Effect of magnesium supplementation on plasma C-reactive protein concentrations: A systematic review and meta-analysis of randomized controlled trials.

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BACKGROUND: Results of previous clinical trials evaluating the effect of magnesium supplementation on inflammatory markers are controversial.

OBJECTIVE: A systematic review and meta-analysis of randomized controlled trials (RCTs) were performed to evaluate the effect of oral magnesium supplementation on plasma C-reactive protein (CRP) concentrations.

METHOD: PubMed-Medline, SCOPUS, Web of Science, and Google Scholar databases were searched (from inception to August 09, 2016) to identify RCTs, evaluating the effect of magnesium on CRP levels. A random-effects model and a generic inverse variance method were used to compensate for the heterogeneity of studies. Publication bias, sensitivity analysis, and meta-regression assessments were conducted using standard methods.

RESULTS: Overall, the impact of magnesium supplementation on plasma concentrations of CRP was assessed in 11 studies. Magnesium treatment was not found to significantly affect plasma concentrations of CRP (WMD: -0.11 mg/L, 95% CI: -0.75, 0.52, p=0.727). When the analysis was stratified to compare subgroups of studies in populations with baseline plasma CRP values of ≤ 3 and > 3 mg/L, a significant reduction of CRP values was observed in the latter subgroup (WMD: -1.12 mg/L, 95% CI: -2.05, -0.18, p=0.019) but not in the former group (WMD: 0.61 mg/L, 95% CI: -0.10, 1.32, p=0.090). The difference between subgroups was statistically significant (p=0.004).

CONCLUSION: Results of the present meta-analysis indicated that magnesium supplementation reduces CRP levels among individuals with inflammation (CRP levels > 3 mg/dL). This finding suggests that magnesium supplements may have a beneficial role as an adjuvant for the management of low-grade chronic systemic inflammation.

PMID: 28545353