associated risk of IE compared with high-risk patients. These findings are key in the puzzle of prophylactic strategies in patients at risk of IE.

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Low-CRP infective endocarditis: description of a particular entity

S. Ribeyrolles[1], R. San[1], R. Lepeule[2], A. Moussafeur[1], L. Faivre[1], L. Nahory[1], R. Huguet[1], S. Gallien[3], J.W. Decousser[4], V. Fihman[4], A. Fiore[5], N. Mongardon[6], P. Lim[1], J. Ternacle[1], L. Oliver[1]. *[1]University Hospital Henri Mondor, Department of Cardiovascular Medicine, SOS Endocardite Unit, Creteil, France; [2]University Hospital Henri Mondor, Antimicrobial stewardship team, SOS Endocardite Unit, Creteil, France; [3]University Hospital Henri Mondor, Department of Infectious Diseases, SOS Endocardite Unit, Creteil, France; [4]University Hospital Henri Mondor, Department of Microbiology, SOS Endocardite Unit, Creteil, France; [5]University Hospital Henri Mondor, Department of Cardiac Surgery, SOS Endocardite Unit, Creteil, France; [6]University Hospital Henri Mondor, Department of Anesthesiology and Critical Care Medicine, SOS Endocardite Unit, Creteil, France*

Background: The diagnosis of bacterial endocarditis is rarely suspected when white blood cell count is normal (WBC $\leq$10 G/L) and C-Reactive-Protein (CRP) $\leq$20mg/L. This paradigm has been investigated in the present study.
Methods: All patients with definite or possible endocarditis (according to Duke criteria) hospitalized at a Hospital between January 2009 and June 2017 were reviewed (N=354). Non-bacterial endocarditis (N=3), endocarditis previously treated by antibiotics (N=17) and sequelar endocarditis (N=2) were excluded. Cardiac device lead infection endocarditis was also excluded when the diagnosis was raised by the casing exteriorization or inflammation.
Results: Of the 354 patients, 13 (3.7%, 61±22 years) had a definite (N=8) or a possible (N=5) bacterial endocarditis with CRP value $\leq$20mg/L (median=9.3, [2.9–19.7]) and a normal WBC (median=6.3, [3.7–10.5]). Main presentation was heart failure (N=7; 54%) or stroke (N=3; 23%). Despite no history of immunodeficiency, fever was only reported in 2 patients. Trans-esophageal echocardiography (TEE) was performed because trans-thoracic echocardiography (TTE) evidenced severe valve regurgitations (N=5; 38%) or suspected vegetations (N=4; 31%). All patients had left-sided endocarditis (N=7 with native valves) associated with a severe valvular regurgitation or a paravalvular abscess in 8 patients (62%). Finally, 9 patients (69%) underwent cardiac surgery and all survived at one-year follow-up. Responsible bacterial agents were documented in 8 patients (2 Streptococci, 1 coagulase-negative Staphylococcus, 2 Corynebacterium jeikeium, 1 HACEK, 1 Coxiella burnetii and 1 Bartonella henselae) using blood cultures (N=3), serology (N=1) or, when operated on, valve culture (N=2) and/or 16S RNA (N=3).
Conclusion: Bacterial endocarditis with limited or no inflammation is rare but associated with severe valvular and paravalvular lesions. TEE may be suggested in patients admitted for heart failure or unexplained stroke when TTE is insufficient to rule out endocarditis.

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Re-classification improvement using 18F-FDG PET CT in the diagnosis of infective endocarditis over the modified Duke's criteria

C.P. Primus[1], T. Clay[2], A. Al-Khayfawee[3], K. Wong[1], R. Uppal[1], S. Das[1], S. Bhattacharyya[1], L.C. Davies[1], S. Woldman[1], L. Menezes[1]. *[1]Barts Heart Centre, London, United Kingdom; [2]University College London, London, United Kingdom; [3]University College London Hospitals, London, United Kingdom*. On behalf of Infective Endocarditis Team

Introduction: Diagnosing infective endocarditis (IE) is challenging. The modified Duke's criteria have shortcomings. ESC guidance (2015) suggest a potential role of 18F-Fluorodeoxyglucose positron emission tomography with computed tomography (PET), based on class C evidence. There is a lack of data for native valve IE (NVE). We sought to assess if PET improves diganostic certainty.
Methods: Dual centre retrospective study of all patients with suspected IE, from 01/2010. Patients were classified as confirmed/probable/rejected IE pre- and post-PET, with incremental benefit assessed versus actual diagnosis. This was defined by surgical specimen or Endocarditis Team (MDT) consensus at least three months following index admission. Receiver Operating Characteristic (ROC) analysis and net reclassification index (NRI) were used to assess PET diagnostic performance.
Results: PET was undertaken in 71 patients from 2010 to date; 59 since the inception of the MDT in October 2015 (male=50; mean age 60.6y (range 19–89)). At discharge, 27/39 (69%) had confirmed NVE and 21/32 (66%) confirmed prosthetic IE (PVE). 30/71 (42%) patients required surgical intervention with concomitant device extraction in 7. Whilst Staphylococcus was isolated in 30/71 (42%) patients, 22/71 (31%) were peripheral blood culture-negative.
PET sensitivity, specificity, positive and negative predictive values were 72%, 100%, 67% and 100% respectively in NVE, and 84%, 54%, 70% and 73% in PVE. Use of PET re-classified patients with probable IE by Duke's criteria to either definite or rejected IE, and did so accurately [NRI: NVE 0.291; PVE 0.233] (Table 1). Furthermore, PET highlighted 12/71 (16.9%) patients as having an alternative non-cardiac source of infection. ROC curves showed incremental benefit of PET over Duke's criteria alone (AUC 0.875 vs 0.750, p=0.003) in NVE, though no difference in PVE (AUC 0.682 vs 0.613, p=0.649) compared to discharge diagnosis (Figure 1).

Table 1. Reclassification of NVE and PVE by PET

Diagnosis by Duke's Criteria	Native valve endocarditis			Prosthetic valve endocarditis		
	Pre-PET	Post-PET	Discharge diagnosis	Pre-PET	Post-PET	Discharge diagnosis
Definite	17	27	27	14	25	21
Probable	16	3	–	14	3	–
Rejected	6	9	12	4	4	11

Net Reclassifcation Index: NVE 0.291; PVE 0.233.

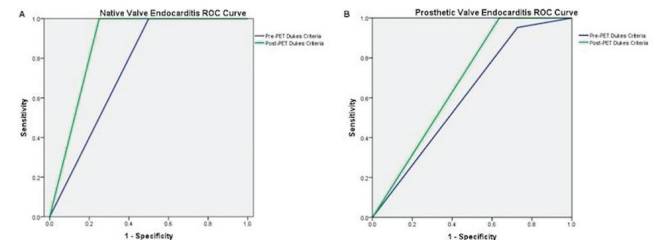Figure 1 *ROC curves for IE patients as per discharge diagnosis. Pre- and post-PET Duke's classification as definite/probable IE versus rejected* **A** *NVE (n=39) shows pre-PET AUC 0.750 vs post-PET AUC 0.875. ROC sensitivity analysis demonstrates a significant difference between pre- and post-PET curves (p=0.003)* **B** *PVE (n=32) shows pre-PET AUC 0.613 vs post-PET AUC 0.682. ROC sensitivity analysis demonstrates no significant difference between pre- and post-PET curves (p=0.649)*

Conclusion: PET has incremental value above modified Duke's criteria in diagnosing NVE and PVE, including re-classification from probable to definite or rejected IE.

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The real diagnostic accuracy of 18F-FDG PET/CT in patients with suspected cardiac implantable electronic device infective endocarditis: a meta-analysis

C. Olmos[1], C. Perez-Garcia[1], D. Garcia-Arribas[1], M.J. Perez-Castejon[2], C. Sanchez-Enrique[1], A. Jimenez-Ballve[2], A. Ortega-Candil[2], C. Fernandez-Perez[1], I. Vilacosta[1]. *[1]Hospital Clinic San Carlos, Cardiovascular Institute, Madrid, Spain; [2]Hospital Clinic San Carlos, Nuclear Medicine, Madrid, Spain*

Background and purpose: Fluor-18-fluorodeoxyglucose positron emission tomography/computed tomography (18F-FDG PET/CT) has recently emerged as a new diagnostic tool for the diagnosis of prosthetic valve infective endocarditis (IE). Different studies have evaluated the yield of this technique in the assessment of patients with cardiac implantable electronic devices (CIED) infections, mainly in pocket infections. However, the usefulness of this imaging tool in CIED IE is not well established.
Our aim was to systematically evaluate the diagnostic accuracy of 18F-FDG PET/CT for the diagnosis of CIED IE.
Methods: A systematic review of the literature and meta-analysis on the utility of 18F-FDG PET/CT in CIED IE were performed. The search strategy consisted of identifying studies published up to December 2017 indexed in Medline or the Web of Science. Studies identified by manually searching reference lists of retrieved studies or by reviewing abstracts from recent conference proceedings were also included. Inclusion criteria were studies that evaluated the detection of CIED infection with 18F-FDG PET. Exclusion criteria were duplicated studies, review articles or those out-dated by subsequent ones. In those studies including both pocket CIED infection and CIED IE, we only considered the diagnosis accuracy of the technique for detection of lead infection. Pooled specificity, sensitivity, positive (LR+) and negative likelihood ratios (LR-), and summary receiver operating characteristic (ROC) curve for the selected studies, were obtained.
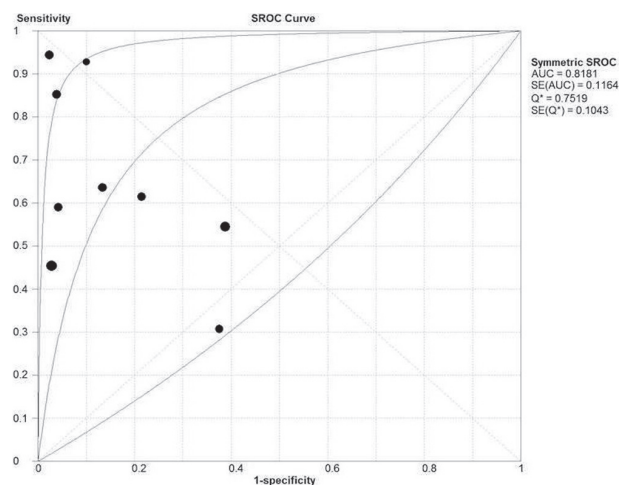
Summary ROC curve for PET/CT in CIED IE