

EEM 2019

Don't Get Magnesium Levels

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High Risk for Clinically Significant Hypomagnesemia

- Patients with Hypokalemia
- Patients on Diuretics
- Alcoholics or Malnourished Patients
- Patients with AMI
- Patients with Ventricular Arrhythmias

Reported Signs and Symptoms Associated with Hypomagnesemia

Gastrointestinal

- Nausea
- Anorexia
- Abdominal Pain

Electrolyte Disturbances

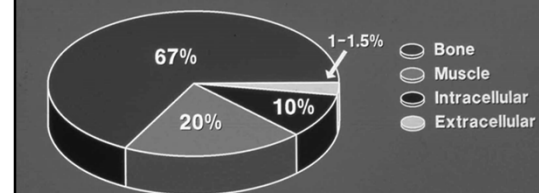
- Hypokalemia
- Hypocalcemia
- Hypophosphatemia
- Hyponatremia

Serum Magnesium Levels

- Inaccurate "Snap Shot"
- Expensive
- Silly

Don't depend only on a total serum magnesium level ...
you will miss clinically significant hypomagnesemia

TOTAL BODY MAGNESIUM



Assessment of magnesium status.
R. J. Elin
Published November 1987
Clin Chemistry 1987;33:1965

- **No simple test** to accurately access to determine intracellular magnesium

Interpretation of the Serum Magnesium Level
David R. Delange MD, FCCCP

Chest 1989;95:257-8

- Serum Magnesium **poorly correlates** with intracellular storage

Magnesium deficiency: Recognition and treatment in the emergency medicine setting
Richard A. Bartsch MD, B

Am J Emerg Med;1992;10:78-83

- Serum Magnesium levels **inaccurate**

The underestimated problem of using serum magnesium measurements to exclude magnesium deficiency in adults; a health warning is needed for "normal" results
Yasemin Ismail / Abbas A. Ismail / Adel A.A. Ismail
Clini Chem Lab Med 2010;48:323-7

- "Normal levels" **inaccurate**
- **Often misses** clinically significant hypomag

Clinical Utility of Magnesium Measurement
Gifford Lum

Lab Med;2004;35:106-111

- **No correlation** of serum to total body

Total and ionized magnesium testing in the surgical intensive care unit – Opportunities for improved laboratory and pharmacy utilization☆☆
Daniel Dante Yeh, MD^{1,2}, Nalin Chokengarmwong, MD³, Yuchiao Chang, PhD⁴, Liyang Yu, MS⁵, Colleen Arseneault, RN⁶, Joseph Rudolf, MD⁴, Elizabeth Lee-Lewandrowski, MPH, PhD⁶, Kent Lewandrowski, MD⁶
J Crit Care;2017;42:147-151

- **80% of "hypomagnesemic" patients had normal ionized magnesium levels**

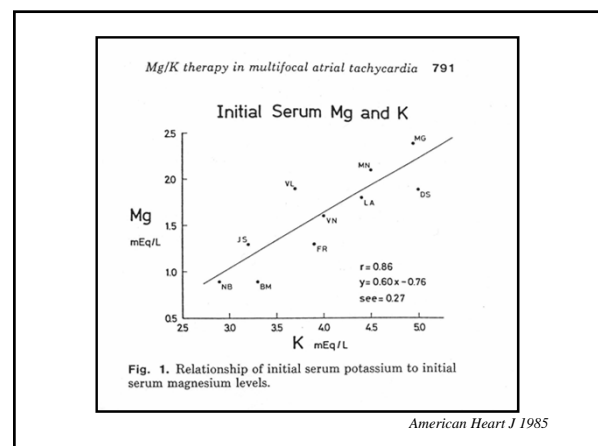
Hypomagnesemia in critically ill patients
Bent-Are Hansen and Øyvind Bruusgaard III

J. Intensive care;2018;6:21

- **No readily and easy methods** to assess magnesium states

HypoK = HypoMag

If you give K
Give Mag



Dose of Magnesium

- Loading Dose
 - 1-2 Grams over 0-60 minutes
... except eclampsia
- Maintenance Dose
 - 0.5 Gram per hour

Magnesium Dosing

0.5 Grams/hour

Don't send patients home on
Oral Potassium and
Magnesium Supplements

Problems with Magnesium Tablets

- Magnesium is a cathartic
- They are poorly absorbed
- Low magnesium content



HypoK = HypoMag

If you give K
Give Mag

Serum Magnesium Levels
Just Say NO!