1: Magnes Res. 2005 Jun;18(2):123-6.
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Magnesium RESEARCH

Magnesium therapy for nephrolithiasis.

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PURPOSE:Critically evaluate the experimental evidence and clinical trial outcomes as the basis for use of magnesium (Mg) supplements as therapy for calcium oxalate nephrolithiasis. MATERIALS AND METHODS: Literature search of MedLine and Web of Science through January 2005; articles cited in papers found by searches. RESULTS: Magnesium inhibits calcium oxalate crystallization in human urine and model systems. Magnesium also inhibits absorption of dietary oxalate from the gut lumen. Three early trials of Mg oxide (MgO) and Mg hydroxide (Mg(OH)2) reported lower rates of recurrent stone formation. However in a double-blind, randomized, placebo-controlled trial with more carefully selected patients, there was no significant difference between recurrence rates with 650 or 1300 mg MgO daily and the placebo. Another trial reported 391 mg (21 meq) Mg daily as a mixed salt, Mg potassium citrate, reduced calcium stone recurrence by 90%, similar to potassium citrate, but with better gastrointestinal tolerance. The failure of MgO and Mg(OH)2 as sole therapy may be related to poor absorption and low rates of Mg deficiency in the patient populations tested. CONCLUSIONS: Clinical trial evidence does not justify the use of MgO or Mg(OH)2 as a sole therapy for calcium oxalate kidney stones in a general patient population. However, the addition of magnesium to potassium citrate therapy improves outcomes. Clinical trials should focus on patients who are likely to be Mg deficient.

Publication Types:

- Review

PMID: 16100850 [PubMed - indexed for MEDLINE]

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