Association between Serum C-Reactive Protein on Admission and Early Left Ventricular Thrombus Formation Following First Anterior Wall Acute Myocardial Infarction

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Background:

Left ventricular thrombus (LVT) complicating first anterior myocardial infarction (AMI) can be detected as early as 24 hours from admission. Peak serum C-reactive protein (CRP) levels were previously shown to correlate with increased risk of LVT formation, probably by reflecting the inflammatory response to a damaged endocardium.

Objective:

To test the hypothesis that admission CRP levels may predict risk of early LVT formation in patients with first AMI.

Methods:

Our cohort included 210 patients admitted between January 2006 and April 2012 for first-ever diagnosed ST elevation AMI and treated with primary angioplasty. The serum CRP level was determined from blood samples taken prior to primary coronary intervention. All patients underwent an initial cardiac echocardiography on the first or second day of admission and a second echocardiography on days 5-7 of hospitalization.

Results:

Early LVT was detected on the second echocardiogram in twelve patients (12/210; 5%), six of whom displayed LVT already on their first echocardiogram. Patients with LVT had significantly higher mean serum CRP levels than those without LVT (44 mg/L vs. 9.1 mg/L, p=0.015). In addition, patients with LVT detected on both echocardiography examinations had significantly higher serum CRP levels compared with patients in whom LVT was present only in the second examination (50.8 mg/L vs. 5.7 mg/L, p= 0.027). Following adjustment to other variables and performing multiple logistic regression, the CRP level was found to be an independent predictor of LV thrombus (relative risk, 2.76; p=0.022).

Conclusions:

The admission serum CRP level is an independent predictor for early LVT complicating a first AMI.