Increased cardiac troponin I in patients with end stage renal failure is related to diastolic dysfunction

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Background: Serum cardiac troponin I (cTnI) and T (cTnT) concentrations have been proposed as indicators of high specificity in diagnosis of acute cardiac events. However, serum cTnI and cTnT have also been reported to increase in patients on hemodialysis without an acute cardiac event. In this study, we investigated effects of hemodialysis on serum cTnI concentrations and the relationship between increased serum cTnI concentrations and echocardiographic parameters.

Method: Forty hemodialysis patients without acute coronary syndrome (48±14 years; 23 males and 17 females) were included in the study. Serum cTnI concentrations were determined by a physician lor all patients before and after hemodialysis. Standard Doppler parameters and DTI parameters (early diastolic wave velocity of mitral annulus [e], late diastolic wave velocity of mitral annulus velocities with pulsed Tissue Doppler (TDI) technique. Study group was composed of 40 subjects with symptomatic HF patients with diagnosed dilated cardiomyopathy (DCM) and 80 non congestive patients (n=49, IDC group) or ischemic (n= 53, ICM group). A series of 224 patients diagnosed with chronic HF were consecutively included. To participate into the study patients had to have a LV ejection fraction <45% and a history of HF. A complete echocardiographic and Doppler study, including RV variables, as tricuspid annular plane excursion (TAPSE), pulmonary artery systolic pressure (PASP) and pulsed wave TD-derived systolic and diastolic velocities at RV lateral tricuspid annulus, was performed in all patients. RV free wall was imaged and IVA measured at the base by pulsed wave TD as the ratio between peak isovolumic contraction velocity and its acceleration time. Patients were followed-up for cardiac-related death and hospitalization for worsening HF. The median follow-up was 8 months (range: 1-22).

Results: Mean LV ejection fraction was 31±5.7%. There were 15 cardiac-related deaths and 31 hospitalizations for worsening HF. At Kaplan-Meier analyses, patients with IVA <3.7 m/sec2 exhibited worse survival (p=0.004) and event-free survival (p<0.04). Survival and event-free survival were 88% and 75% in patients with IVA <3.7 m/sec2 compared to 98% and 85%, respectively. An interactive step-wise procedure, performed to assess the incremental prognostic contribution of echocardiographic and Doppler indexes to predict the combined event, showed that the addition of IVA to the model improved significantly the chi-square value (from 47.9 to 53.5) over demographics, NYHA class, LV ejection fraction, PASP and TAPSE (p<0.0001).

Conclusions: This study demonstrated that T-derived IVA is useful for prognostic stratification of patients with chronic HF due to LV systolic dysfunction. Since it is easy to obtain and very reproducible, this index may be included in the standard examination of LV function in a wide range of clinical conditions.

685 Diagnostic implications of right ventricular systolic dysfunction in patients with dilated cardiomyopathy

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Background: Unlike left ventricular (LV) function, right ventricular (RV) function has not been widely studied in ischemic patients. Evidence for the role of RV function in emerging patients with heart failure of different etiologies remains controversial.

Objectives: To investigate the diagnostic role of RV systolic dysfunction in idiopathic dilated cardiomyopathy (IDC) versus (vs.) ischemic cardiomyopathy (ICM). Methods: A series of 100 patients with idiopathic dilated cardiomyopathy (n=49, IDC group) or ischemic (n=51, ICM group) were included. Results: Right ventricular systolic function was assessed by tissue Doppler imaging (TDI) at the lateral tricuspid annulus (TAS) velocity. Ejection Fraction (EF) of both RV & LV were estimated by Simpson’s rule. All patients underwent coronary angiography. In cases of left coronary artery disease (CAD), the right coronary artery (RCA) was dilated with a 0.014" guide wire. Ventricular concordance was defined as a ≤ 10% difference between RV and LV EF.

Results: Patients with IDC and ICM had comparable LV EF (36.7±7.2 % vs 35.1±1.9%, p=0.09). There were no significant differences in RV EF between groups (p=0.11). The most intense RV systolic and diastolic dysfunction abnormalities were accompanied by LV restrictive pattern. RV free wall was imaged and IVA measured at the base by pulsed wave TD as the ratio between peak isovolumic contraction velocity and its acceleration time.