Role of Renin-Angiotensin System Blockades in Reciprocal Relationship Between Insulin Resistance and Endothelial Dysfunction

To the Editor:
Azekoshi et al demonstrated that the enhanced production of angiotensin II by free fatty acid in mononuclear and polymorphonuclear cells caused activation of leukocytes that consequently impairs endothelial function. Obesity, metabolic syndrome, and type 2 diabetes mellitus are major risk factors for cardiovascular disease. This study strongly supports our hypothesis that reciprocal relationships between insulin resistance and endothelial dysfunction contribute to the development of cardiovascular events through inflammatory actions. Thus, therapies should target the vicious synergy between endothelial dysfunction and insulin resistance to prevent cardiovascular events.

In that point, inhibitors of the renin-angiotensin system are beneficial. Recently, several articles related to this topic have been published in Hypertension. Cole et al demonstrated that valsartan attenuated several deleterious effects of the Western diet at the systemic and local levels in pancreatic islets and adipose tissue, suggesting that valsartan provides additional therapeutic benefits in the metabolic syndrome and other obesity-related disorders beyond lowering blood pressure. In this study, valsartan blocked or attenuated Western diet-induced changes in insulin sensitivity to a greater extent than atenolol or thiazide therapies (P<0.005 by ANOVA). Ramipril and candesartan therapies significantly increased adiponectin levels to a greater extent than atenolol or thiazide therapies (P<0.001 by ANOVA). Ramipril and candesartan significantly decreased leptin levels to a greater extent when compared with atenolol or thiazide therapies (P<0.001 by ANOVA). We observed differential effects of antihypertensive drugs on endothelial dysfunction, plasma adipocytokines, and insulin sensitivity.

Based on solid evidence from both translational basic science and clinical intervention trials, there is emerging support for the superiority of inhibitors of the renin-angiotensin system over ß-blockers and diuretics in the optimal treatment of hypertension.

Disclosures

None.

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*Hypertension*. 2010;56:e169; originally published online November 8, 2010; doi: 10.1161/HYPERTENSIONAHA.110.161869

*Hypertension* is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
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Print ISSN: 0194-911X. Online ISSN: 1524-4563

The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://hyper.ahajournals.org/content/56/6/e169

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