

Abstract

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Magnesium metabolism. A review with special reference to the relationship between intracellular content and serum levels.

Reinhart RA.

Marshfield Clinic, WI 54449.

BACKGROUND: Magnesium (Mg⁺⁺) is a ubiquitous element in nature, playing a role in photosynthesis and many metabolic functions in humans. All enzymatic reactions that involve adenosine triphosphate have an absolute requirement for Mg⁺⁺. Levels of Mg⁺⁺ are controlled by the kidneys and gastrointestinal tract and appear closely linked to calcium, potassium, and sodium metabolism.

DISCUSSION: The clinical manifestations and causes of abnormal Mg⁺⁺ status are protean. Testing for altered Mg⁺⁺ homeostasis is problematic. Serum levels, which are those generally measured, reflect only a small part of the total body content of Mg⁺⁺. The intracellular content can be low, despite normal serum levels in a person with clinical Mg⁺⁺ deficiency.

SUMMARY: Future directions in research related to intracellular content of Mg⁺⁺ are discussed. Treatment of altered Mg⁺⁺ status depends on the clinical setting and may include the addition of a potassium/Mg⁺⁺-sparing drug to an existing diuretic regimen. Guidelines for therapy are given.

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