Beneficial effects of oral magnesium supplementation on insulin sensitivity and serum lipid profile.

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Abstract

Background: Epidemiological studies have associated low dietary Mg2+ intake with insulin resistance (IR) and increased risk for metabolic syndrome; however, the effect of Mg2+ supplementation on IR has not been adequately investigated. This study aimed to investigate the effects of oral Mg2+ supplementation on insulin sensitivity (IS) and serum lipids.

Material/Methods: Forty-eight patients with mild uncomplicated hypertension participated in the study. Among them, 24 subjects were assigned to 600 mg of pidolate Mg2+ daily in addition to lifestyle recommendations for a 12-week period, and another 24 age- and sex-matched controls were only given lifestyle recommendations. At baseline and study-end, blood sampling for determination of fasting glucose and insulin levels, serum lipids and other standard laboratory tests, as well as an oral glucose tolerance test (OGTT) for estimation of IS indices, were performed in all subjects.

Results: In the Mg2+ supplementation group the OGTT-derived IS indices of Stumvoll, Matsuda and Cederholm in were increased between baseline baseline and study-end. In contrast, none of these parameters were changed in the control group. Reductions in total cholesterol, LDL-cholesterol and triglyceride levels, along with a parallel increase in HDL-cholesterol levels, were evident at study-end in the intervention group, but not in the control group.

Conclusions: This study suggests that oral Mg2+ supplementation improves IS and lipid profile in mildly hypertensive patients. These potential beneficial effects of Mg2+ on associated metabolic factors could be helpful for patients with hypertension in terms of overall cardiovascular risk reduction.

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