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Prognostic implications of cTnI elevation after elective percutaneous interventions on left ventricular function in prospective, one-year follow-up study.
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Aim of the study: to assess the incidence of cTnI elevation after elective PCI, with and without stent insertion, and to examine the impact of minor myocardial injury on clinical and echocardiographic data in one-year follow-up study.

Methods: A total of 90 pts who underwent elective PCI were included into the prospective study. Serum levels of cTnI were measured before, 12 and 24 hours after procedure, by the use of immunoassay (OPUS, Dade-Behring), cut-off point corresponding to Q-waves and 160 were not related to Q-waves. VS and DVS among dysfunctional regions with and without Q waves on surface electrocardiogram were measured. A total of 81 patients underwent electrocardiography at rest and pulsed-wave tissue Doppler imaging at rest and during low-dose dobutamine infusion. LV was divided into 4 major regions (anterior, inferoposterior, septal, and lateral).

Findings: A total of 220 (69%) regions were dysfunctional; 60 of these regions observed.

Our aim was to assess role of wide spectrum of echocardiographic parameters in prediction of combined cardiac events (death, myocardial infarction or exacerbation of heart failure) and cardiac deaths in 18-months follow-up in 60 subjects after myocardial infarction.

Methods: We assessed classic two-dimensional and Doppler parameters, pulmonal vein flow, propagation of mitral waves and mitral annulus motion by pulsed tissue Doppler. After follow-up period combined endpoints and deaths were registered and on basis of cut-off values found by ROC analysis Kaplan-Meier survival curves were compared.

Results: The greatest accuracy for detection of patients with combined endpoint showed: left atrium (LA) > 44 mm, area under curve (AUC) 0.909, ejection fraction (EF) below or equal 34%, AUC 0.784, left ventricular (LV) > 51 mm, AUC 0.811 and systolic dimensions (LVs) > 43 mm, AUC 0.798, early deceleration time (EDt) below 130 ms, AUC 0.811 and delta of atrial reversal and atrial wave of mitral inflow duration (delta At) > 23, AUC 0.781. For all above cut-off values comparison of survival curves revealed highly significant difference with p<0.001. Relative risk and 95% confidence intervals for combined endpoint are shown in table 1. For Edt below 130 ms and delta At above 23 ms all patients experienced combined endpoint.

Multivariate analysis revealed only one independent predictor of both combined endpoint and deaths: LA dimension with cut-off values above 44 mm for combined endpoint (p=0.001) and above 46 mm for deaths (p=0.004).

Conclusions: In our study subjects after myocardial infarction and without significant valvular insufficiency left atrium diameter emerged as the best predictor of both combined cardiac endpoint and death.

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Natriuretic peptides and myocardial function in chronic heart failure.
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Aim: Natriuretic peptide (ANP) and brain natriuretic peptide (BNP) belong to the important humoral substances that reflect the severity of chronic heart failure.

We compared the patients with high and low levels of pro-ANP and BNP in the correlation with the haemodynamics, function of left and right ventricles.

Study population: 155 patients with chronic heart failure, ejection fraction of left ventricle (EF LK) below 40%, NYHA II-IV, mean age 51.8±8.8 years, 20 women, 60 men, coronary artery disease (CAD) 86, dilative cardiomyopathy (DCMP) 69.

Methods: Echocardiography with evaluation of left ventricle dimensions, volumes and ejection fraction, tissue Doppler imaging (TDI) of tricuspid annulus motion with measurements of systolic velocity (Sa), early diastolic (Ea) and atrial diastolic velocities (Aa), right heart catherization with measurement of mean pulmonary arterial pressure (MPAP), pulmonary capillary wedge pressure (PCWP), central venous pressure (CVP), and pulmonary vascular resistance (PVR).

Pro-ANP and BNP levels were measured by ELISA method.

Median pro-ANP was 4.43 nmol/l, median BNP 288 ng/l. Group A had pro-ANP>4.43 nmol/l, group B<4.43 nmol/l. Group A had higher BNP level > 288 ng/l and group B< 288 ng/l.

Results: Patients with higher pro-ANP group A had higher systolic and diastolic diameters of LV, 71.0±7.1 vs 67.5±8.9 mm, p<0.05 and 60.4±7.2 vs 65.6±9.9 mm, p<0.05, lower EF of left ventricle 22.0±5.9 vs 29.1±5.8%, p<0.02 and lower Sa (which reflects the right ventricular function) 10.6±2.3 vs 11.4±2.2 cm/s, p<0.014. On the contrary the values of right heart catherization were much higher in group A: MPAP 33.3±11.7 vs 21.6±7.2 mmHg, p<0.0005, PCWP 23.0±9.3 vs 14.7±9.0 mmHg, p<0.0005, PVR 207.5±150.2 vs 139.9±9.3 dyn.s.cm-5, p<0.011. Patients with high BNP group A showed larger left ventricular systolic diameter (LVd Edt)<130 ms, delta At>23 ms, which reflects the left ventricular function.

Conclusions: Natriuretic peptides reflect the severity of heart failure, their levels are higher in patients with marked pulmonary hypertension, decreased ejection fraction of left ventricle and they are more increased when dysfunction of both ventricles is present.

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Quantification of regional left ventricular function in Q-wave and non-Q-wave dysfunctional regions by tissue Doppler imaging in patients with ischaemic cardiomyopathy.
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Objective: To quantify regional myocardial function and contractile reserve in Q-wave and non-Q-wave dysfunctional regions in patients with previous myocardial infarction and depressed left ventricular (LV) function.

Methods: A total of 51 patients underwent echocardiography at rest and pulsed-wave tissue Doppler imaging at rest and during low-dose dobutamine infusion. LV was divided into 4 major regions (anterior, inferoposterior, septal, and lateral). Severely hypokinetic, akinetic, and dyskinetic regions on 2D echocardiography at rest were considered dysfunctional. Regional myocardial systolic velocity (VS) at rest and the change in VS during low dose dobutamine infusion (DVS) in dysfunctional regions with and without Q waves on surface electrocardiogram were measured.

Results: A total of 220 (69%) regions were dysfunctional; 60 of these regions corresponded to Q-waves and 160 were not related to Q-waves. VS and DVS were lower in dysfunctional than in non-dysfunctional regions [VS 6.2±1.9 cm/s vs. 7.1±1.7 cm/s (p<0.001); DVS 1.9±1.9 cm/s vs. 2.6±2.5 cm/s (p=0.009), respectively]. There were no significant differences in VS and DVS among dysfunctional regions with and without Q waves (Q-wave regions: VS 6.2±1.8 cm/s, DVS 1.6±2.2 cm/s; non-Q-wave regions: VS 6.3±1.9 cm/s, DVS 2.0±2.6 cm/s) (see Figure).

Conclusions: Q waves on the electrocardiogram do not indicate more severe dysfunction, and contractile reserve is comparable in Q-wave and non-Q-wave myocardial dysfunction. Hence, in patients with LV dysfunction due to chronic coronary artery disease, non-invasive testing for the assessment of viability should be performed irrespective of the presence of Q waves.