Circulating Endothelial Progenitor Cells in Patients With Unstable Angina: Association With Systemic Inflammation

Hylton I. Miller, Jacob George, Emil Goldstein, Sulico Abshizada, Arik Finkelstein, Itzhak Herz, Gad Keren, Tel-Aviv Medical Center, Tel-Aviv, Israel

Background: Endothelial progenitor cells (EPC) are present in the peripheral circulation and can develop a functional endothelial phenotype. Number and function of circulating EPC is altered in atherosclerosis, diabetes, and after myocardial infarction. We studied the number (num) and adhesion properties of EPC from patients with unstable angina and no evidence of cardiac necrosis.

Methods: Pts with either unstable-angina (UA) (n=29) and no cardiac necrosis, and pts with stable-angina (SA) (n=12) with similar atherosclerotic risk factors, medication use, and coronary vessel disease. The number of circulating EPC was determined by colony-forming unit assay and their adhesive properties were determined by their capacity to bind immobilized-fibronectin. High-sensitivity C-reactive protein (CRP) was determined in all pts.

Results: Circulating EPC were significantly increased in patients with UA as compared with SA (24.5±2.6 versus 13.3±2.9). 7 pts with UA followed for 3 months after clinical stabilization exhibited a near 50% reduction in num of circulating EPC. Adhesive capacity of EPC from UA and SA did not differ. A positive correlation was found between systemic CRP levels and circulating EPC num but not with their adhesive capacity.

Conclusion: Pts with UA and no evidence of cardiac necrosis exhibit increased circulating EPC. Systemic inflammation, in addition to recognition of these factors, could play a role in peripheral mobilization of EPC in patients with anginal-syndromes.