Homocysteine and Vascular Diseases

To the Editor:

The article by Doshi et al in the January 1/8, 2002, issue of Circulation, in which the authors suggest that folic acid improves endothelial function by a mechanism largely independent of homocysteine (Hcy), prompted us to report our data on plasma Hcy levels before and after intravenous prostaglandin (PG) E1 α-cyclodextrin in patients with systemic sclerosis. Ten patients with systemic sclerosis who were not taking folic acid or B vitamin were given 60 μg intravenous PGE1 α-cyclodextrin on 5 consecutive days for severe Raynaud’s phenomenon.

Before, immediately after, and 30 days after the infusions, circulating levels of Hcy, von Willebrand factor (vWF), and folate were measured. Hcy significantly decreased (9.56±2.41 and 11.30±3.23 versus 14.46±5.31 μmol/L, mean±SD, \( P<0.02 \), immediately and 30 days after infusions versus baseline). vWF tended to decrease (173.20±41.95 and 166.90±39.55 versus 183.30±38.39 U/dL). No relationship was found between the 2 parameters. Raynaud’s phenomenon, evaluated by means of a visual analogic scale 30 days after the infusions, significantly improved (−10.1%, \( P<0.02 \)).

PGE1 α-cyclodextrin is known to improve endothelial function through a mechanism that is still unclear.2 The slight reduction of circulating vWF, a reliable marker of endothelial dysfunction,3 may be consistent with an improvement of endothelium; the significant reduction of Hcy might indicate Hcy as a marker—not the cause—of vascular damage, because PGE1 α-cyclodextrin is not known to interfere with Hcy metabolism, and the unmodified folate levels (4.7±1.6, 4.9±2.1, 4.5±1.7 ng/mL) would confirm it. Hcy and vWF were not related.

However, in agreement with previous observations, they might be markers of different aspects of vascular involvement.4 Our data are consistent with those of Doshi et al.1 The role of Hcy in vascular diseases seems only minor, with circulating Hcy possibly just an epiphenomenon. More studies are needed to verify the usefulness of Hcy as a marker of endothelial dysfunction.

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