Magnesium deficiency increases risk of CRP elevation

A study published in the June 2005 issue of the *Journal of the American College of Nutrition* (http://www.jacn.org/) found that the majority of a sampling of Americans did not consume adequate magnesium, and that deficient dietary levels of the mineral are correlated with an elevation of C-reactive protein (CRP), a marker of inflammation and cardiovascular disease risk.

Researchers from the Medical University of South Carolina in Charleston analyzed 5,021 participants in the National Health and Nutrition examination Survey 1999-2000 (NHANES 99-00), which was conducted by the National Center for Health Statistics to collect information concerning the health and diet of American men and women. Dietary information was obtained through subject interviews and CRP levels were measured as a part of NHANES 99-00 physical and laboratory examination.

The average daily intake of magnesium among the subjects included in the current study was 328 milligrams. Sixty-eight percent consumed less than the recommended daily allowance (RDA) of the mineral (410 milligrams for men and 360 milligrams for women aged 14 to 18, 400 milligrams for men and 310 milligrams for women aged 19-30, and 420 milligrams for men and 320 milligrams for women aged 31 and older). When the 3,799 participants who were not taking magnesium-containing supplements were analyzed, 78.5 percent were found to have an intake that was less than the RDA.

C-reactive protein levels were elevated (greater than or equal to 3.0 milligrams per liter) in 35.5 percent of the participants. Those who consumed less than the RDA of magnesium were 1.48 to 1.75 times more likely to have an elevated CRP level than those who consumed the RDA or greater. Participants who did not use magnesium-containing supplements experienced a greater risk of having elevated CRP when magnesium levels were deficient than that experienced by the entire study population. Increased body mass index and deficient magnesium more than doubled the risk of having elevated CRP in men and women over the age of 40 compared to those whose magnesium intake was at least the recommended daily allowance.

The authors note that magnesium intake even slightly below the RDA elevated CRP. They speculate that increased oxidative stress or endothelial dysfunction could be the mechanism by which inadequate magnesium increases the risk of having elevated CRP. “Correction of low magnesium intake (below the RDA) through more emphasis on the AHA dietary guidelines and/or through magnesium supplementation may provide an important means to reduce CRP levels and perhaps cardiovascular risk,” they write.