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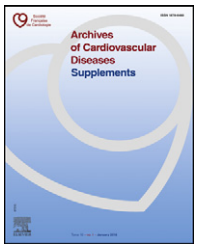

Topic 3. Cardiomyopathies, heart failure, athletes, hypertension

Friday, June 14, 2019 - 10h00—11h00

Poster n°29

Left ventricular myocardial deformation pattern, mechanical dispersion and their relation with ecg markers in the large population-based stanislas cohort: Insights into electro-mechanical coupling

O. Huttin[1,*], V. Mario[2], C. Stefano[3], S.S. Christine[1], B. Erwan[1], V. Clement[1], R. Patrick[1], G. Nicolas[1]

[1] *PH, CHU de Nancy - hopitaux de Brabois, Nancy, France*

[2] *PH, CHUV, Lyon, France*

[3] *PH, Université de Pérouse, Pérouse, Italie*

* *Corresponding author.*

E-mail address: olivierhuttin@gmail.com (O. Huttin)

Introduction Background: Mechanical alterations in patients with electrical conduction abnormalities are reported to have prognostic value in patients with left ventricular asynchrony or long QT syndrome beyond ECG variables. Whether conduction and repolarization patterns derived from ECG are associated with speckle tracking echocardiography (STE) parameters in patients without overt disease has not been previously investigated. To report ranges of longitudinal deformation according to conduction and repolarization values in a population-based cohort.

Method In total, 1140 subjects (48.6 ± 14.0 years,) enrolled in the STANISLAS cohort were studied. Echocardiography with layer-specific strain was performed in all subjects. RR, PR, QRS and QT intervals were retrieved from digitalized twelve-lead ECG. Echocardiographic data were stratified according to quartiles of QRS and QTc duration values.

Results Full-wall peak longitudinal strain (PLS) was −21.1% ± 2.5% with a mechanical dispersion value of 33.6 ± 11.7ms. Absolute PLS value was lower in the longest QRS quartile and shortest QTc quartile (both $P < 0.001$). Time-to-peak of strain was not significantly different according to QRS duration although significantly higher in patients with higher QTc ($P < 0.001$). Mechanical dispersion was significantly greater in patients with longer QTc (32.45 ± 11.68 ms for QTc < 396 ms versus 35.88 ± 11.94 ms for QTc > 421ms; $P = 0.002$).

Conclusion QTc is associated with variations in normal values of the deformation pattern of longitudinal systolic strain such that mechanical dispersion and QTc-specific normal values should preferentially be used. In a population-based setting, QRS is not associated with mechanical dispersion suggesting that echocardiography-based dyssynchrony does not largely overlap with ECG-based dyssynchrony.

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

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June 14th, Friday 2019

Poster n°30

Effects of Patisiran, an RNA Interference Therapeutic, on Regional Left Ventricular Myocardial Deformation in Hereditary Transthyretin Amyloidosis: The APOLLO Study

M. Slama

Service Cardiologie, Hôpital Bichat, Paris, France

E-mail address: prmslama@gmail.com

Introduction Cardiac amyloidosis patients demonstrate reduced myocardial strain with relative sparing of the cardiac apex. in APOLLO patisiran reduced NT-proBNP and left ventricular (LV) wall thickness and improved global longitudinal strain (GLS) relative to PBO in patients with hereditary transthyretin mediated (hATTR) amyloidosis.

Method An exploratory analysis from APOLLO, a randomized double-blind, PBO-controlled Ph3 trial in h ATTR amyloidosis with polyneuropathy, assessed effects of patisiran on LV regional strain. Patients were randomized 2:1 to receive 0.3 mg/kg patisiran or PBO via IV infusion once every 3 weeks for 18 months. The prespecified cardiac subpopulation ($n = 126$) comprised patients with baseline LV wall thickness ≥ 13 mm and no history of hypertension or aortic valve disease. Patient underwent two-dimensional and speckle tracking echocardiography.

Results At baseline, average strain was lowest in the basal segments with apical sparing. Patisiran reduced GLS (LSM difference ± SE; −1.36 ± 0.56%, $P = 0.014$) compared with PBO at 18

months, with the greatest reduction in LV strain was observed in the basal region, (overall LSM difference −2.08 ± 0.75%, $P = 0.006$), and no significant differences in the mid and apical regions among groups (Figure 1).

Conclusion Patisiran improved LV GLS driven primarily by improvements in the basal region, suggesting that basal regional longitudinal strain may be a more sensitive marker to evaluate treatments for the cardiomyopathy in hATTR amyloidosis (Figure 1: Least-squares mean change in LV longitudinal strain from baseline at 18 months).

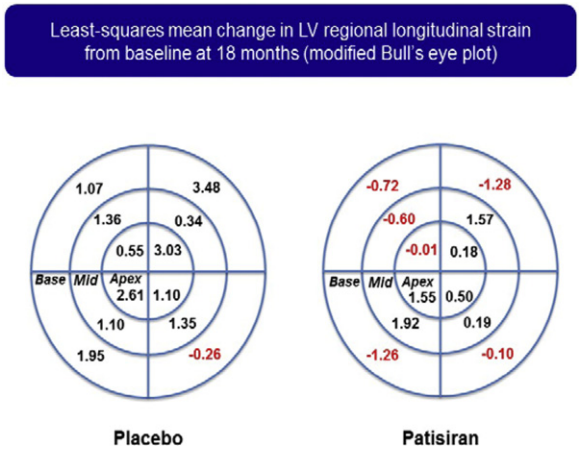

Figure 1

1 introduction Disclosure of interest

The authors have not supplied their declaration of competing interest.

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Poster n°31

Exercise left ventricular outflow track obstruction in hypertrophic cardiomyopathy: Peak exercise or post-exercise pressure gradients?

Y. Nahmani*[,1], N. Hammoudi[2], F. Huang[2], N. Bouziri[2], F. Pousset[2], C. Maupain[2], P. Charron[2], R. Isnard[2]
[1] *CHI André Gregoire, 93100 Montreuil, France*
[2] *Hopital La Pitié Salpetriere, 75013 Paris, France*
* *Corresponding author.*
E-mail address: yoram-nahmani@hotmail.fr (Y. Nahmani)

Introduction Left ventricular outflow track obstruction (LVOTO) is a key feature of hypertrophic cardiomyopathy (HCM). Exercise echocardiography is necessary to unmask latent obstruction in patients with HCM. However, little is known about the role and impact of obstruction according to the precise time of occurrence during exercise or immediate recovery. We hypothesized that LVOT pressure gradients could be enhanced during immediate recovery after exercise compared to peak exercise in patients with HCM.

Method We conducted an observational, single center and retrospective study and included all the patients with HCM referred to our department between 2010 and 2018 for an exercise echocardiography. All exercises were performed on a bicycle in a semi-supine position and LVOT pressure gradient were recorded continuously during and immediately after exercise in the same position.

Results In total, 121 patients with HCM were included (age 49 ± 16 y, 64% male, 59% NYHA 2 and 3, LV ejection fraction 66 ± 7%, max LV wall thickness 19 ± 5 mm, 69% receiving betablockers). Overall, the maximal LVOT gradients increased from rest, to peak exercise and recovery (respectively 17 ± 18, 39 ± 43 and 55 ± 60 mmHg, $P < 0{,}0001$). Sixty-three patients (52%) had a gradient ≥ 30 mmHg at least in one phase, but a maximal gradient ≥ 50 mmHg (threshold for invasive treatment) was observed in 7% of the population at rest, 25% at peak exercise and 37% at recovery ($P < 0.001$). Finally, a maximal gradient ≥ 50 mmHg was recorded only during immediate recovery (69 ± 25 mmHg) and not during exercise in 16 patients (13%).

Conclusion The time course of significant LVOTO during exercise in HCM should be evaluated carefully. LVOTO is more severe and more prevalent during immediate recovery. Some patients exhibit only significant post-exercise LVOT pressure gradients, which therefore cannot explain limitation during exercise.

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

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Poster n°32

A natural history of carcinoid heart disease in the modern management era

E. Baron[1,*], C. Szymanski[1], C. Lepère[2], H. Mustafic[1], O. Dubourg[1], N. Mansencal[1]
[1] *Service Cardiologie, Hôpital Ambroise-Paré, Boulogne-Billancourt, France*
[2] *Service Cancérologie oncologie, Hôpital européen Georges-Pompidou, Paris, France*
* *Corresponding author.*
E-mail address: emiliebaron01@gmail.com (E. Baron)

Introduction The development of carcinoid heart disease (CaHD) is still relatively unknown at present. It is difficult to define an optimal follow-up for patients initially free from cardiac involvement. The aim of this study was to assess the prevalence and the evolution of CaHD using annual echocardiographic follow-up.

Method We reviewed from our database 137 patients (61 ± 12 years, 53% men) with histologically proven neuroendocrine tumor between 1997 and 2017. All patients underwent serial conventional transthoracic echocardiographic studies. Right-sided and left-sided CaHD were systematically assessed. We used a previous validated echocardiographic scoring system of severity for the assessment of CHD. An increase of 25% of the score was considered as significant.

Results Mean follow-up was 2.6 ± 3.5 years [0;16]. Prevalence of CaHD was 27% (37 pts) at baseline and 36% (49 pts) at the end of follow-up. Among patients with initial CaHD followed for more than one year, disease progression was observed in 28% of cases. Among the patients free from initial cardiac involvement, an onset of the disease was observed during follow-up in 21% of cases. The onset of CHD could be very late, more than 5 years from the initial echocardiographic examination in 42% of our cases (Figure 1). This late occurrence of CaHD was only observed in patients presenting with new resumption of neuroendocrine tumor (symptoms, increased of 5-HIAA, occurrence of new metastasis).

Conclusion Our study demonstrated that in patients without initial CaHD, cardiac involvement may occur tardily after a normal initial assessment. Our data suggest the need for prolonged echocardiographic follow-up in patients presenting with a resumption of tumor process (Figure 1).