E/Vp ratio 1.6±0.05 1.8±0.05 0.03
End-diastolic volume index (ml/m²) 46.3±14.0 51.6±15.5 0.05
Ejection fraction (%) 51.8±7.2 45.9±8.7 <0.002
Wall motion index 1.6±0.0 1.9±0.03 <0.0001

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Importance of echocardiography in early assessment and follow up in surgically treated patients with ventricular septal defect after acute myocardial infarction
L.I. Jovovic 1; L.V. Trkulja 1; M.R. Tomovic 1; S. Trajci 1; S. Nastasic 1; L. Angelkovic 1; B. Djukanovic 1
1Clinic Cardiovascular Institute, Cardiac Ultrasound Dept, Belgrade, Serbia and Montenegro

Objective: Rupture of the left ventricular wall (VDI) in patients with acute myocardial infarction (MI) is severe and often life threatening complication. The aim of the study was to assess the risk of early surgical treatment in this group of patients, outcome and long term prognosis using echocardiography and clinical data.

Material and methods: Clinical and echocardiographic parameters were assessed in 14/17 patients operated due to VDI which was confirmed by echocardiography and angiography before the operation (11 men; 3 women, mean age 63.2±7.9). The following clinical parameters were analyzed: NYHA class, heart rate (HR), blood pressure (BP), cardiac rhythm, ECG. The following echocardiographic parameters were measured: left atrium diameter (LA), end-diastolic (EDD), and end-systolic (ESD), left ventricle diameter, ejection fraction (EF), severity of mitral (MF) and tricuspid (TR) regurgitation. The pressure gradient on the site of VDI and systolic pressure of the right ventricle (RVSP) were also measured.

Results: All patients were in NYHA III class, in sinus rhythm with average heart rate 86±18/min. LA and LV diameters were normal and average EF assessed by Simpson was decreased (32.9±7.5%). In 6 patients with inferior MI, VDI was located in the basal segment of the inferior LV wall, in 4 patients with anteroseptal MI at the site of interventricular septum and in 4 patients with anterolateral MI at the site of ventriculo septal and in 4 patients at the posterior wall of the LV. All patients had significant left-to-right shunt whereas in 2 patients right-to-left shunt also existed. Pressure gradient at the site of VDI and systolic pressure of the right ventricle (RVSP) were also measured.

Conclusion: Patients with VDI after acute MI could be successfully surgically treated with good as well as long term prognosis. However, these are high risk patients, in our study group surgical intervention was found to be justified and efficient treatment with good results. Echocardiography as non-invasive technique is a method of choice for early assessment for precise localization of the ruptured site and haemodynamic parameters as well as for early and late postoperative follow up.

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NT-proBNP in differentiation of normal and pseudonormal mitral flow in ischemic heart disease
K. Wita 1; A. Rybicka-Musialik 1; Z. Tabor 1; M. Nowak 1; J. Krauze 1; A. Drezwicka-Gerber 1; B. Nowak-Jez 1; M. Turski 1; M. Dekleva 1
1Silesian Medical School, 1st Department of Cardiology, Katowice, Poland

Echocardiographic assessment of LV diastolic function is important in settings of objective signs of heart failure in patients with preserved LV systolic function. Diagnosis of moderate diastolic dysfunction (DD) with pseudonormalization feature is difficult.

The aim of this study was to assess NT-proBNP diagnostic value for diagnosis of DD and differentiation of normal and pseudonormal mitral flow.

Methods: Among 83 consecutive patients/pets with angiographically documented coronary artery disease and LVEF >45% the normal mitral flow (E/A 1) was defined as E/A >2 or E/A >2, E wave was found in 40 pts (age 56±10 years, 33 males). In 32 of them the inflow from right superior pulmonary vein (RSPV) was normal (S/D >1, A<35 cm/s/group) and in 8 pts it was found to be pseudonormalized /groups B/. NT-proBNP was assessed in all pts.

Results: LVEF was similar in both groups. In group B NT-proBNP levels were significantly higher (734±586 mg/ml vs 167±100; p<0.001) than in group A. Based on the ROC curve the best discriminative value was >323 mg/ml (AUC 0.83, sensitivity 63%, specificity 97%, accuracy 85%, PPV 63%, NPV 90%).

Conclusions: In ischemic heart disease with preserved LV systolic function and normal mitral flow NT-proBNP may be helpful in selection of patients with isolated diastolic dysfunction and pseudonormal pattern of mitral flow.

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Relationship between N-terminal pro brain natriuretic peptide and ventricular function in patients with non-ST-elevation acute coronary syndromes
M. Trivić 1; F. Botto 1; G. Dall Asta 1; M. Moriya 1; D. Araokai 1; A. Pereia 1; G. Sanchez 1
1Instituto Cardiovascular de De As, Cardiology Dept., Buenos Aires, Argentina
Increased levels of N-terminal pro brain natriuretic peptide (NT-proBNP) in non-ST segment elevation acute coronary syndromes (NSTE-ACS) have been related to elevated ventricular filling pressures due to myocardial ischemia, even on patients without heart failure. Analysis of echocardiographic parameters may be useful to show any relationship between NT-proBNP elevation with systolic and/or diastolic ventricular function.

Objectives: to detect any association between NT-proBNP and ventricular systolic and/or diastolic dysfunction in NSTE-ACS patients without heart failure.

Methods: 70 NSTE-ACS patients (age=61±12 years, 60% men) without prior or in-hospital heart failure underwent transthoracic Doppler-echo and tissue Doppler (mural and tricuspid annulus and basal segments of left ventricle) within 24 hours from last chest pain episode onset and within 1 hour of blood sampling. Doppler-echo was performed according to standard guidelines, and the ratio between early diastolic mitral inflow velocity (E) and early diastolic mitral annular velocity (E’) was calculated (E/E’).

NT-proBNP levels >80 pg/ml were considered elevated. ROC analysis was performed for ventricular flow cut-off values for patients without heart failure. Linear and logistic regression analysis were performed including the Doppler-echo parameters, and then including clinical, biochemical and ultrasonic variables.

Results: 40 patients (57%) had elevated NT-proBNP levels associated to elevated NT-proBNP were left ventricular ejection fraction (LVEF, mean=0.56±0.11, p=0.002), fractional shortening (p=0.02), wall motion score index (p=0.048), LV mass (p=0.02), left atrial diameter (p=0.042), A mitral regurgitation (p=0.044), systolic mitral annular velocity (p=0.02), E’ (p=0.001) and E/E’ (p=0.044). Multivariable analysis showed that the independent predictors of NT-proBNP elevated were LVEF<55% (OR=6.78, 95% CI 1.65-27.75, p=0.008) and E’ velocity (OR=5.46, 95% CI 1.68-17.72, p=0.005). Including other clinical and biochemical variables in the model, both ultrasonic and clinical variables persisted as independent predictors.

Conclusion: In patients with non-ST-segment elevation acute coronary syndromes, the increase in NT-proBNP levels is associated to both systolic and diastolic left ventricular dysfunction, even on patients without heart failure.

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Factors determining left ventricular remodeling in patients with acute myocardial infarction after primary PCI
K. Wita 1; M. Nowak 1; A. Rybicka-Musialik 1; Z. Tabor 1; A. Drezwicka-Gerber 1; B. Nowak-Jez 1; M. Turski 1; M. Dekleva 1; V. Celic 1; B. Pencic 1; N. Radivojevic 1; S. Jelic 1
1Silesian Medical School, 1st Department of Cardiology, Katowice, Poland

Background: Fast and full restoration of infarct related artery patency did not mean achievement of tissue perfusion influencing remodeling process, adversely affecting left ventricular function.

Aim: Aim of the study was to assess frequency, prognostic value and factors determining unfavorable remodeling.

Material and methods: Consecutive 90 pts with first, only anterior wall myocardial infarction undergoing successful primary PCI were prospectively enrolled. Angiographic parameters: Rentrop scale, MBG, proximity of occlusion, echocardiographic: maximal ST segment elevation from single lead, sum of ST segment elevations, related to elevated ventricular filling pressures due to myocardial ischemia, reduction of at least 50% of ST segment elevations 1hour after PCI. The next day echocardiographic assessment of left ventricular ejection fraction (LVEF), end-diastolic volume (LVEDV), perfusion contrast imaging to determine regional perfusion score index /RPSI/ were performed.

Results: High correlation was found for maximum CK-MB and LVEDV at day 30 and 180 (p=0.71 and r=0.82). According to LVEDV increase >20% at 6-month follow-up study population was divided to group A (52 pts) without unfavorable remodeling and group B 38 pts with it. Group A baseline LVEDV was 105.8 ml, group B 106 ml (p=ns), and RCS1 1.49 and 0.85 respectively (p<0.001). At 6-months group A LVEDV decreased to 99.1, and in group B 106 ml (p=ns), and RCSI 1.49 and 0.85 respectively (p<0.001).

Conclusions: Despite therapy according to current guidelines remodeling is present in significant proportion of pts with anterior MI. Among many established and well known electrocardiographic, angiographic and biochemical indices myocardial contrast echocardiography was found to have the highest remodeling prediction power.

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Role of myocardin performance index in prediction of postinfarction remodeling process
M. Dekleva 1; V. Celic 1; B. Pencic 1; N. Radivojevic 1; S. Jelic 1
1University Clinical Center Dr D.Misovic, Echocardiography Dept., Belgrade, Serbia and Montenegro

Myocardial performance index (MPI) is clinically relevant measurement of global LV function in patients with coronary heart disease. LV remodeling...