

Long Standing Fever in Patients with Cardiovascular Prostheses ; Role of 18-Fluoro Deoxyglucose Positron Computer Tomography Combined with Computerized Tomography in Diagnosis and Management.

E.J Ouzan¹, M Klein², M Orevi², S Rosenheck¹, R Chisin², C Lotan¹, M Bocher²
¹ Heart Institute, ² Nuclear Medicine, Hadassah-Hebrew University Medical Center,
Jerusalem, Israel

Background: The diagnosis of infected prostheses in patients with long standing fever is difficult, challenging and has a major impact on the management (medical versus surgical)

Aim: Since 18-Fluoro Desoxyglucose positron emission tomography performed together with computerized tomography (FDG PET-CT) has a role in the diagnosis and localization of infection; we evaluated its value in the diagnosis of infected prostheses, correlating its results with medical workup, echocardiogram and dedicated CT.

Patients : Fourteen patients with cardiovascular prostheses (seven with a pacemaker, four with vascular grafts , two with pulmonary stent and one with a mitral valve prosthesis were hospitalized for prolonged fever.

Methods: All patients received antibiotics and underwent repeated medical workup (Blood cultures, CBC, tissue cultures). Eight of the 14 patients (pts) had a proven bacteremia. Trans-thoracic and trans-esophageal echocardiogram was performed as well as CT, for most of them. FDG PET-CT was performed in all of them, following IV injection of 370 MBq of F-18 FDG. All patients were normoglycemic at the time of injection. Results of the FDG PET-CT were compared with other diagnostic modalities and clinical follow-up.

Results: In the 7 pts with pacemaker, FDG PET-CT was positive in 4, echo in 2/4. In 3/4 the device was removed . A new pacemaker was implanted for two patients after few weeks. FDG PET was negative in 3/7 pts with 1 positive, 1 negative and 1 indeterminate echo results. All 4 pts with vascular graft had positive FDG PET-CT scan and only 1 had a positive echocardiogram. This patient had a surgical proven abscess.

Two pts with pulmonary stent had a positive FDG PET-CT and 1 positive echo. In this patient the stent that was extracted, was infected.

FDG PET-CT and echo were negative in the pt with mitral prosthesis

Conventional CT was positive in only 1 patient.

Twelve patients returned to normal including all the patients after prostheses extraction except one who died during graft replacement .

Conclusion:

FDG PET-CT is a useful tool for the diagnosis of infected cardiovascular prosthesis and is more accurate than stand alone CT. It may play an important role in the management of these very complex patients. Correlation of the clinical, echo and FDG PET-CT findings is crucial for the therapeutic (surgical vs. medical) decision.