Letter by Kurtoglu et al Regarding Article, “Asymmetric Dimethylarginine in Response to Recombinant Tissue-Type Plasminogen Activator and Erythropoietin in Acute Stroke”

To the Editor:

We read the article by Worthmann et al1 with interest. The authors investigated whether the combination of recombinant tissue-type plasminogen activator (rtPA) and erythropoietin (EPO) increases the release of endogenous nitric oxide synthase inhibitor asymmetric dimethylarginine (ADMA). The patients were divided into 4 groups according to treatment: placebo, EPO, rtPA+placebo, and EPO+rtPA. They found that ADMA levels increased during the observation time in the EPO, the EPO+rtPA, and the placebo groups, whereas a treatment effect on ADMA levels was revealed only in the rtPA+placebo group when adjusted for age and infection at day 1, and ADMA levels were significantly decreased compared with the placebo group in that group.

ADMA is an endogenous competitive inhibitor of nitric oxide synthase and is now considered an independent marker of acute stroke.2 The independent association between occurrence of stroke and chronic kidney disease has now been reported in several studies.3 In a previous study that aimed to assess the effect of mildly reduced renal function on ADMA levels in age-matched patients with and without coronary artery disease documented by coronary angiography, it was shown that even a mild reduction in glomerular filtration rate was associated with an increased plasma level of ADMA.4 For this reason, glomerular filtration rate values of patients hospitalized for acute ischemic stroke should be closely monitored because glomerular filtration rate alterations may affect ADMA levels.

The American Heart Association/American Stroke Association guidelines for prevention of stroke in patients with ischemic stroke or transient ischemic attack strongly suggest the use of statin agents to decrease low-density lipoprotein to a target goal of <100 mg/dL to reduce the risk of vascular events in high-risk patients with coronary heart disease or coronary heart disease risk equivalents.5 A recently published article by Nishiyama et al2 showed an independent relationship between statin treatment and decreased levels of ADMA at day 30 in patients with ischemic stroke with an adequately controlled lipid profile, suggesting that the statin treatment might prevent atherosclerotic disease in patients with ischemic stroke through suppression of ADMA concentration. For this reason, the effect of statin treatment should be taken into account when analyzing ADMA levels.

Disclosures

None.

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