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**Initial assessment of the clinical impact and confirmation of the diagnostic ability of the 18F-FDG-PET/CTA prosthetic valve endocarditis.**

**Authors:**
M N Pizzi¹, N Fernandez-Hidalgo², H Cuellar-Calabria³, S Aguade-Bruix⁴, J Castell-Conesa⁴, M Escobar³, R Roque³, ¹Hospital Vall d’Hebron, Cardiology Department, Epidemiology Unit - Barcelona - Spain, ²University Hospital Vall d'Hebron, Infectious Diseases Department - Barcelona - Spain, ³University Hospital Vall d'Hebron, Radiology Department - Barcelona - Spain, ⁴Universitary Hospital Vall d’Hebron, Nuclear Medicine Department - Barcelona - Spain,  

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Background: A previous study from our group has shown that PET/CTA was very useful to improve the diagnosis of prosthetic infective endocarditis (PVE), with an important additional value to the modified Duke criteria (DC) conventionally used. While its impact on the Expert Team decisions regarding patients’ management seems obvious, it has not been assessed so far, to our knowledge, in any study.

Objective: Confirmation of the PET/CTA diagnostic ability in a cohort of patients with suspected PVE studied between 01/2013 and 01/2018. Initial assessment of its impact on the decision-making about patients’ management in a subgroup of this cohort.

Methods: We studied a cohort of 106 patients (71 ± 11.5 years, 36 women) with suspected PVE admitted to a referral centre with an Endocarditis Unit, who were evaluated according to the DC and who underwent a PET/CTA. We calculated the diagnostic yield of PET/CTA using the final evaluation of our Expert Team, in possession of all the clinical, bacteriological and image information after a clinical follow-up of at least 3 months, as the gold standard. The PET/CTA impact on patients’ decision-making was analysed in a subgroup of 47 patients of this cohort.

Results: The PET/CTA sensitivity, specificity, and positive and negative predictive values were 81.7%/95.7%/96.1%/80.0%, respectively. Regarding PET/CTA impact on treatment decisions (n=47): 1) It changed the antibiotic treatment (ATB) in 19/47 (40%) cases (shortening of ATB in 12 cases (from 42+/−1 to 15+/−8 days); ATB treatment lengthening in 5 cases (from 21+/−19 to 53+/−17 days); switched the type of ATB in 2 cases due to daptomycin pulmonary toxicity diagnosis 2) 5 out of the 14 operated patients underwent surgery due solely to the PET/CTA findings (4 severe perivalvular complications and 1 due to the confirmation of an IE relapse) 3) it detected 6 unknown colonic lesions that led to a colonoscopy in 4 cases (lesion removal was performed in all cases, including 2 malignant lesions) 4) PET/CTA provided an alternative infectious diagnosis helping patients’ management in 5 out of 17 IE rejected cases (2 pneumonia, 1 mediastinitis, 1 temporary epicardial leads infection, 1 prostatitis).

Conclusions: PET/CTA has shown again an excellent diagnostic ability in PVE, with a very important added value to the DC. Initial results suggest that PET/CTA findings might significantly influence patients’ treatment and management.