Abstract:
AIMS: Release of progenitor cells is observed during inflammatory conditions and contributes to neovascularization. We, therefore, sought to investigate the relationship of circulating progenitor cells and interleukin (IL)-8 in acute myocardial infarction (AMI). METHODS AND RESULTS: From patients with stable angina and AMI, serial venous blood samples were obtained. The number of circulating CD133+CD45- progenitor cells, endothelial progenitor cells (EPCs), and circulating endothelial P1H12+CD45- cells was analyzed by flow cytometry. After stenting in patients with AMI, an increase in plasma IL-8 and vascular endothelial growth factor (VEGF) concentrations was observed, which was only minimal in patients with stable angina. Only in patients with AMI, this was followed by an increase in circulating CD133+CD45- progenitor cells. In contrast, circulating endothelial P1H12+CD45- cells and E-selectin RNA expression in peripheral blood were only elevated early in AMI, indicating shedding of activated endothelial cells. Multivariable analysis revealed an association of IL-8 and circulating CD133+CD45- progenitor cells in AMI, in addition to statin therapy and risk factor profile. CONCLUSION: In AMI, IL-8 is associated with circulating progenitor cells. In addition to the pro-angiogenic functions of IL-8 and VEGF, this mechanism may contribute to new vessel generation and,
thereby, improve myocardial function.