Echocardiographic EF (%) 71

S. Kralev1, T. Ayybek2, K. K. Haase1, A. Mortiz2. 1University Hospital of baseline), deformation parameters (eps, SR) were significant decreased in patients apical segments were found, e and SR could be expressed as mean values for the aortic valve surgery. The control group consisted of 31 age-matched subjects with LV end-diastolic diameter (mm) 48 ±65% in whom coronary artery disease has been ruled out damage and disease progression in patients with aortic regurgitation.

Methods: Aortic valve morphology was assessed by transthoracic echocardiography in 282 subjects (162 M,120 W), > 60 years old. Aortic sclerosis was graded as light-medium (group B=49 pts.) and medium-severe (group C=66pts.) according to the degree of valve aterations. Aortic stenosis was represented by group D (126) and controls by group A (49 pts). We also analysed the lipid profile (the plasmatic level of cholesteral, LDLc, HDLc and triglycerides), the inflammatory profile (V3, the plasmatic level of the C reactive protein and fibrinogen), the presence of arterial hypertension, diabetes, body mass index and smoking history. The carotid atherosclerosis has been evaluated by Duplex echography made bilateral at the level of common carotid artery and bifurcation.

Results: CRP and fibrinogen is significantly increased in aterated aortic morphology groups (B,C,D) regardless the degree of lesions (groups A-C: p<0.001 for fibrinogen and for CRP; groups A-D: p<0.01 for fibrinogen and for CRP. High level of cholesterol (p<0.01 for A-C analysis and A-D analysis), LDLc (p<0.05 for both A-C and A-D analysis), triglycerides (p<0.05 for A-C and p<0.05 for A-D analysis), arterial hypertension (p<0.001 for both A-C and A-D analysis), smoking (p<0.001 for A-C and A-D analysis). The carotid score has been significantly increases in all groups with aortic stenosis or sclerosis compared to controls (p<0.001) and it seems to be corelated with the degree of the lesions in the ateric groups (r=0.77).

Conclusions: Aortic stenosis and valvular aortic sclerosis share common atherosclerotic, inflammatory risk factors (increased level of cholesterol, triglyceride, C-reptive protein, fibrinogen) and clinical conditions (history of hypertension, smokin). Transartic flow velocity is increased in aortic sclerosis and gradient increases in aortic stenosis. These data suggest that aortic stenosis and aortic sclerosis represent different stages of the same atherosclerotic-like process involving the aortic leaflets. Association of these valvular lesions with carotid atherosclerosis is another argument for this isopysis.

Regional myocardial function in patients with chronic severe aortic regurgitation before and after aortic valve surgery. T. Poerren1, A. Miskovic1, C. Stiller2, C. Kohl1, B. Goebel1, T. Geiger1, S. Kralev1, T. Ayybek1, K. K. Haase1, A. Mortiz2. 1University Hospital of Mannheim, 1st Dept. of Medicine, Mannheim, Germany; 2University Hospital of Frankfurt/Main, Dept. of Cardiovascular Surgery, Frankfurt/Main, Germany

Background: Preload-dependent ejection phase indices overestimate myocardial function in patients with chronic aortic regurgitation (AR). Tissue Doppler - derived strain rate imaging (SR) enables quantification of left ventricular (LV) regional function by assessing myocardial deformation.

Aim of the study was to determine the influence of AR-induced volume overload on regional myocardial function using SRI before and after aortic valve surgery.

Methods: Twenty-one patients aged 47 ±10 years with isolated chronic AR and ejection fraction (EF) >55% in whom coronary artery disease has been ruled out underwent transthoracic high-frame SRI before and 3 ±7 days after successful aortic valve surgery. The control group consisted of 31 age-matched subjects with normal coronary angigrams and LV function. Long-axis SRI measurements with a dedicated software included: peak systolic velocity (Vp), peak systolic strain (eps) and mean systolic strain rate (SR). As no significant differences between basal and apical segments were found, e and SR could be expressed as mean values for the whole LV.

Results: As displayed in the table (Mean ± SD. ‘t’ < 0.05 vs. controls, ‘p’ < 0.05 vs. baseline), deformation parameters (eps, SR) were significantly decreased in patients with AR compared to the control group and showed no further changes after aortic valve replacement (17 patients) or reconstruction (4 patients).

Conclusions: All patients with severe AR presented with significant long-axis systolic regional dysfunction despite normal values for ejection fraction and myocordial systolic velocities. (2) Postoperative changes in LV diameter and EF reflect various clinical conditions and not of the myocardial contractility. (3) Analysis of regional deformation by SRI is a valuable tool to assess functional myocardial damage and disease progression in patients with aortic regurgitation.

Echocardiography during treadmill exercise testing in pulmonary artery systolic pressure evaluation. C. Cotrim1, I. João1, P. Cordeiro1, M. Loureiro1, G. Simões2, N. Mendes3, M. Oliveira4, M. Carrageata4. 1Hospital Garcia de Orta, Cardiology, Setúbal, Portugal; 2Cardiology, Almada, Portugal; 3Cardiology, Almada, Portugal; 4Cardiology, Almada, Portugal

Introduction: Pulmonary artery systolic pressure (PASP) evaluation at rest, using Doppler echocardiography (determined from the pressure gradient between the right ventricle and the right atrium - RV/RAg), or using right heart catheterization is very useful in the assessment of disease severity as well as its prognosis.

Objectives: The aim of our study was the non-invasive assessment of the RV/RAg - using continuous wave Doppler during dynamic exercise testing in patients with tricuspid regurgitation and without coronary artery disease.

Methods: From a total of 25 patients (pts) referred to our echo laboratory we completed the study in 31 pts (88%), 22 women mean aged 55±10 years (39 to 70 years). We studied 17 pts with mitral valve stenosis (EKG: sinus rhythm), 7 pts with mitral mechanical prosthesis, 3 pts with aortic valve stenosis and 4 pts with aortic mechanical prosthesis. We determined the RV/RAg - using continuous wave Doppler – in left lateral decubitus (LLD) before exercise testing, in standing position (SP) and at peak workload (PW) before treadmill exercise testing termination (modified Bruce protocol). All imaging was recorded in VCR.

Results: The RV/RAg in LLD was 36,6±14,7 mmHg (range 14 to 74), the SP RV/RAg was 30±11 mmHg (range 18 to 62): p<0.001 vs LLD RV/RAg, the PW RV/RAg was 57±18,7 mmHg (range 34 to 130): p<0.001 vs SP RV/RAg. When comparing the 17 pts with mitral valve stenosis (MS), mean aged 51±8 years, to the 14 non-mitrval valve stenosis (NMS) pts, mean aged 60±10 years, p<0.01, we verified that though MS pts are younger they had higher values for LLD RV/RAg = 42,1±10,9 mmHg, SP RV/RAg = 33,6±11,3 mmHg and PW RV/RAg = 65±20 mdmmHg than NMS in which LLD RV/RAg = 29,6±10,1 mmHg (p<0,01 vs MS group), SP RV/RAg = 26,6±6,5 mmHg (p<0.03 vs MS group) and PW RV/RAg = 46,4±8,4 mmHg (p<0.02 vs MS group). Stress testing duration averaged 506±206 seconds in the MS group and 606±211 seconds in the NMS group, p<NS. The stress echocardiography results in MS pts were used to aid in therapeutic decision.

Conclusions: 1. Echocardiography during treadmill exercise testing was possible in a great percentage of pts. 2. The RV/RAg decreases considerably in response to the standing position. 3. The RV/RAg rises considerably with exercise and more noticeably in MS pts. 4. The authors think that this method can be a valuable tool in patient assessment and helps correlation and therapeutic guidance of heart disease patients with tricuspid regurgitation.

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