EFFECTIVENESS OF 18F-FLUORODEOXYGLUCOSE POSITRON EMISSION TOMOGRAPHY AND T2 WEIGHTED CARDIAC MAGNETIC RESONANCE FOR EVALUATING INFLAMMATORY LEFT VENTRICULAR MYOCARDIUM IN 30 SUBJECTS WITH CLINICALLY SUSPECTED ACUTE MYOCARDITIS. COMPARISON WITH ENDOMYOCARDIAL BIOPSIES

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Authors: Koya Ozawa, Nobusada Funabashi, Hiroyuki Takaoka, Akihisa Kataoka, Masae Uehara, Yoshio Kobayashi, Chiba University Graduate School of Medicine, Chiba, Japan

Background: To compare effectiveness of 18F-fluorodeoxyglucose positron emission tomography (FDG PET) and T2 weighted and delayed enhancement (DE) cardiac magnetic resonance (CMR) with endomyocardial biopsy (EB) for evaluating inflammatory myocardium in subjects with suspected acute myocarditis (AM).

Methods: 30 consecutive subjects with suspected AM who underwent FDG PET (Advance NXi) and EB after a 6 hour fast were evaluated for inflammatory myocardium. 16 of the subjects also underwent T2W and DE CMR (1.5T Intera Achieva) for the same purpose.

Results: 4 of 30 subjects (EB and FDG PET) and 1 of 16 subjects (EB, FDG PET and CMR) had positive EB. 10 subjects had positive FDG PET, 1 subject had positive T2 weighted CMR, and 10 subjects had positive DE CMR. Sensitivity, specificity, positive and negative predictive values of FDG PET compared with EB were 75, 73, 30 and 95%, respectively (prevalence was 13.3% in EB). Sensitivity, specificity, positive and negative predictive values of T2 weighted CMR compared with EB were all 100% and were 0, 33, 0 and 83%, respectively for DE CMR (prevalence was 6.3% in EB). Kappa coefficients between FDG PET and T2 weighted CMR and FDG PET and DE CMR for detecting inflammatory myocardium were -0.12, and 0.53, respectively.

Conclusions: Even though less consistency between FDG PET and T2 weighted CMR than between FDG PET and DE CMR, individually, FDG PET and T2 weighted CMR had good but DE CMR had poor ability to detect inflammatory myocardium in subjects with suspected AM compared with EB.