sion tomography provides important information on the extent and severity of myocardial perfusion abnormalities, including myocardial ischemia. The aim of the present study was to investigate the relation between the fractional flow reserve measured after DES implantation and pharmacological stress MPI.
Methods: A total of 112 patients (mean age 64 years, 70% men, 123 DESs) underwent coronary pressure measurement at maximum hyperemia after successful DES implantation. We divided those cases into two groups; adequate FFR group (FFR >0.80 just after DES, N=98) and inadequate FFR group (FFR <0.80, N=14). We analyzed the pull back data of pressure recordings both before and after procedures. We determined whether DES implantation therapy improved ischemic burden as evaluated using pharmacological stress MPI before procedure and after 2 weeks.
Results: The mean post stent percent diameter stenosis was 12±5% in the inadequate-FFR group and 18±3% in the adequate-FFR group. Left anterior descending coronary artery lesions were more frequent in the inadequate-FFR group than in the adequate-FFR group. The mean stent length was greater in the inadequate-FFR group than in the adequate-FFR group (37±20 vs 28±14 mm). Patients of two groups had similar pretreatment stress MPI results (%ischemic myocardium; 16.0% vs 17.2%). On the 2-weeks MPS, significant ischemia reduction was noted in both groups; however, the reduction in percent ischemic myocardium was greater in the adequate-FFR group than the inadequate group. (%ischemia myocardium; 9.1% vs 5.8%), and none of the adequate patients and 4 of the inadequate group had >10% ischemic burden. All patients were followed up for major cardiac events. Follow-up lasted more than 24 months. Hard cardiac events were observed in 2 pts. None of them had <10% ischemic burden detected by MPI. In multivariate analysis, the ischemic burden >10% in the inadequate FFR group was the only independent predictor for hard cardiac events.
Conclusions: Although DES implantation reduced significantly the extent of ischemia burden demonstrated non-invasive MPI, the inducible ischemic burden more than 10% was independently associated with cardiac hard events in patients with insufficient FFR after DES Implantation.

P4702
Clinical and angiographic predictors of discordance between myocardial perfusion scintigraphy and fractional flow reserve

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Introduction: Functional tests are important tools to select patients to myocardial revascularization. Discordance between invasive and non-invasive functional tests leads to unnecessary costs and risks. The knowledge of variables that could predict discordant tests may improve its selection to each patient.
Purpose: To evaluate if there is any clinical or angiographic predictors capable to better identify patients with discordant myocardial ischemia evaluation using myocardial perfusion scyntigraphy (MPS) and fractional flow reserve (FFR), in patients with known coronary artery disease (CAD).
Methods: Retrospective analysis from a prospective data bank. We included patients with known CAD, submitted to FFR and MPS in up to 3-month interval. As exclusion criteria, percutaneous coronary intervention (PCI) or coronary artery bypass grafting (CABG) in the meantime from MPS to FFR. Continuous variables were compared in the two groups (patients with concordant versus discordant tests) using Student's t-test and Mann-Whitney U test, as appropriate. Categorical variables were expressed as the absolute number and relative frequency, and comparisons of the two groups were performed with the Chi-square or Fisher's exact test as indicated. In a multivariable model, with logistic regression analysis, discordant tests were the dependent variable, and clinical and angiographic characteristics were the independent variables.
Results: We studied 51 patients, and found concordant tests in 72,5%. In patients with discordant tests, 78,6% were composed by negative MPS with positive FFR. Univariate model and the adjusted model are described (table 1).

Table 1

	Concordant tests (n=37)	Discordant tests (n=14)	95% CI	Univariate p	Adjusted p
Age (years ± SD)	65.70±9.37	62.07±13.14	-2.99 to 10.25	0.27	0.32
Male (%)	62.2	92.9	-0.71 to 4.20	0.05	0.62
Smoking (%)	16.2	7.1	-3.13 to 1.29	0.41	0.43
Diabetes (%)	37.8	33.3	-0,74 to 1,73	0.43	0.81
Previous PCI (%)	32.4	50	-2,70 to 0,59	0.20	0.44
Previous CABG (%)	2.7	14.3	-0.69 to 4.28	0.15	0.12
Left main disease (%)	21.6	21.4	-1.50 to 1.48	0.98	0.31
Three vessel disease (%)	27.0	42.9	-0.5 to 1.98	0.28	0.69
Ischemic burden in patients with ischemic MPS (%)	8	8	-0.85–4.77	0.13	0.61

95% CI: 95% confidence interval.

Conclusions: In our population, clinical and angiographic variables were not able to predict discordance between MPS and FFR myocardial ischemia evaluation. Prospective studies with larger samples are needed to investigate our hypothesis.

P4703
Impaired myocardial perfusion is associated with increasing left ventricular mass in patients with non-ischaemic systolic heart failure: a cross-sectional study using Rubidium-82 PET/CT

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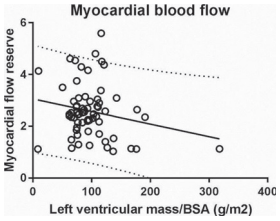
Introduction: Myocardial flow reserve (MFR, stress/rest myocardial blood flow) is a strong marker of myocardial vasomotor function. MFR is impaired in patients with pathologic concentric left ventricular (LV) hypertrophy but not in athletes with physiological LV hypertrophy. MFR is a predictor of adverse cardiac events and poorer prognosis in patients with non-ischaemic systolic heart failure, of which most have dilated cardiomyopathy with eccentric hypertrophy. To our knowledge it has not previously been investigated whether there is an association between the severity of increasing LV mass and MFR in these patients.
Purpose: We investigated whether MFR were associated with increasing LV mass in patients with non-ischaemic systolic heart failure.
Methods: Patients were scanned with Rubidium-82 (82Rb) positron emission tomography (PET)/computed tomography (CT) at rest and adenosine-induced stress to obtain the MFR as a myocardial perfusion measure; 69 patients with known LV mass from Magnetic Resonance Imaging were included. To account for differences in body surface area (BSA) we used the LV mass index (LVMI): LV mass/BSA (g/m^2). Multiple regression analyses were performed to identify factors associated with MFR.
Results: Median age in our 69 patients was 61 years (54–67 years) and 32% were women. Median LV ejection fraction was 26% (21–31%) and 81% had idiopathic heart failure. Patients were fully up titrated in guideline recommended heart failure medications: ACE-inhibitors or ARBs 99%, Beta blockers 97% and Aldosterone receptor antagonists 70%. In total 48% were treated with cardiac resynchronisation therapy. In our patients, 59% had increased LVMI, corresponding to 62% of the men (with LVMI >85 g/m^2) and 55% of the women (with LVMI >81 g/m^2). Mean MFR in our patients was 2.57 (2.33–2.81). MFR decreased significantly with increasing LVMI (estimate -2.9%/10g/m^2; 95% confidence interval [CI] -5.2 to -0.5; P=0.02) (Figure 1). This relationship remained significant when controlling for sex, age, hypertension, diabetes, N-terminal pro-brain natriuretic peptide, body mass index, LV bundle branch block, LV ejection fraction, LV end diastolic volume, atrial fibrillation during scan, increase in heart rate from rest to stress and coronary calcium score (estimate -5.8%/10g/m^2; 95% CI -11.0 to -0.2; P=0.04).



Conclusions: Impaired MFR was significantly associated with LVMI in patients with non-ischaemic systolic heart failure assessed by 82Rb-PET/CT. Preventing further development of hypertrophy in this patient group may improve prognosis.
Funding Acknowledgements: The Danish Heart Association, Uni. Cph, Arvid Nilsson's F., Grosserer Valdemar Foersom's F., Cabinetmaker Sophus Jacobsen's F., Fraenkel's Memory F.

CHRONIC HEART FAILURE – PATHOPHYSIOLOGY AND MECHANISMS

P4704
Exercise echocardiography or cardiopulmonary exercise test to detect pre-clinical heart failure with preserved ejection fraction?

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Background: Diagnosis of heart failure with preserved ejection fraction (HFpEF) is complex, especially in its earlier, pre-clinical stage. Stress tests have been suggested as possible tools to improve the diagnosis of HFpEF, albeit with contrasting and debated evidences.
Purpose: To evaluate the diagnostic performance of stress tests in consecutive ambulatory patients evaluated for exertional breathlessness.
Methods: Retrospective analysis of data in patients with unexplained dyspnea who underwent 1) echocardiography at rest and 2) exercise echo combined with cardiopulmonary exercise test (CPET). Diastolic function at rest and at exercise