Walnuts and Endothelial Function in Hypercholesterolemic Subjects

To the Editor:

Ros et al. recently reported that substituting walnuts for monounsaturated fat in a Mediterranean-type diet improves endothelial function in hypercholesterolemic subjects. The investigators explain that nuts contain sizable amounts of antioxidants, as well as L-arginine and α-linolenic acid, which might also confer additional antiatherogenic properties.

I should emphasize, however, that a walnut-enriched diet contains high magnesium levels (ie, 169 elements of magnesium per 100 g of nut). We previously demonstrated that magnesium supplementation in patients with coronary artery disease (CAD) was associated with significant improvement in brachial artery endothelial function and exercise tolerance. Our group also demonstrated that oral magnesium supplementation inhibits platelet-dependent thrombosis in CAD patients, independent of platelet aggregation or P-selectin expression, and was evident despite aspirin therapy. Magnesium is also an antioxidant and therefore may additively alter lipid profile and improve endothelial function. Therefore, the magnesium found in walnuts may explain some of the beneficial effects described by Ros et al.

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Response

We appreciate the interest of Dr. Shechter in our recent publication on the beneficial vascular effects of a walnut diet in hypercholesterolemic subjects. He comments on the relatively high magnesium content of walnuts as a potential factor that could influence endothelial function and cites the positive results of a clinical trial of magnesium supplementation in stable patients with coronary heart disease and latent magnesium deficiency. We did not measure serum magnesium concentrations in the participants of our study. Although not reported in our paper, we did measure the magnesium content of the walnuts used in the study; the magnesium content was 111±9 mg/100 g (mean±SD of 3 determinations). Depending on individual energy requirements, the walnut diet contained 40 to 65 g of walnuts daily. Thus, the extra amount of magnesium provided ranged from 44 to 72 mg per day. These doses of magnesium are substantially lower than the 365 mg used in the study of Shechter et al. and their contribution to improved endothelial function is probably minor in face of other highly bioactive nutrients from walnuts, such as plant n-3 fatty acids and L-arginine.

Magnesium is an important micronutrient abundant in vegetable foods, especially in seeds, herbs, and nuts, and its intake has been independently associated with protection from cardiovascular diseases. We thank Dr. Shechter for reminding us of still another beneficial component of walnuts.

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