Combination Treatment to Prevent Atherosclerosis

To the Editor:

Kushiro et al demonstrated that, in patients without a history of cardiovascular disease who have hypertension and mildly elevated cholesterol, pravastatin was effective in reducing the incidence of cardiovascular disease. There were no significant differences in mean baseline total cholesterol, blood pressure levels, or variation in blood pressure during the 5-year period between the diet and diet-plus-pravastatin groups. Nonetheless, pravastatin reduced the burden of cardiovascular disease. This finding is consistent with the Conduit Artery Function Evaluation Lipid-Lowering Arm Study, demonstrating that atorvastatin therapy sufficient to significantly reduce cardiovascular events in treated hypertensive patients in the Anglo-Scandinavian Cardiac Outcomes Trial did not influence central aortic blood pressure or hemodynamics.

We observed that simvastatin decreased systolic blood pressure by 3 mm Hg (P=0.058) and diastolic blood pressure by 3 mm Hg (P=0.052) in patients with uncontrolled hypertension. The baseline systolic blood pressure and diastolic blood pressure were 145 and 90 mm Hg, and in a different study of ours in patients with type 2 diabetes mellitus, simvastatin increased systolic blood pressure by 1 mm Hg (P=0.659) and diastolic blood pressure by 0 mm Hg (P=0.827). The baseline systolic blood pressure and diastolic blood pressure were 134 and 80 mm Hg. Thus, the use of statins may significantly improve blood pressure control in subjects with both hypercholesterolemia and uncontrolled hypertension. On the other hand, statins may not improve blood pressure control in subjects with both hypercholesterolemia and controlled hypertension. Indeed, in the Management of Elevated Cholesterol in the Primary Prevention Group of Adult Japanese study, diet and diet plus pravastatin groups were taking antihypertensive drugs at 89% and 88%, respectively. In the Conduit Artery Function Evaluation Lipid-Lowering Arm Study, patients were taking the antihypertensive drug amlodipine, too. Therefore, these studies strongly support our view that statins modestly lower blood pressure in patients with high, but not normal, blood pressure, regardless of cholesterol level.

However, although statins may not improve blood pressure control in subjects with both hypercholesterolemia and controlled hypertension, statins markedly reduced the burden of cardiovascular disease. Hypercholesterolemia and hypertension are both associated with endothelial dysfunction, and their coexistence is associated with an increased incidence of cardiac events in epidemiological studies. Hypercholesterolemia and hypertension have a synergistic deleterious effect on coronary endothelial function that is associated with increased oxidative stress. In clinical studies, combined therapy significantly reduced plasma malondialdehyde, monocyte chemotactic protein 1, and C-reactive protein levels more than monotherapy. Thus, there is a scientific rationale for recommending a combination of statins and antihypertensive drugs to prevent atherosclerosis and coronary heart disease even in patients with controlled hypertension.

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Disclosures

None.

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