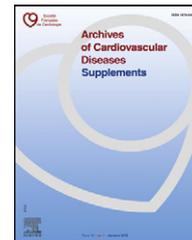




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Topic 4. Ischemic heart disease, stress-echo, pericardium, emergency

Thursday, June 13, 2019—15h45 – 16h30

Poster n° 17

Coronary reserve in Dobutamine stress echocardiography: Feasibility study and determination of a pathological threshold for myocardial ischemia in the LAD territory

C. Deguillard^{1,*}, P. Garçon²

¹ Service Physiologie explorations fonctionnelles, CHU Henri-Mondor, Creteil, France

² Service Cardiologie, Groupe Hospitalier Paris Saint-Joseph, Paris, France

* Corresponding author.

E-mail address: c.deguillard@gmail.com (C. Deguillard)

Introduction The evaluation of the coronary flow velocity reserve (CFVR) in the left anterior descending coronary artery (LAD) during a Dobutamine stress echocardiography (DSE) is few realized in current practice. A threshold < 2 would be in favor of myocardial ischemia according to some studies. The main purposes of this study are to analyze the feasibility of the CFVR and to search for a pathological threshold in order to make it a complementary tool in the non-invasive detection for myocardial ischemia in the LAD territory.

Method One hundred and ninety-six consecutive patients referred for detection of myocardial ischemia with contrast-enhanced DSE were evaluated in the GHPSJ from July 2017 to July 2018. CFVR was calculated as a ratio of the distal LAD diastolic peak velocity at rest and peak of stress. The result of the echocardiography was rendered only on the analysis of wall motion abnormalities as a standard reference.

Results The feasibility of CFVR is 94.9%. The pathological threshold of CFVR is ≤ 2.1 (sensitivity of 84.2%, specificity of 70%). The CFVR is altered at 1.87 ± 0.52 in the positive DSE in the LAD territory vs. 2.67 ± 0.91 in the normal ones ($P < 0.001$). No significant difference was found between the diabetic and non-diabetic populations ($P = 0.194$).

Conclusion The coronary reserve is a non-invasive feasible technique in current practice, sensitive, allowing to add a quantitative criterion to the detection of a myocardial ischemia during a DSE even in non-echogenic patients who needed contrast agent. (Figure 1, Cut off value of CFVR).

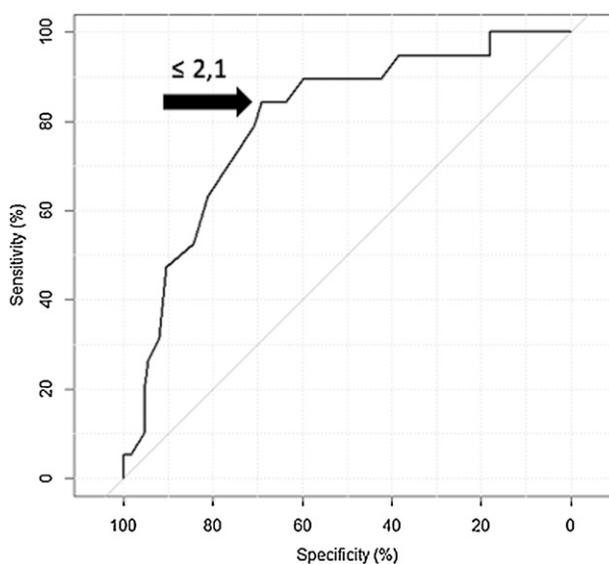


Figure 1 Cut off value of CFVR.

Disclosure of interest The authors have not supplied their declaration of competing interest.

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Poster n° 18

Evaluation of right ventricular contractile reserve with exercise stress echocardiography

A. Missana, M. Azzolini-Jacquin, C. David, D. Baudouy, B. Sartre, C. Sanfiorenzo, C. Wehrin, M. Sermesant, E. Ferrari, P. Mocerì*

Service Cardiologie, CHU de Nice, Nice, France

* Corresponding author.

E-mail address: mocerip@chu-nice.fr (P. Mocerì)

Introduction Right ventricular (RV) contractile reserve reflects the ability of RV to adapt to elevated afterload. RV functional response to exercise is challenging but could represent an important prognostic factor, especially in pulmonary arterial hypertension



(PAH) patients. We aimed, using exercise stress echocardiography (ESE), to assess different RV contractile reserve evaluation methods in a cohort of PAH patients and controls.

Method We prospectively included 12 patients with PAH and 12 healthy volunteers. An ESE (using tilt-table ergometer) was performed in all patients to assess RV function at rest and under peak exercise. Changes in these parameters during exercise were calculated to quantify the RV contractile reserve. 3D RV function as well as peak systolic strain, pulmonary pressures, TAPSE, pulmonary VTI and pulmonary output (using the right ventricular outflow tract diameter) were assessed in all patients.

Results Our patient group was composed by PAH patients, 52 ± 11 years; mean age of our control group was 31 ± 6 years. PAH patients achieved an exercise with a mean workload of 70 ± 26.4 Watts. There was no complication after the exercise test in all patients. Change in TAPSE was not significantly different between patients and controls ($P=0.17$), whereas change in pulmonary VTI, pulmonary output and RV peak systolic strain was highly discriminant (respectively $P=0.03$, $P=0.009$ and $P=0.0009$). Regarding RV contractile reserve parameters, RV end-systolic pressure area ratio (peak/rest) was not statistically different between controls and patients ($P=0.14$) whereas change in TAPSE/sPAP, RV peak strain/sPAP, 3D RV EF/sPAP were significantly different ($P=0.005$, $P=0.0008$, $P=0.0004$).

Conclusion Changes in pulmonary output, RV peak systolic strain as well as changes in TAPSE/sPAP but mainly RV peak strain/sPAP, 3D RV EF/sPAP represent consistent and feasible tools to assess RV contractile reserve.

Disclosure of interest Financement partiel/bourse UCA "Le Coeur Numérique".

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Poster n°21

Carotid intima-media thickness as a predictor of significant coronary artery disease in patients with NSTEMI-ACS

F. Boukerche*, N. Laredj, L. Hammou
Centre hospitalo universitaire d'Oran, Oran, Algérie
* Corresponding author.

E-mail address: boukerche.farouk@yahoo.fr (F. Boukerche)

Introduction The carotid intima-media thickness have been used as surrogate end-points for evaluating the regression and/or progression of atherosclerotic cardiovascular disease, but their predictive value in acute coronary artery disease is inconclusive. The aim of this study was to evaluate the ability of the carotid intima-media thickness to predict significant coronary artery disease in patients with NSTEMI-ACS.

Method Patients admitted for NSTEMI-ACS and indication for coronary angiography were prospectively evaluated. Severe coronary artery disease was defined as the presence of stenosis > 70% of at least one major epicardial coronary artery or any of their major branches. A ROC curve was developed to define the carotid intima-media thickness cut-off that best predicts significant coronary artery disease.

Results A total of 296 patients were evaluated: mean age was 62 ± 12 years and 58% were male. Two hundred and eighteen

(73.6%) patients had significant coronary disease. Carotid intima-media thickness measurement in these patients was significantly higher than in those without significant coronary artery disease (0.87 ± 0.14 mm vs. 0.75 ± 0.13 mm; $P < 10^{-3}$). Carotid intima-media thickness > 0.82 mm showed a sensitivity of 58.7%, specificity of 76.6%. The area under the ROC curve was 0.73 (95% confidence interval of 0.67–0.79).

Conclusion Carotid intima-media thickness > 0.82 mm had a good specificity to predict significant coronary disease in patients with NSTEMI-ACS. Considering its low cost and ease of use, its measurement may be incorporated to help in the assessment and stratification of NSTEMI-ACS patients for certain categories.

Disclosure of interest The authors declare that they have no competing interest

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Poster n°22

Evaluation of changes of global longitudinal strain in patients with coronary artery disease after PCI

K. Chbini*, W. Belkhou, D. Benzeroual
Cardiologie, CHU Mohamed VI, Marrakech, Maroc

* Corresponding author.

E-mail address: kaoutarechbini@gmail.com (K. Chbini)

Introduction Recovering blood flow to a coronary stenosis may improve left ventricular (LV) function in patients with coronary artery disease (CAD). However, the reported data about evaluation of LV function post-percutaneous coronary intervention (PCI) in CAD was limited.

Objectives Purpose of this study was to determine the change in parameters of global longitudinal strain (GLS) in patients with CAD underwent PCI, and to compare the LV function measured by ejection fraction (EF) and global longitudinal strain.

Method We enrolled Patients with CAD who underwent elective PCI. Echocardiographic measurements of LV function by EF as well as by 2D speckle tracking to assess global longitudinal strain were performed in all patients within 24 hours pre- and post-PCI procedure and 1 week later. The LV global longitudinal peak strain average (GLPS-Avg) was calculated from 18 segments measurement.

Results The study included (57.2 ± 6.8 years old). Means of GLPS-Avg pre-, 24 hours and one week post-PCI were $-9.58 \pm 3.74\%$ and $-10.43 \pm 4.36\%$ and 16.79 ± 4.98 respectively. Means of EF pre-, 24 hours and one week post-PCI were $42.3 \pm 10.1\%$ and $44.5 \pm 11.08\%$ and $47.85 \pm 11.79\%$, respectively. The improvement of LV function was more significant statistically when it was measured by GLPS-Avg ($P < 0.0001$) than that of EF ($P < 0.001$). The improvement of GLPS-Avg was correlated with target vessel revascularization involving left anterior descending artery.

Conclusion Recovery of left ventricular function post-revascularization of coronary artery disease could be detected earlier by either ejection fraction or global longitudinal strain measurements; however the latter is more accurate. Improvement of GLPS is correlated moderately with target vessel revascularisation involving left anterior descending artery.

Disclosure of interest The authors have not supplied their declaration of competing interest

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