EP6_144

Short-Term Magnesium Oxide Monohydrate Treatment Improves Lipids and Inflammation in Healthy Subjects

Michael Shechter[1], Tomer Saad[1], Alon Shechter[1], Nira Koren-Morag[2], Shlomi Matetzky[1]
[1]*Leviev Heart Center and the Sackler Faculty of Medicine, Sheba Medical Center, Israel*
[2]*Tel Aviv University, The Sackler Faculty of Medicine, Israel*

Background:

Magnesium content in food consumed in the Western world is steadily decreasing. Hypomagnesemia is associated with increased incidence of diabetes mellitus, metabolic syndrome, all-cause and coronary artery disease mortality. We investigated the impact of supplemental oral magnesium citrate versus magnesium oxide monohydrate on lipoproteins and high-sensitivity C-reactive protein (hs-CRP) in healthy subjects with no apparent heart disease.

Methods and Results:

In a randomized, prospective, double-blind, crossover study, 41 (20 women) healthy volunteers [mean age 53±8 (range 31-75) years] received either magnesium oxide monohydrate tablets (520 mg/day of elemental magnesium) or magnesium citrate tablets (295.8 mg/day of elemental magnesium) for 1 month (phase 1), followed by a 4-week wash-out period, and then crossover treatment for 1 month (phase 2). Intracellular magnesium levels ($[Mg^{2+}]$), assessed from sublingual cells through x-ray dispersion (normal values 37.9±4.0 mEq/L), serum lipoproteins and hs-CRP levels were assessed before and after each phase. Oral magnesium oxide monohydrate, rather than magnesium citrate, significantly increased $[Mg^{2+}]$ (34.4±3 vs 36.3±2 mEq/L, p0.001 and 34.7±2 vs 35.4±2 mEq/L, p=0.097; respectively), reduced total cholesterol (201±37 vs 186±27 mg/dL, p=0.016 and 187±28 vs 187±25 mg/dL, p=0.978; respectively) low-density lipoprotein (LDL) cholesterol (128±22 vs 120±25 mg/dL, p=0.042 and 120±23 vs 121±22 mg/dL, p=0.622; respectively) (Figure) and hs-CRP (3.1±3.0 vs 2.6±2.0 mg/dL, p=0.030 and 3.0±4.0 vs 3.5±5.0 mg/dL, p=0.438; respectively).

Conclusions:

Short-term oral magnesium oxide monohydrate treatment significantly improved total and LDL cholesterol and hs-CRP compared with magnesium citrate in healthy subjects with no apparent heart disease.

Figure: