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. 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 transport, 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.

Klaus Kisters
Medical Clinic I
St. Anna Hospital
Herne, Germany

Uwe Gröber
Akademie für Mikronährstoffmedizin
Essen, Germany


Lowered Magnesium in Hypertension
Klaus Kisters and Uwe Gröber

Hypertension. 2013;62:e19; originally published online August 19, 2013;
doi: 10.1161/HYPERTENSIONAHA.113.02060

Hypertension is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
Copyright © 2013 American Heart Association, Inc. All rights reserved.
Print ISSN: 0194-911X. Online ISSN: 1524-4563

The online version of this article, along with updated information and services, is located on the
World Wide Web at:
http://hyper.ahajournals.org/content/62/4/e19

Permissions: Requests for permissions to reproduce figures, tables, or portions of articles originally published
in Hypertension can be obtained via RightsLink, a service of the Copyright Clearance Center, not the Editorial
Office. Once the online version of the published article for which permission is being requested is located,
click Request Permissions in the middle column of the Web page under Services. Further information about
this process is available in the Permissions and Rights Question and Answer document.

Reprints: Information about reprints can be found online at:
http://www.lww.com/reprints

Subscriptions: Information about subscribing to Hypertension is online at:
http://hyper.ahajournals.org//subscriptions/