**SERUM MAGNESIUM AND MORTALITY IN THE US GENERAL POPULATION: RESULTS FROM THE NHANES I EPIDEMIOLOGIC FOLLOW-UP STUDY**

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*Background:* Whether and to what extent low serum Mg levels are associated with all-cause or cause-specific mortality in the general population is uncertain. We aimed to quantify the dose-response associations between low concentrations of serum Mg and mortality from all causes, cancer, CVD, and stroke in the US general population.

*Methods*: We analyzed prospective data on 14,353 participants aged 25-74 years with baseline measures of serum Mg concentrations from the National Health and Nutrition Examination Survey Epidemiologic Follow-up Study 1971-2006. We estimated the mortality hazard ratios (HRs) for participants within predefined and clinically meaningful categories of serum Mg levels, including <0.7, 0.7-0.74, 0.75-0.79, 0.8-0.9 (normal reference), 0.9-0.94, 0.95-0.99, and 1.0 mmol/L, using Cox proportional hazards models. Restricted cubic spline models were applied to examine potentially nonlinear relationships between serum Mg and mortality.

*Results*: During a mean follow-up of 27.6 years, 7,072 deaths occurred, 3,310 (47%) CVD deaths, 1,533 (22%) cancer deaths, and 281 (4%) stroke deaths. Twenty-one percent of all participants had low levels of serum Mg (<0.8 mmol/L) and 1.5% had extremely low serum Mg (<0.7 mmol/L). Age-adjusted all-cause mortality rates were 3845, 3491, 3471, 3400 (normal reference), 3531, 3525, and 3836 per 100,000 person-years for increasing categories of serum Mg; the HRs and 95% confidence intervals for increasing serum Mg were 1.32 (1.02-1.72), 0.93 (0.74-1.16), and 1.06 (0.96-1.18), 1.07 (0.97-1.18), 0.94 (0.77-1.13), and 0.93 (0.72-1.21), compared to the reference group (0.8-0.9 mmol/L). An L-shaped association between serum Mg concentrations and all-cause mortality was observed after adjusting for potential confounders. No statistically significant associations were observed between serum Mg and cancer, CVD, or stroke mortality.

*Conclusions*: Very low serum Mg levels were significantly associated with all-cause mortality in the general US population. Our findings support the hypothesis that Mg deficiency as defined by very low serum Mg may have an important influence on mortality.