Lowered Magnesium in Hypertension

To the Editor:

We read with interest the article by Joosten et al 1 dealing with urinary magnesium excretion and risk of hypertension—the PREVEND (Prevention of Renal and Vascular End-Stage Disease) study. The authors examined 5511 participants. A total of 1172 developed hypertension. The urinary magnesium excretion was associated with risk of hypertension in an inverse log-linear fashion, and this association remained after adjustment for age, sex, body mass index, smoking status, alcohol intake, parental history of hypertension, and urinary excretion of sodium, potassium, and calcium. The authors finally state that the current findings could have substantial public health implications given the highly prevalent inadequate magnesium intake in Western societies combined with hypertension.1

It is well documented that large artery stiffness is the main determinant of pulse pressure.2 In addition, aortic stiffness has independent predictive value for total and cardiovascular mortality, coronary morbidity and mortality,2 and fatal stroke3 in patients with essential hypertension.2,4 In this context we could show in several studies the special importance of a magnesium deficiency.3,4

Recent investigations showed an inverse correlation of low magnesium intake and the development of diabetes mellitus type II.5 Especially in both hypertension and diabetes mellitus lowered magnesium supply is a risk factor for the pathogenesis, quality of life, and mortality. The pathophysiologic aspects of magnesium are mainly the calcium magnesium antagonism besides magnesium sodium antiport, multiple enzymatic reactions, and newer transport mechanisms (TRPM6 and TRPM7).4

Finally, the results of Joosten et al are excellent, showing the importance of a sufficient magnesium supply via nutrition and magnesium treatment in deficient patients, especially in hypertension and diabetes mellitus.

Disclosures

None.

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