Changes of circulating CD4⁺CD25⁺CD127^{low} regulatory T cells in patients with acute coronary syndrome and its significance

M. Liu¹, L.-J. Xu² and J.-X. Wu²

¹Cardiovascular Department, The First Affiliated Hospital of Anhui Medical University, Anhui, China
²Cardiovascular Department, The Second Affiliated Hospital of Anhui Medical University, Anhui, China

Corresponding author: J.-X. Wu
E-mail: wujixiong_l@163.com

Received August 3, 2015
Accepted October 1, 2015
Published December 7, 2015
DOI http://dx.doi.org/10.4238/2015.December.7.4

ABSTRACT. The aim of this study was to investigate the changes of circulating CD4⁺CD25⁺CD127^{low} regulatory T cells (Treg) in patients with acute coronary syndrome (ACS) and its significance. The experiment was divided into three groups: ACS (48 patients), stable angina pectoris (SAP) (24 patients), and normal controls (24 subjects). The CD4⁺CD25⁺CD127^{low} Treg cell counts were tested by flow cytometry, and the levels of high-sensitivity C-reactive protein (hs-CRP) and peripheral blood leukocytes (PWBCs) were determined in the peripheral blood of each group; comparisons were made among groups. The frequency of CD4⁺CD25⁺CD127^{low} to CD4⁺ cell in the ACS group (3.18 ± 1.76%) was significantly lower than those observed in control (5.64 ± 1.63%) and SAP (5.60 ± 1.56%) groups (F = 25.247, P < 0.01), while the hs-CRP and PWBC levels in the ACS group were significantly higher than those in the control group (P < 0.05). In addition, the reduced frequency of CD4⁺CD25⁺CD127^{low} to CD4⁺ cells was negatively correlated with the increased hs-CRP and PWBC counts by correlation analysis, and the related coefficients (r) were -0.518 and -0.527, respectively.
-0.311, respectively (P < 0.01). These findings indicate that the decrease of the frequency of Treg cells in the peripheral blood of patients with ACS might destroy the balance of tolerance of the peripheral immune system and might activate inflammation, thus participating in the occurrence and development of the pathological processes of atherosclerosis.

**Key words:** Acute coronary syndrome; Regulatory T cells; Flow cytometry; Hypersensitive c-reactive protein; White blood cells