Letter to the Editor

Göksel Sener

Answer to Dr. Hamid's Letter to the Editor

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We would like to thank Dr. Namazi for his interest in our recent publication [1] and for bringing to our attention the possible route through which garlic could suppress the activity of neutrophils. It is well described that the major events in the pathogenesis of ischemia-reperfusion (I/R) injury include neutrophil-mediated endothelial cytotoxicity and activation, generation of free radicals and triggering of cytokines and chemokines, as well as adhesion of mononuclear monocytes to endothelial cells, which involves the upregulation of surface adhesion molecules on the vascular endothelium and their subsequent interaction with the activated neutrophils [2]. In our review article, we presented several experimental studies demonstrating that the anti-inflammatory effect of garlic extract is correlated with a reduction in myeloperoxidase activity, indicating garlic-induced supression of neutrophil recruitment into the injured tissue [3, 4]. Hofbauer *et al.* have found that moderate plasma concentrations of garlic extract inhibited neutrophil migration through endothelial cell monolayers [5]. In addition, experiments with human umbilical vein and coronary artery endothelial cells showed that garlic extract reduces tumor necrosis factor (TNF)-induced nuclear factor kappa B (NF-kB) activation [6, 7], inhibits the adhesion of interleukin 1α-mediated adhesion [8] and inhibits T cell migration by suppressing the expression of intercellular adhesion molecule-1 (ICAM-1, CD54) [8, 9], vascular cell adhesion molecule-1 (VCAM-1, CD106) [10] and very late antigene-4 (VLA-4) [11]. On the other hand, adhesion of neutrophils to vascular endothelial cells, mediated by the interaction of CD11/CD18 and ICAM-1, plays an essential role in neutrophil transmigration and activation during I/R injury. Although garlic is known to downregulate the expression of ICAM-1, no specific studies to our knowledge have investigated the direct effect of garlic on CD11/CD18 expression. Nevertheless, it may be suggested that the anti-inflammatory effect of garlic, which acts, in part, through the inhibition of neutrophil migration and adhesion, may involve the suppression of ICAM-1-CD11/CD18 interaction.

The authors have declared no conflict of interest.

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