

Abstract

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Effect of oral magnesium supplementation on measures of airway resistance and subjective assessment of asthma control and quality of life in men and women with mild to moderate asthma: a randomized placebo controlled trial.

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BACKGROUND: Epidemiological data shows low dietary magnesium(Mg) may be related to incidence and progression of asthma.

OBJECTIVE: To determine if long term(6.5 month) treatment with oral Mg would improve asthma control and increase serum measures of Mg status in men and women with mild-to-moderate asthma.

SUBJECTS: 55 males and females aged 21 to 55 years with mild to moderate asthma according to the 2002 National Heart, Lung, and Blood Institute(NHLBI) and Asthma Education and Prevention Program(NAEPP) guidelines and who used only beta-agonists or inhaled corticosteroids(ICS) as asthma medications were enrolled.

DESIGN: Subjects were randomly assigned to consume 340 mg(170 mg twice a day) of Mg or a placebo for 6.5 months.

MEASUREMENTS: Multiple measures of Mg status including serum, erythrocyte, urine, dietary, ionized and IV Mg were measured. Markers of asthma control were: methacholine challenge test(MCCT) and pulmonary function test(PFT) results. Subjective validated questionnaires on asthma quality of life(AQLQ) and control(ACQ) were completed by participants. Markers of inflammation, including c-reactive protein(CRP) and exhaled nitric oxide(eNO) were determined.

RESULTS: The concentration of methacholine required to cause a 20% drop in forced expiratory volume in in minute(FEV(1)) increased significantly from baseline to month 6 within the Mg group. Peak expiratory flow rate(PEFR) showed a 5.8% predicted improvement over time(P = 0.03) in those consuming the Mg. There was significant improvement in AQLQ mean score units(P < 0.01) and in overall ACQ score only in the Mg group(P = 0.05) after 6.5 months of supplementation. Despite these improvements, there were no significant changes in any of the markers of Mg status.

CONCLUSION: Adults who received oral Mg supplements showed improvement in objective measures of bronchial reactivity to methacholine and PEFR and in subjective measures of asthma control and quality of life.

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