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Lymphocyte-suppressing action of angiotensin-converting enzyme inhibitors in coronary artery disease patients with normal blood pressure

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Abstract:
The clinical effectiveness of angiotensin-converting enzyme (ACE) in the prevention and treatment of cardiovascular disorders partially results from its anti-inflammatory action. No previous study has investigated the effect of any ACE inhibitor on lymphocyte cytokine release. In this study, we compared the effects of serum- and tissue-type angiotensin-converting enzyme inhibitors on systemic inflammation and lymphocyte secretory function in normotensive patients with stable coronary artery disease. The study included 134 patients with coronary artery disease who were randomized into one of three groups and treated with enalapril (20 mg/d, n = 47), perindopril (4 mg/d, n = 45) or placebo (n = 42), respectively. The control group included 40 age-, sex- and weight-matched healthy subjects. The plasma lipid profile, glucose metabolism markers, hsCRP and lymphocyte cytokine release were examined at the beginning of the study and after 30 and 90 days of treatment. Phytohemagglutinin-stimulated T cells released significantly more interleukin-2, interferon-γ and TNFα than the lymphocytes of control subjects. Neither enalapril nor perindopril treatment was associated with any significant changes in blood pressure. Perindopril treatment inhibited lymphocyte cytokine release and systemic inflammation, while the effect of enalapril was insignificant. Perindopril, and, to a lesser extent, enalapril, strongly reduced lymphocyte cytokine release in insulin-resistant but not insulin-sensitive subjects. Our results indicate that perindopril is superior to enalapril in producing lymphocyte-suppressing and systemic anti-inflammatory effects in normotensive coronary artery disease patients. These effects may contribute to a reduction in the vascular risk of this group of patients, particularly in those subjects who are resistant to insulin, when these patients are treated with tissue-type angiotensin-converting enzyme inhibitors.

Key words:
angiotensin-converting enzyme inhibitors, coronary artery disease, lymphocytes, proinflammatory cytokines, risk factors