

INTERNATIONAL SYMPOSIUM ON RADIOLOGY, NUCLEAR MEDICINE, AND DIAGNOSTIC IMAGING



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¹⁸F-FDG PET/CT impact in infective endocarditis: pilot single-centre SUV metrics and outcomes

Our ongoing retrospective study aims in clarifying the clinical impact and the quantitative standardization of 2[¹⁸F]fluoro-2-deoxy-d-glucose positron emission tomography/computed tomography (¹⁸F-FDG PET/CT) in acute/subacute IE of prosthetic (PVE) or native (NVE) valves and/or cardiac device (CD) pocket or lead infections. Referred twelve patients, aged 71±11.2y, underwent ¹⁸F-FDG PET/CT: i) eight males and three women due to clinically assumed IE: ia) 6 PVE (with echocardiography-ECHO positive in 4 and non-diagnostic in 3), all within 2-15years of prosthetic valve/CD implantation. ib) five NVE (4 with ECHO-vegetations), and ii) one male for potential Richter syndrome. Optically intense focal or multifocal FDG uptake on native/prosthetic valves or CD pocket/leads was supplemented by early and delayed maximum standardized uptake value (SUVmax) determination. Hypermetabolic focal lesions in patients with PVE and CD pocket/lead IE, were accompanied by a ratio of early SUVmax/SUVmediastinum (SUVrm) mean±SD 2.48±0.82 and in accordance with the Duke criteria, by at least 2 separate positive blood cultures.

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Staphylococcus aureus or epidermidis, Streptococcus cristatus, or Enterococcus faecalis were identified. Subacute PVE was revealed through increased glycolysis in a patient with symptomatology initially attributed to Richter transformation. Statistical analysis via t-test (paired samples) exhibited significant delayed SUV_{rm} rise (range 47-119%, $p < 0.001$) in positive cases. In conclusion, optical focal hypermetabolism coupled with a threshold SUV_{rm} of 1.82 or more, accurately detected PVE and CD pocket/lead IE. Delayed imaging significantly substantiated SUV_{max} metrics. In cases negative for IE, other sources of infection were determined. Remarkably, the incidental detection of subacute PVE resolved a diagnostic dilemma within a diverse clinical context. Overall, our results underscore the vital impact of ^{18}F -FDG PET/CT in the management of IE, clarifying dubious ECHO findings and meriting further endorsement regarding metrics.

Keywords

^{18}F -FDG PET/CT, infective endocarditis, prosthetic/native valve, cardiac device/lead

Biography

Dr. Pipitsa N. Valsamaki, is a Nuclear Physician and Assistant Professor in the Nuclear Medicine Department of the Medical School of Democritus University of Thrace (DUTH) and the University Hospital of Alexandroupolis, Greece. She also teaches in postgraduate programs and supervises theses at DUTH and in cooperation with the National and Kapodistrian University of Athens. Her extensive clinical experience encompasses the entire diagnostic and theragnostic Nuclear Medicine spectrum, with expertise on the oncological nuclear medicine domain and corresponding authorial activity of >50 articles/chapters in domestic and international medical journals or textbooks, >90 congress presentations, and 17 national/international academic awards/distinctions. Dr. Valsamaki has engaged in distinguished research projects (>22) in collaboration with esteemed colleagues and current main focus on PET/CT protocols, including funded clinical trials. She is an Advisor of the International Medical Olympicus Association, Editorial Board Member (HJNM), and reviewer (e.g. EJNMMI, ANM, JCM, IJMS) of repute.