Adhesion Molecule ICAM-1, VCAM-1, e-Selectin, VEGF Correlate with Age and Troponin in ACS Patients

Arnson, Yoav[1]; Amital, Howard[2]; Itzhaky, Dganit[3]; Barak, Vivian[4]; Mosseri, Morris[1]
[1]Meir Medical Center, Cardiology, Kfar Saba, Israel; [2]Tel Hashomer, Internal Medicine, Tel Aviv, Israel; [3]Meir Medical Center, Biochemistry and Immunology Labs, Kfar Saba, Israel; [4]Hadassah-Hebrew University Medical Center, Immunology Laboratory, Jerusalem, Israel

Introduction: The aim of this study is to examine the concentrations of endothelial and vascular adhesion molecules in patients with an acute coronary disease, and to examine their corolation with age and severity of the infarct.

Methods: Blood was drawn from 50 patients presenting with ACS (either STEMI or NSTEMI) upon the first day of their arrival. ELISA was used to measure sVCAM-1, sICAM-1, e-Selectin, VEGF, IL-6, IL-8 and TNF levels. Cardiac troponin T was used to estimate severity of the infarct. The correlations between adhesion molecule levels and ACS severity was done by comparing circulating molecule levels with patient age, troponin and CRP levels using person's correlation.

Results: The patient's age was significantly correlated with higher levels of sVCAM-1 (r=0.48, p=0.001), and with reduced levels of sICAM-1 (r=-0.356), e-Selectin (r=-0.376) and VEGF (r=-0.3). Higher Troponin levels were correlated with higher e-Selectin (r=0.4), and VEGF (r=0.44). Higher CRP levels were correlated with sICAM-1 (r=0.36), and IL-6 (r=0.47).

Discussion and Conclusion: An acute coronary syndrome raises a cascade of inflammation reactions. sVCAM-1 represents the severity of atherosclerotic burden and was found to increase with age. Increased age however was correlated with a reduction in many other cellular molecules such as sICAM-1, e-Selectin and VEGF. Higher troponin levels were correlated with higher levels of e-Selectin and VEGF. These finding strengthen the evidence that inflammatory process is critical in the pathogenesis of an acute cardiac ischemia, and suggest a diminished response related with older age. These observations may have further implication in clinical practice both for understanding better ways for risk stratification and for finding novel therapeutic pathways.