

Results.— When compared to controls, pts with AS had higher baseline LAD flow velocity (37 ± 10 vs. 28 ± 9 cm/s, $P < 0.05$), similar hyperemic LAD flow velocity (84 ± 20 vs. 85 ± 21 , $P = \text{NS}$), and consequently lower CFR (2.35 ± 0.68 vs. 3.2 ± 0.8 , $P < 0.01$). In pts with AS, there was a significant inverse correlation between CFR and age ($r = -0.33$), E/Ea (early diastolic transmitral flow velocity/early diastolic mitral tissue Doppler annular velocity), LV mass/m², NT-proBNP ($r = -0.45$), pulmonary artery systolic pressure (PASP), baseline LV rate-pressure product (LVPP) [(mean gradient + systolic blood pressure) \times heart rate], heart rate, and left atrial volume/m² (LAV) (all, $P < 0.05$), and a significant positive correlation between CFR and LVEF, and deceleration time of E (all, $P < 0.05$). The correlation between CFR and Z was of borderline significance. Furthermore, compared to asymptomatic AS pts ($n = 10$), symptomatic AS pts had a more severely impaired CFR (2.2 ± 0.6 vs. 2.76 ± 0.8 , $P < 0.05$), higher baseline and lower hyperemic LAD flow velocities (all, $P < 0.05$), and higher NT-proBNP values ($P = 0.01$). In multivariate analysis, after adjusting for AS severity, NT-proBNP was the main independent predictor of CFR ($P < 0.01$), and among echographic variables, PASP and LVPP (all, $P < 0.01$). PASP was independently predicted by age, DTE and LAV (all, $P \leq 0.01$).

Conclusion.— In patients with severe AS and preserved LVEF, there is a relatively wide range of CFR values. CFR is more severely impaired in symptomatic AS pts and is mainly determined by increased LV wall stress and workload, and diastolic dysfunction.

doi:10.1016/j.acvd.2011.03.069

Echocardiographic predictors of mitral regurgitation following percutaneous balloon mitral valvulotomy

I. Saaidi, K. Selmi, A. Mokaddem, M.-R. Boujnah
Hopital Mongi Slim, La Marsa, Tunisia

Introduction.— Percutaneous balloon mitral valvulotomy (PBMV) in rheumatic mitral stenosis is effective. However, complications such as severe mitral regurgitation (MR) may occur. Therefore, it is justified to predict the occurrence of this complication.

Objectives.— This study was undertaken to evaluate the morphology of the mitral valve and the subvalvular apparatus as assessed by echocardiography and its role in predicting the occurrence of MR after PBMV with the Inoue balloon.

Methods.— Three hundred and thirty patients who underwent 356 PBMV were evaluated retrospectively. MR occurred in 22 procedures (6.1%). We have compared the 22 patients who developed MR to 128 patients without MR or with mild to moderate MR. The morphology of the mitral apparatus on the baseline echograms was assessed: valvular mobility, thickening and calcification, commissural morphology, subvalvular thickening and heterogeneity of lesions distribution. Both Wilkins and Padial scores were calculated.

Results.— Echocardiographic predictors of severe MR were grade 2 MR (odds ratio = 6), Wilkins score (9.8 ± 2.9 vs 8.1 ± 2.5 ; $P = 0.004$) with a cut-off point of 10 (odds-ratio = 3), Padial score (12 ± 1.6 vs 8.8 ± 1.5 ; $P < 0.001$) with a cut-off point of 10 (odds-ratio = 28), heterogeneity of lesions distribution in the anterior mitral leaflet

thickening and calcification were unable to predict severe MR. The mechanism of severe MR was valvular tear in the most thin zones as assessed on echocardiography.

Conclusion.— Commissural calcification rather than valve calcification and the heterogeneity of lesions distribution rather than their severity are strong predictors of severe MR following PBMV. The Padial score based on these criteria has supplanted the Wilkins score in predicting this complication.

doi:10.1016/j.acvd.2011.03.070

Valvular heart disease associated with benfluorex therapy: Results from the French multicentre registry

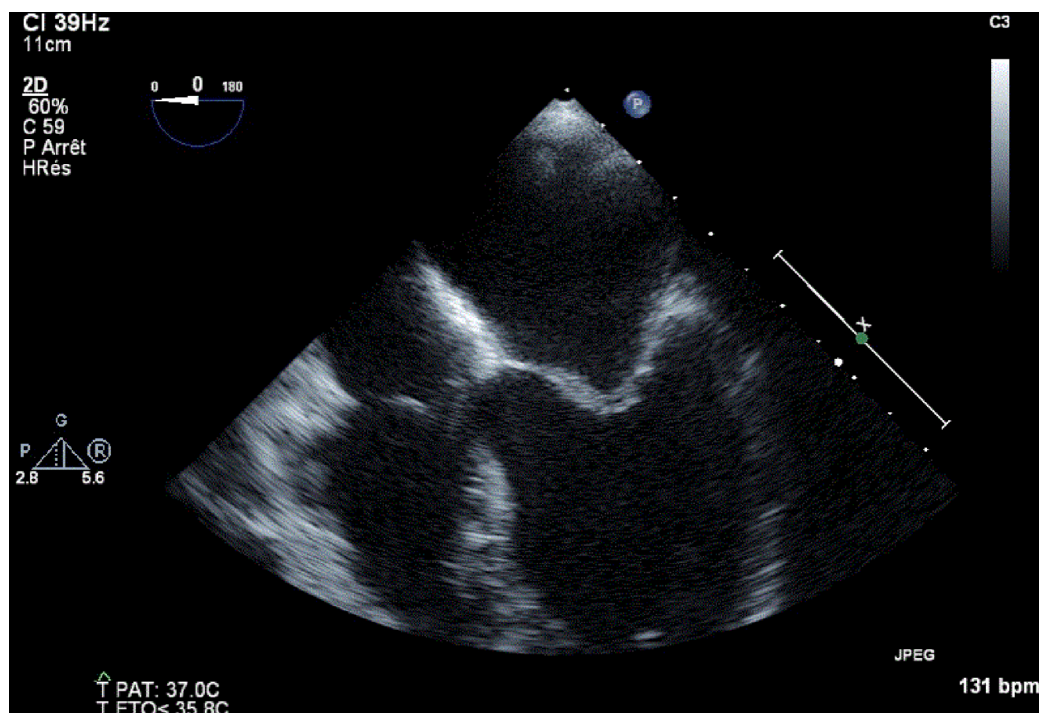
F. le Ven^a, C. Tribouilloy^b, G. Habib^c, J.-P. Gueffet^d, S. Maréchaux^e, J.-C. Eicher^f, B. Blanchard-Lemoine^g, J. Rousseau^h, P. Hénon^b, Y. Jobic^a, Y. Étienne^a^a Service de cardiologie, CHU de Brest, Brest, France^b Service de cardiologie, CHU Sud, Amiens, France^c Service de cardiologie, CHU La Timone, Marseille, France^d Service de cardiologie, CHU de Nantes, Nantes, France^e Hôpital cardiologique, Lille, France^f Service de cardiologie, CHU Le Bocage, Dijon, France^g Service de cardiologie, hôpital Bichat, Paris, France^h Centre cardiologique du Nord, Saint-Denis, France

Aim.— The aim of this study is to report clinical characteristics, consequences, echocardiographic features, and pathological findings encountered in patients suffering from valvular disease associated with benfluorex exposure in a multicentre French registry.

Methods.— Forty patients suffering from unexplained restrictive valvular disease with a previous exposition to benfluorex, a fenfluramine derivative, were identified from eight French university hospitals.

Results.— Patients were mostly women (87.5%) with a mean age of 57 ± 9 years and high body mass index of 30 ± 7 kg/m²; 37.5% of them presented with severe heart failure symptoms (NYHA class III and IV). Benfluorex mean daily dose was 415 ± 131 mg with total therapy duration of 72 ± 53 months. Resulting cumulative dose was 910 ± 675 g. Common echocardiographic findings were leaflets and subvalvular apparatus thickening and retraction. Aortic and mitral valve regurgitations resulting from leaflets loss of coaptation were the most frequent findings (87.5 and 82.5%) and were severe in 29 patients (72.5%). Multiple valve involvements were present in 31 cases (77.5%). Pulmonary arterial hypertension was identified in 20 cases (50%). Histopathological examination demonstrated abundant extracellular matrix encasing the leaflets without modification of valve architecture. Fifteen patients (37.5%) underwent valvular surgery.

Conclusion.— Benfluorex-related valvulopathy shares numerous characteristics with other drug-induced valvular disease. Clinical consequences may be serious with severe heart failure symptoms that may lead to surgical treatment.



doi:10.1016/j.acvd.2011.03.071

Valvular disease associated with benfluorex: Prevalence and echocardiographic features

A. Boudes, J.-F. Avierinos, A. Salem, C. Lavoute, Y. le Dolley, G. Habib

La Timone, Marseille, France

Background and objectives.— Restrictive valvular heart disease has recently been reported in patients after benfluorex exposure. However, little is known about its prevalence and echocardiographic features. The aim of our study was to assess the prevalence of benfluorex exposure in patients with restrictive mitral or aortic valve disease and to describe their echocardiographic characteristics.

Methods.— In a single center study, patients with a final diagnosis of unexplained restrictive aortic and/or mitral valvular disease were studied. Only patients with at least moderate valvular regurgitation were included. All echocardiographic records were analysed by two experienced observers. Patients were interrogated for their previous use of benfluorex or other appetite-suppressant drugs.

Results.— Sixty-eight consecutive patients, aged 58 ± 9 years, with restrictive aortic and/or mitral valvular disease were studied, including 63 (93%) women. Among them, 54 (82%) had had previous treatment with appetite-suppressant drugs, including benfluorex alone in 19 (28%) patients, or in combination with another appetite-suppressant drug, mainly dexfenfluramine, in the remaining cases. Among patients with both mitral and aortic involvement, 39 (97%) had been exposed to benfluorex, isolated ($n=14$) or in combination with another appetite-suppressant drug ($n=25$). Echocardiographic features included combined mitral and aortic regurgitation with restricted valve motion in 40 (59%) cases, and isolated mitral or aortic involvement in 5 and 12 patients, respectively.

Conclusion.— The prevalence of appetite-suppressant drugs exposure is very high in patients with left heart restrictive valvular regurgitation. Multiple drugs exposure is frequent in these patients. Combined aortic and mitral restrictive valve regurgitation is highly suggestive of valvulopathy associated with benfluorex or other appetite-suppressant drug valve disease.

doi:10.1016/j.acvd.2011.03.072

Evaluation of right ventricular function in patients with organic mitral regurgitation

G. Deswarte^a, C. Vanesson^a, A.-S. Polge^a, M. Richardson^a, A. Vincentelli^a, P.-V. Ennezat^a, C. Bauters^a, C. Foucher^b, T. le Tourneau^c

^a Hôpital cardiologique, Lille, France

^b Hôpital Salengro, Lille, France

^c Institut du thorax, Nantes, France

Objectives.— The aim of this study was to assess right ventricular (RV) ejection fraction (EF) and its determinants in patients with organic mitral regurgitation (MR) by radionuclide angiography.

Methods.— Two-hundred eight patients (62 ± 13 years, 135 males) with moderate to severe organic MR underwent an echocardiographic examination and left and right ventricular assessment by radionuclide angiography. The left ventricle (LV) was divided into 9 regions to assess regional LV function.

Results.— Mean RV EF was $40 \pm 10\%$, ranging from 10 to 65%. One hundred fifty-one patients were in sinus rhythm, and 57 patients (27%) in atrial fibrillation. Tricuspid annulus S wave velocity measured in a subset of patients ($n=92$) correlated weakly with RV EF ($r=0.27$, $P=0.018$). Fifty-nine patients (28%) had a RV EF $< 35\%$. Patients with RV EF $< 35\%$ had lower systolic blood pressure ($P=0.045$), larger RV ($P=0.007$), higher pulmonary artery systolic pressure (PASP, $P=0.045$) and had more diuretics ($P=0.009$) compared with those with RV EF $> 35\%$. In univariate analysis, echocardiographic predictors of RVEF were LVEF ($r=0.33$, $P<0.0001$), LV end-diastolic diameter ($r=-0.26$, $P=0.001$) and volume ($r=-0.29$, $P=0.001$), left atrial size ($r=-0.22$, $P=0.003$), mitral E velocity ($r=-0.29$, $P<0.0001$), PASP ($r=-0.22$, $P=0.004$), and aortic stroke volume ($r=0.31$, $P=0.007$). In the subset of patients with effective regurgitant orifice (ERO) and regurgitant volume quantification RV EF correlated with ERO ($r=-0.34$, $P=0.005$) and regurgitant volume ($r=-0.33$, $P=0.008$). RV EF correlated closely with radionuclide LV septal function (regional LV EF 8: $r=0.49$, $P<0.0001$). In multivariate analysis, LV septal function ($r=0.43$, $P<0.0001$) was the main determinant of RV function. LV end-diastolic diameter ($r=-0.25$, $P<0.0001$) and PASP ($r=-0.18$, $P=0.009$) were also independent predictors of RVEF.