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ORIGINAL RESEARCH COMMUNICATION

Magnesium intake and plasma concentrations of markers of systemic inflammation and endothelial dysfunction in women[1,2,3]

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Background: Relations between magnesium intake and systemic inflammation and endothelial dysfunction are not well established.

Objective: The aim of the present study was to examine whether and to what extent magnesium intake is related to inflammatory and endothelial markers.

Design: We conducted a cross-sectional study of 657 women from the Nurses' Health Study cohort who were aged 43–69 y and free of cardiovascular disease, cancer, and diabetes mellitus when blood was drawn in 1989 and 1990. Plasma concentrations of C-reactive protein (CRP), interleukin 6 (IL-6), soluble tumor necrosis factor α receptor 2 (sTNF-R2), E-selectin, soluble intercellular adhesion molecule 1 (sICAM-1), and soluble vascular cell adhesion molecule 1 (sVCAM-1) were measured. Estimates from 2 semiquantitative food-frequency questionnaires, administered in 1986 and 1990, were averaged to assess dietary intakes.

Results: In age-adjusted linear regression analyses, magnesium intake was inversely associated with plasma concentrations of CRP (P for linear trend = 0.003), E-selectin (P = 0.001), and sICAM-1 (P = 0.03). After further adjustment for physical activity, smoking status, alcohol use, postmenopausal hormone use, and body mass index, dietary magnesium intake remained inversely associated with CRP and E-selectin. Multivariate-adjusted geometric means for women in the highest quintile of dietary magnesium intake were 24% lower for CRP (1.70 ± 0.18 compared with 1.30 ± 0.10 mg/dL; P for trend = 0.03) and 14% lower for E-selectin (48.5 ± 1.84 compared with 41.9 ± 1.58 ng/mL; P for trend = 0.01) than those for women in the lowest quintile.

Conclusion: Magnesium intake from diet is modestly and inversely associated with some but not all markers of systematic inflammation and endothelial dysfunction in apparently healthy women.

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