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Association between Hemoglobin and C-Reactive Protein on Admission to Echocariogarphically Estimated Left Ventricular Filling Pressure in Patients with First Myocardial Infarction

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Introduction:

The presence of anemia, elevated C reactive protein (CRP) levels and elevated E/e' ratios, estimated on echocardiography, are associated with worse outcome in acute myocardial infarction (MI) patients. Anemia and high CRP levels reflect early inflammatory response, whereas E/e' ratio correlates well with left ventricular (LV) end diastolic pressure. We hypothesized that the early inflammatory response may contribute to LV compliance, as reflected by E/e' ratio.

Methods:

Study population included 123 consecutive patients aged 75 or less, admitted from May 2011 to September 2012 with first ST elevation MI undergoing primary angioplasty. Patients with known anemia, chronic inflammatory disease or renal failure as well as prior coronary or valvular disease were excluded. Serum hemoglobin and C-reactive protein (CRP) levels were measured on admission, and LV function was assessed by echocardiography on day 0-5 (Interquartile range 1-3)

Results:

Mean age was 55$\pm$9(range 34 -75), and 81% were male. Lower hemoglobin levels (13.6$\pm$1.2 vs. 14.5 $\pm$1.2, P=0.005) and higher serum CRP levels (24+6 vs. 10+1.6, P=0.003) were seen in patients with E/e' ratio 15. The presence of functional mitral regurgitation was also associated with lower hemoglobin (13.9+1.2 vs. 14.5 +1.2 p=0.02). Furthermore, E/e' was significantly correlated with the hemoglobin level (R^2= 0.034, P=0.04).No significant differences were found in hemoglobin and CRP levels between patients with normal or increased left atrial volume (index32cc/m^2), normal or abnormal systolic function or LV size..

Conclusions:

At the initial phase of acute MI, lower hemoglobin and high CRP are associated with acute markers of elevated left ventricular diastolic pressure. This suggests that inflammation may be related to reduced acute ventricular compliance, independently of LV systolic function