Isolated elevation of cardiac troponin is associated with better prognosis of non-ST segment elevation myocardial infarction

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Purpose: We sought to evaluate the effect of isolated elevation of cTn on short-term outcomes of NSTEMI patients with long-standing (>10 years) and/or complicated type II DM but no established CAD were included. In addition to DSE, venous blood samples for measurement of hs-cTnT were collected prior to DSE. 6H and 24 hours after the test. Troponins were deemed positive if >1.5 upper limit for normality. Patients with positive troponins were evaluated for the presence of coronary lesions but none of them had significant disease.

Methods: From Oct 2010 to Oct 2013, 3799 patients with NSTEMI were enrolled on a national multicenter registry. These patients were divided in 2 groups: BM+: elevation of cTn and other biomarkers of myocardial injury (n=2445); BM-: elevation of cTn without rise in the other biomarkers (n=948). The endpoints included in-hospital all-cause mortality and a composite endpoint of death, re-infarction, heart failure (Killip class >2) and resuscitated cardiac arrest during hospitalization. Logistic regression modeling was used to compute adjusted odds ratios of death and of the composite endpoint.

Results: The BM- patients were younger (66±12 vs. 68±13, p<0.001), more likely to have undergone previous percutaneous coronary intervention (18.6% vs. 15.1%, p=0.013) and had higher baseline values of low-density lipoprotein-cholesterol (114±39 vs. 111±39, p=0.03). Multivessel disease was more frequent in BM+ patients (58.1% vs. 53.5%, p=0.026). Patients with BM- had lower incidence of heart failure (8.4% vs. 20.8% with Killip class >1, p=0.001), left ventricular dysfunction (10.4% vs. 18.4% with left ventricular ejection fraction <40%, p<0.001) and the composite endpoint (5.1% vs. 11.9%, p<0.001). In-hospital all-cause mortality was more common in those BM+ (3.0% vs. 0.7%, p<0.001). In a multivariable model, no significant association was found between BM- and in-hospital all-cause mortality (OR: 0.568, 95% CI: 0.127-2.549, p=0.461). Isolated elevation of cTn was associated with lower incidence of the composite endpoint (OR: 0.474, 95% CI: 0.312-0.722, p<0.001).

Conclusion: In this observational nationwide study, patients with isolated cTn elevation showed a better short-term prognosis than those with elevation of all biomarkers of myocardial injury. The higher sensitivity of cTn might be associated with less myocardial damage and therefore fewer complications.

Uselessness of high-sensitivity cardiac troponins to improve diagnostic accuracy of dobutamine stress echocardiography in high-risk diabetic patients

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Background and aim: Dobutamine stress echocardiography (DSE) is a well-established noninvasive stress modality for the detection and evaluation of coronary artery disease in diabetic patients. High-sensitivity cardiac troponin T recently emerged as a highly sensitive dosage for the detection of coronary artery disease in diabetic patients. The aim of the study was to examine whether high-sensitivity cardiac troponin T may improve the diagnostic accuracy of silent ischemia by DSE in high-risk diabetic patients.

Methods and results: 21 patients with long-standing (>10 years) and/or complicated type II DM but no established CAD were included. In addition to DSE, venous blood samples for measurement of hs-cTnT and were collected prior to DSE. 6H and 24 hours after the test. Troponins were deemed positive if >1.5 upper limit for normality. Patients with positive troponins underwent coronary angiography or CT scan regardless of the result of DSE. Among the 21 patients, 7 had positive troponins measured 6 hours after stress, (mean peak troponin=44.5). DSE were negative in all of them. Mean age was 64 years significantly higher than patients with negative troponins. No differences were noted between the groups in terms of epidemiological, clinical or echocardiographic characteristics. Patients with positive cardiac troponins were evaluated for the presence of coronary lesions but none of them had significant disease.

Stent thrombosis is a serious, although rare, complication of percutaneous coronary interventions (PCI). Some data from randomized trials indicate a higher risk for drug-eluting stents (DES) thrombosis. Furthermore, it has been shown that the most powerful histological predictor of stent thrombosis was endothelial coverage and that reendothelialization was delayed after implantation of first-generation DES compared with baremetal stents (BMS) as from the first month after PCI. We do not have yet simple blood test biomarkers that could reflect the ongoing process of stent reendothelialization. MicroRNAs are small, endogenous, noncoding RNAs, easily detectable in plasma, involved in a variety of cellular processes via suppression of specific target mRNAs and could be such biomarkers. Some of them have been linked to endothelial function and reendothelialization in animal or in vitro studies. We hypothesized that the expression of certain microRNAs was informative of stent endothelialization. We therefore sought beforehand to determine whether stent type and stent length could influence the expression of candidate microRNAs in human peripheral blood. Between July 2008 and December 2013, all patients who underwent coronary angioplasty in our centre were asked to attend a systematic consultation one month after revascularization for blood sampling. Sixty patients with a single-vessel disease meeting over twenty clinical, biological, echocardiographic and angiographic criteria were selected: 30 with a BMS and 30 with a DES, with a balanced ratio of short (≤15mm) and long (>15mm) stents in each group. Twenty eight microRNAs were chosen based on a review of literature. Their expression was measured using qRT-PCR in plasma samples collected at one month. Levels were normalized to cel-mir-39 and compared between the two groups of patients. The results are currently under analysis (table next page).

Acute coronary syndrome complicated with left ventricular diastolic dysfunction: what is the contribution of brain natriuretic peptide?

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Background: The utility of Brain Natriuretic Peptide (BNP) for detecting left ventricular (LV) diastolic dysfunction in patients presenting an acute coronary syndrome without heart failure symptoms is unclear. In this study, we investigated the relation between BNP plasma levels and LV diastolic dysfunction in patients with postmyocardial infarction without systolic dysfunction.

Methods: We studied 81 patients (12 women, mean age 55±11.79) admitted in our center for myocardial infarction with or without ST segment elevation. Patients with heart failure symptoms or abnormal systolic function were excluded. LV diastolic function was assessed with conventional Doppler, by means of mitral inflow and with tissue Doppler echocardiography by means of mitral annulus. The ratio of early diastolic transmitral E wave velocities to tissue Doppler mitral annulus early diastolic E’ wave velocities (E/E’), was used to detect LV filling pressures. Patients were divided in three groups according to E/E’ ratios < 10 (group I), E/E’ ratios between 10 and 15 (group II) and E/E’ ratios > 15 (group III).