Abstract

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Effect of magnesium supplementation on blood pressure: a meta-analysis.

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OBJECTIVE: To date, there has been inconclusive evidence regarding the effect of magnesium supplements on blood pressure (BP). This meta-analysis was conducted to assess the effect of magnesium supplementation on BP and to establish the characteristics of trials showing the largest effect size.

METHODS: Primary outcome measures were systolic blood pressure (SBP) and diastolic blood pressure (DBP) at the end of the follow-up period. One hundred and forty-one papers were identified, of which 22 trials with 23 sets of data (n=1173), with 3 to 24 weeks of follow-up met the inclusion criteria, with a supplemented elemental magnesium range of 120-973 mg (mean dose 410 mg). 95% confidence intervals (CI) were calculated using DerSimonian and Laird's random-effects model, with effect size calculated using Hedges G.

RESULTS: Combining all data, an overall effect of 0.36 and 0.32 for DBP and SBP, respectively, was observed (95% CI 0.27-0.44 for DBP and 0.23-0.41 for SBP), with a greater effect being seen for the intervention in crossover trials (DBP 0.47, SBP 0.51). Effect size increased in line with increased dosage. Although not all individual trials showed significance in BP reduction, combining all trials did show a decrease in SBP of 3-4 mm Hg and DBP of 2-3 mm Hg, which further increased with crossover designed trials and intake >370 mg/day.

CONCLUSION: To conclude, magnesium supplementation appears to achieve a small but clinically significant reduction in BP, an effect worthy of future prospective large randomised trials using solid methodology.

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