

L-Arginine and Thrombosis

To the Editor:

Kapostza et al¹ reported that the administration of L-arginine (the precursor of nitric oxide synthesis) after surgery resulted in a highly significant reduction in the frequency of embolic signals after carotid endarterectomy in patients who were already being treated with aspirin and heparin. Patients with carotid artery disease usually suffer from coronary atherosclerosis. Therefore, it would be useful to know the impact of L-arginine administration on advanced coronary artery atherosclerosis.

We examined,^{2,3} by quantitative angiography, the vasomotor effects of an intracoronary infusion of L-arginine in epicardial coronary artery segments and in coronary stenoses in patients with coronary artery disease and stable angina. We found that proximal coronary segments and coronary stenoses dilated in response to acute intracoronary administration of L-arginine. The greatest response to L-arginine was at the site of severe coronary stenoses. Moreover, we have shown that stenoses with a complex morphology show a greater dilation compared with those of smooth morphology, whether concentric or eccentric.³ This finding is consistent with stimulation of nitric oxide synthase activity by L-arginine administration. It provides further evidence of preserved nitric oxide synthase activity at the site of coronary stenoses, particularly within stenoses with complex morphology.⁴ Furthermore, because this effect was also found in nonstenotic segments of diseased coronary arteries, it is either a physiological or a pathological response requiring only minimal coronary disease.

Our findings suggest that L-arginine supplementation may have a beneficial effect on diseased epicardial coronary arteries

in patients with stable angina. In addition, a recent study⁵ showed that local L-arginine delivery after balloon angioplasty reduces monocyte binding and induces apoptosis and, therefore, may be beneficial for restenosis. The actions of L-arginine are complex, and the responses of epicardial coronary arteries and carotid arteries to L-arginine may be different. Therefore, further studies are needed to elucidate the impact of L-arginine on atherosclerosis and thrombosis in different parts of the arterial tree. The L-arginine intravenously administered may reduce the embolic signals and dilate coronary stenoses in patients with carotid and coronary artery disease.

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