions or active infection and to detect vasculitis disease extension and response to treatment.

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