

sestamibi imaging from July 2009 to December 2016 in a single center. In our center, LT candidates perform a 1-day stress/rest protocol and stress testing is performed with adenosine or regadenoson. Perfusion distribution abnormalities were quantified by a segmental model score. The endpoints were liver transplantation, all-cause death and in patients submitted to LT, perioperative complications and cardiovascular mortality.

Results: We included 144 LT candidates, mainly men (83.3%) and with a mean age of 63±8 years. The most frequent cause for end-stage liver disease was alcoholic liver disease (68.1%).

In our cohort, 24.3% patients had an abnormal MPI study, but only 3 (2.1%) had a high-risk result (area of ischemia >10%). In patients with abnormal results, the median perfusion abnormality at stress was 8.8% (IQR 4.4%; 16.2%), the median perfusion abnormality at rest was 2.9% (IQR 0%; 6.9%) and the median ischemia area was 7.4% (IQR 5.2%; 10.5%). Those with abnormal MPI test were more frequently men (97.1% vs. 78.9%, $p=0.009$) and had similar prevalence of cardiovascular risk factors (hypertension: $p=0.842$; diabetes: $p=0.153$; dyslipidemia: $p=0.517$; BMI: $p=0.472$). At stress MPI, patients with abnormal MPI test had lower left ventricular fraction ($64.6\pm 8.1\%$ vs. $72.5\pm 8.1\%$, $p<0.001$) and higher left ventricular end-diastolic volume (123.4 ± 27.0 ml vs. 96.8 ± 28.9 ml, $p<0.001$). After MPI results, 6 (4.2%) patients underwent coronary angiography and 1 (0.7%) patient underwent percutaneous coronary intervention.

After MPI, 85 (59.0%) patients undergone LT and 41 (28.5%) patients died in a median follow-up of 38 (IQR 18; 67) months. In those who undergone LT, there was a low incidence of perioperative complications (7.1%) and cardiovascular mortality (2.4%). Patients with abnormal MPI have a higher incidence of perioperative complications (18.2% vs. 3.2%, $p=0.037$).

Conclusions: This study shows that an abnormal MPI was frequent but a high-risk exam was rare in LT candidates. During follow-up, the cardiovascular mortality was low in patients submitted to LT. As expected, patients with abnormal MPI had a higher incidence of perioperative complications.

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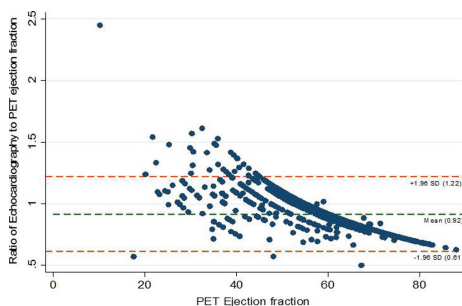
The correlation between left ventricular ejection fraction by echocardiography and positron emission tomography

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Introduction: Left ventricular ejection fraction (LVEF) can be measured using different imaging techniques. The correlation between the different LVEFs measured by different techniques is not very clear. The aim of this analysis is to assess the correlation and agreement between LVEF measured by echocardiography and positron emission tomography (PET).

Methods: We reviewed 1,047 Patients (mean age 60±11 years, 50% females) who underwent a clinically indicated PET and echocardiography within one year between 2016 and 2017. Multi-plane Simpson method was used for echocardiography LVEF assessment while PET LVEF was calculated by clinical software. Spearman's coefficient of correlation (r) was calculated and Bland-Altman plots were inspected to assess the between-agreement measurements the two modalities.

Results: LVEF calculated by PET showed moderate positive correlation with echocardiography ($r=0.57$, p -value <0.001). Additionally, the Bland-Altman plot for LVEF measured between these two modalities had good agreement. PET LVEF was underestimating echo LVEF in patients with moderate LV dysfunction (echo LVEF $<40\%$)



Bland-Altman plots

Conclusion: In patients with normal LVEF, echo and PET LVEF correlate very well. However, PET underestimates LVEF in patients with LVEF $<40\%$

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Impact of stress myocardial blood flow as an important prognostic predictor for cardiovascular mortality in hemodialysis patients

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Background: In the clinical setting, ischemic heart disease (IHD) is a major prob-

lem not only in general patients but also in regular hemodialysis (HD) patients. 13ammonia positron emission tomography (13NH3PET) is an established and excellent diagnostic device for IHD. Although coronary flow reserve is the most important index in IHD diagnosis, there are limited data about stress myocardial blood flow (stMBF). We investigated the prognosis predictability of stMBF in cardiovascular (CV).

Methods: A total 438 of HD patients who undergone 13NH3PET for suspected IHD were enrolled. All patients were undergone 13NH3PET at Nagoya Radiological Diagnosis Foundation. Patients were divided into two group according to the median value of stMBF levels; low stMBF group (≤ 2.008) and high stMBF group (> 2.008). We followed up them up to 4.2 years (median 2.4 years), and collected their data. We evaluated their cardiovascular mortality. We performed Kaplan-Meier analysis and multivariable cox regression models. Furthermore, we evaluated the incremental value with C-index, net reclassification improvement (NRI) and integrated discrimination improvement (IDI) when stMBF added into a model with established risk factors.

Result: There were intergroup difference in baseline characteristics: gender, height weight, BMI, prior CVD, diabetes and smoke status. Kaplan-Meier analysis shows statistically intergroup difference [log rank $p<0.01$, hazard ratio (HR) 3.79, 95% confidential interval (CI) 1.62–10.34]. Multivariable cox regression model for CV mortality shows stMBF is an independent risk factor ($p<0.01$, HR 6.8, 95% CI 2.5–20.8). As regarding model discrimination, all of C-index (0.74 vs 0.84, $p=0.02$), NRI (0.857, $p<0.01$) and IDI (0.11, $p<0.01$) were greatest in a predicting model with established risk factors plus stMBF.

Conclusion: The high stMBF group has better CV prognosis comparing to the low stMBF group. stMBF is an independent risk factor for CV mortality. Adding stMBF on conventional risk factors could more accurately predict CV mortality in HD patients.

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Risk stratification among diabetic patients undergoing stress myocardial perfusion imaging and the relation with systolic ventricular function and perfusion defects

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Background: The relationship between diabetes mellitus (DM) and coronary artery disease (CAD) is very well established and is commonly associated to ventricular dysfunction, with further increase in cardiac death risk. Previous researches have shown that left ventricle end diastolic volume (LVEDV), left ventricle end systolic volume (LVESV), and left ventricle ejection fraction (LVEF) are significant predictors when assessed in patients with and without DM. MPI could be selectively employed as a means for identifying silent ischemia and evaluate systolic ventricular function in the diabetic population.

Purpose: The current study aimed to evaluate whether there is a relationship between DM and systolic function and the correlations with single photon emission computed tomography-myocardial perfusion imaging (SPECT-MPI) abnormalities.

Methods: We retrospectively analyzed diabetic and non-diabetic patients treated between January 2015 and December 2017. A total of 1020 patients (580 diabetic and 440 non-diabetic) underwent SPECT-MPI with 1-d stress and resting protocol. Myocardial perfusion imaging was assessed using ECG-gated SPECT with 99mTcsestamibi. The patients underwent through treadmill exercise or pharmacological stress. We using commercially available quantitative gated and perfusion SPECT software package (Cedars Sinai Medical Center). The perfusion was classified as normal perfusion, moderate, important, small perfusion defects. The list mode data was reconstructed in 16-bin ECG-gated images. The LVEDV, LVESV, LVEF were expressed as the percentage.

Results: 1020 patients with SPECT-MPI were evaluated of which 62% were diabetic. LVEF $<45\%$ and ESV >70 mL were identified into high-risk and low-risk groups. The sample was constituted by 490 male and 620 female patients with a mean age of 56.2 ± 8.1 and 60 ± 6 years, respectively. The studied patients presented the following risk factors: 50.8% hypertension, 24% smoking, 31% hypercholesterolemia. The mean LVEF was $68\% \pm 9.1$ and $62\% \pm 10.1$ for diabetics and non-diabetics, respectively. The current study revealed that 28% of patients with DM had either moderate or small myocardial perfusion defects and LVEF less 50%, and 72% had normal MPI results.

Conclusion: DM significantly affects measured systolic function in patients without a previous myocardial infarction, independently from myocardial perfusion parameters. Our study supports the importance of DM as an independent risk factor for deterioration of systolic function.